Read what 6-A Alumni have to say about their 6-A Experience

"My 6A experience with Cadence Design Systems was both fulfilling and applicable to the real world of PCB, package and chip synthesis. I was mentored and taught by knowledgeable engineers who understood the connection between research and industry, and who cultivated an open environment where sharing ideas was paramount. I've felt like a real part of the team with the autonomy to pioneer my own visions and make critical decisions that would affect the end product. Now, I've become a full-time member of Cadence and have been trusted to both manage and mentor a younger class of MIT 6A students. Not only has the program allowed me to become a more effective engineer, but a more effective communicator and manager. I see 6A being an invaluable asset in building the teams that will become the future of Cadence and industry partners alike."

Zachary Zumbo, Lead Software Engineer
Cadence, Chelmsford, MA
6-A M.Eng. Graduate, February 2020

"Through the 6-A program I was able to gather nearly a year’s worth of full-time experience working directly on difficult, state of the art technical challenges alongside some of the most talented engineers in my field all while earning my Master’s. As a 6-A student at Linear Technology (now Analog Devices), I worked closely with my mentor to research the latest developments in the industry and identify significant problems remaining to be solved. When I came up with a potential solution of my own to one of these problems and pitched it to my mentor he was incredibly supportive. He, along with the rest of the engineering team I was on, helped me flesh out the idea and gave me the resources I needed to pursue it further eventually resulting in my first patent and silicon test chip. I can’t overstate the value of such an opportunity to put all of my education into practice and see something real come out of it. This experience enabled me to uniquely stand out in my later job search and is a major reason why companies continue to seek out alumni of the 6-A program at MIT.

Alex Sloboda, SAR Design Engineer
Analog Devices, Wilmington, MA
6-A M.Eng. Graduate, June 2018
Preface

This publication is the 53rd revised annual edition of the Student Handbook and the 104th year of the 6-A Internship Program founded in 1917. Our goal is to provide answers to applicants’ most frequently raised questions about 6-A and its participating companies. Additional information can be found at the 6-A web-site http://6a.mit.edu.

If you have any questions throughout the admission process, or the 6-A internship, please feel free to contact the 6-A Director, Professor Tomás Palacios (tpalacios@mit.edu), or Administrator, Kathy Sullivan (kaths@mit.edu).

Introduction

MIT's Department of Electrical Engineering and Computer Science (EECS) 6-A M.Eng. Thesis Program matches industry mentors with Course 6 undergraduate students interested in obtaining both a Bachelor (S.B.) and Masters of Engineering (M.Eng.) degree in five years.

This unique opportunity gives students who have demonstrated excellent academic preparation and motivation a chance to relate the scientific and engineering principles, which they learn in the classroom, to current engineering problems in industry, while obtaining a funded M.Eng. thesis for the M.Eng. year.

Although the main focus of the 6-A program is to help students develop an M.Eng. thesis while working in industry, the program has recently expanded to also help undergraduate students complete three- and six-month internships in industry without the need to pursue an M.Eng. thesis.
The 6-A Internship Admission Process

What is the 6-A Program?

The 6-A Program helps MIT EECS students to do impactful full-time internships in industry and government labs. Many of the students in the 6-A program are interested in pursuing their M.Eng. degree, and the program allows them to use the work done at the company during the M.Eng. year towards their M.Eng. thesis. More than 2,500 Course 6 students have gone through the program over the years, including Amar Bose (founder of Bose Corporation), Cecil Green (founder of Texas Instruments), Andrew Viterbi (founder of Qualcomm), Ray Stata (founder of Analog Devices), Thuan Pham (Uber CTO), and many others.

The 6-A program currently has three different tracks to provide maximum flexibility to students:

*Track #1* helps undergraduate students to do three-month full-time internships in industry and government labs.

*Track #2,* also known as 6-AX, is new and provides full-time 6-to-8-month internships to undergraduate students.

*Track #3* is ideal for students who are now seniors, as it focuses on the M.Eng. year. In this track, the student does a six-month internship at the 6-A company during which the student works on his or her M.Eng. Thesis.

Who Can Apply?

Course 6 sophomores, juniors or seniors in good standing may apply to the 6-A Internship Program. Senior students must be committed to the completion of the work assignments and of the M.Eng. degree with an industry-based thesis.
Orientation

The EECS Department is hosting a Student Orientation Meeting on September 21, 2021 in the Grier room at 5 pm as well as via Zoom. This meeting is a great opportunity for students to learn more about the 6-A Program and member companies, prior to the 6-A application deadline on September 30, 2021.

The Application Process

Anyone interested in joining 6-A must file a formal application, including a resume, grade report, optional letter of recommendation, and interview preference list by September 30 for the fall recruitment. The application should be submitted through the 6-A website (https://6a.mit.edu/eform/submit/6a-thesis-program-application). This will open in late September. See Appendix D for the 6-A Calendar of Events.

As part of the application process, the student is highly encouraged to submit a letter of recommendation. It is best to request the letter from faculty or others who know you and your work well (e.g., UROP, SuperUROP, project or summer job supervisor; preferably not from a peer). Keep in mind this letter, as well as your CV and other application material, will be used by the member companies when choosing which students they want to interview for the program. There are many resources to help you polish your application material. For example, many students have found the EECS Communications Lab (https://mitcommlab.mit.edu/eecs/) really useful. Make sure the application material is as strong as possible and highlights why the companies should hire you!

The Selection Process

The students should indicate which companies they are interested in in the "Interview Preference List” that they can find in the 6-A online application. Please select as many companies as you are potentially interested in talking to. You don't want to miss the possibility of an amazing internship just because you don't know about a company. The 6-A office will try its best to make sure you interview with the companies that you selected; however, in some cases, that may be not possible due to limited interview slots per company. In such cases, we will follow the guidelines that 6-A companies give us regarding their interview preferences.

Companies have until November 8, 2021 to submit a ranked list of students selected for consideration. After this date, the 6-A program then matches company lists with student lists to make placements maximizing student and company preferences. This is done in the same way that medical students are matched to medical schools, and it uses a very cool algorithm worth the 2012 Nobel Prize in Economic Sciences called the Roth-Peranson algorithm (https://www.aeaweb.org/articles/pdf/doi/10.1257/aer.89.4.748).
IMPORTANT - In many cases, students who spend 3 or 6 months at the company as undergraduate students (Track 1 or 2) can continue in the same company during their M.Eng. year (Track 3); however you should double-check this with the company in advance. In the same way, it is possible to do Track 1 or 2 with a company, and do Track 3 with a different company.

Frequently Asked Questions

The intent of the 6-A program is to guide students who wish to have industry experience with technology leaders through the M.Eng. thesis at MIT. Your company mentor and everyone at the MIT 6-A office want you to succeed, so if you have any questions or concerns at any time, please do not hesitate to ask us directly. For your convenience, however, answers to some frequently asked questions follow.

Q. Do I keep my regular faculty counselor/academic advisor?
A. Yes, when a student joins the 6-A Program, they keep the faculty counselor assigned to them when they joined Course 6. Your faculty counselor continues to handle registration matters and should be consulted for education advice.

Q. What are the responsibilities of a 6-A company?
A. It is the obligation of the 6-A partner company to assist you in achieving your educational and work experience goals through the following:

- Assign exciting projects using state-of-the-art technology.
- Assign a company mentor to supervise your 6-A work assignments.
- Pay competitive salaries, equivalent to or better than a research assistantship on campus.
- Communicate with your MIT Thesis Advisor.
- Assess and evaluate your progress.
- In the case of 6-A Core Partners (for the definition of 6-A Core Partners, please see below), provide a 6-A fellowship or research assistantship to fund the student’s tuition during the spring term of the M.Eng. year if the student was not able to secure a teaching assistantship that term.

Q. How can I fit all my classes into my class schedule?
A. Because a 6-A student in the M.Eng. Program has one less term on campus, some planning is necessary so that all requirements can be met on time. Some general notes appear below:

By registering for 6.921 in the summer of Track 1 and 2, 6.923 during the Spring or Fall of Track 2, and 6.922 during the first summer of Track 3, you obtain up to three unrestricted electives for 36 (UG) units. By registering for 6.951 during the graduate 6-A assignment in the fall term, you pick up an additional 12 (G) units of the 66 units required for M.Eng.
6-A students also register for a total of 24 thesis units (6.ThM) (during the graduate Summer and Fall assignments) to complete the M.Eng. thesis. If the thesis is not submitted by the beginning of the Spring Term, students register for another 12 thesis units.

Plan your M.Eng. program so that during your last term on campus you need a maximum of two classroom subjects to meet your M.Eng. degree requirements. Then you can be a teaching assistant, if selected, during your last term, both for its educational value and to obtain full teaching assistantship funding including full term tuition, a stipend, and paid medical insurance. If you are a TA or RA, a maximum of 27 classroom subject units (two classes) are allowed.

Every M.Eng. program must include four subjects (42 units) of Approved Advanced Graduate Subjects (AAGS) as well as two M.Eng. Restricted Electives. Do not leave this for the last term as the workload will be too large, especially if you are also trying to finish your thesis. Take AAGS classes and/or M.Eng. Restricted Electives during your senior year. You can use 6.921, 6.922 and 6.951 credit towards your undergraduate units, and then use the AAGS classes for the M.Eng. requirements.

**Q. How am I graded?**

**A.** Students are required to submit a mid-term and final report for each term on each work assignment. We will send you an email when those reports are due. You will receive an “Incomplete” if you do not return complete reports on time. Additionally, we require company mentors to complete an “Employer’s Evaluation Report” at the conclusion of each assignment. All of these reports enter into the granting of academic credit for 6-A work assignments. If you meet all the reporting requirements and have performed satisfactory work at your 6-A company, you will receive a “P” grade in your 6-A registration (6.921, 6.922, 6.951, or 6.952).

**Q. Do I have to do the six-month M.Eng. internship in the summer/fall?**

**A.** 6-A students admitted to the M.Eng. Program may, by mutual arrangement with their company, select either a Spring/Summer or Summer/Fall schedule for their six-month internship. Some students prefer to remain at MIT during the spring in order to take graduate subjects, which will aid them with the work they will be doing on their graduate assignments. Others find that due to the sequencing of related subjects on a fall-spring basis, they need to select the Spring/Summer schedule in order to remain at MIT during a Fall Term of graduate study.

The purpose behind an uninterrupted six-month internship is to provide the student sufficient time to do an in-depth piece of engineering work at the company which will be acceptable to the Department’s Faculty as the basis for the M.Eng. Thesis. For special circumstances, with the agreement of their 6-A Company, 6-A students can request from the 6-A Program Office a different graduate internship schedule.
Q. **As an Intern, will I be paid?**

A. Yes, you will receive a competitive salary during your work assignments. However, we believe salary should not be the main determinant in the selection of a particular company. Also, keep in mind that depending on whether the company is a Core member or an Affiliate member of the program, your MIT tuition may or may not be covered by the company.

6-A student salaries are established by the individual companies and are not necessarily uniform amongst all 6-A companies. Salary information is available from the individual company only, not from the 6-A office.

Q. **Will my salary ever increase?**

A. Yes, you will generally receive an increase in salary for each successive internship. By the time you complete your senior year, you will have completed the academic work for your S.B. degree, and a company normally increases salaries during the 6-A M.Eng. year.

Q. **Will I receive company benefits, like insurance?**

A. 6-A students are generally considered temporary employees and are not eligible for company benefits such as medical insurance. However, some 6-A companies offer a housing subsidy, partial support for local travel such as shuttle bus, and will usually pay roundtrip transportation from MIT to the company. Please discuss this directly with the 6-A company.

Q. **Am I guaranteed admission into the M.Eng. program?**

A. No. While it is the intent of the 6-A Program to guide you through the M.Eng. degree at MIT, participation in 6-A is contingent on admission to M.Eng. Read more about M.Eng. admission and degree requirements here: https://www.eecs.mit.edu/academics-admissions/undergraduate-programs/6-p-meng-program/requirements-admissions

M.Eng. applications are open from drop date through the end of term each fall and spring. Decisions are released in January and June, respectively. You may apply for M.Eng. as soon as you meet the requirements (generally from sophomore through senior year). You may apply more than once if you are not admitted on the first attempt provided there is another application cycle before you graduate with your SB.

Q. **What is a good project for my M.Eng. Thesis?**

A. The M.Eng. Thesis should be the result of a reasonably comprehensive six-month effort where the student shows considerable initiative, creative thought, and a good deal of individual responsibility. The thesis may be a design project, an analytical paper, or experimental work of a technical nature.

Examples of previous 6-A thesis projects can be found here:

http://6a.mit.edu/faqs/sample-theses
And more information on the logistics can be found here:


Q. Who supervises my Thesis?

A. A 6-A student, although doing an M.Eng. Thesis while at the company, requires an MIT faculty member as an M.Eng. Thesis Advisor just like any other EECS student. The 6-A Director may also assume this added responsibility for some of the students.

Because the Institute values the time spent by company thesis supervisors in the work which eventually becomes a student’s thesis, the company thesis supervisor is also asked to sign the thesis title page as an acknowledgement of their contribution to this work.

Q. What is the M.Eng. Thesis Proposal?


Students involved in track 3 of the 6-A program (i.e. doing only a six-month internship at the company) should file their Thesis Proposal at the end of their first graduate term while working at the company.

The EECS Thesis Guide is a valuable tool that will take you step by step through your M.Eng. year:


Q. I am ready to submit my M.Eng. Thesis, is there anything else I should do?

A. At the time of submission, the completed Thesis must be accompanied by a “Thesis Release Letter” from the 6-A company (http://www.eecs.mit.edu/node/5434) stating that the thesis is within the scope of the thesis proposal as previously approved; does not contain any material that is objectionable to the company; recognizes that the actual thesis document will be the permanent property of MIT; and will be placed in the MIT Library. The student or MIT owns the copyright to the thesis, but the 6-A company has permission to reproduce and distribute copies of 6-A Theses done at the 6-A company in whole or in part, and to grant others the right to do so. The thesis is signed by both the MIT and 6-A company thesis advisors.

**Due to time constraints of both your MIT and 6-A company thesis advisors, it is important that you give the 6-A Company adequate time (i.e. at least 45 days before the M.Eng. submission deadline, although you should check with the**
COMPANY AT THE BEGINNING OF THE WORK ASSIGNMENT TO SEE IF THEY WOULD NEED MORE TIME) TO REVIEW AND COMMENT ON YOUR THESIS BEFORE THEY SIGN YOUR THESIS. YOU WON’T BE ABLE TO GRADUATE WITHOUT THEIR APPROVAL!

In many circumstances, thesis work may offer potentially attractive business opportunities to the graduate student and/or the 6-A company. A brief thesis hold allows the student to delay public access to research findings in order to pursue patent applications or explore other business opportunities associated with the work. A request for a thesis hold must be made jointly by the student and advisor and directly to the Office of the Vice Chancellor via the request form:

The Vice Chancellor acts with power in approving thesis holds and requesting that the MIT Archives hold a thesis from public access for up to three months without delaying the student’s graduation.

Q. 6-A Core Partners vs 6-A Affiliates. What is the difference?

A. A company can be a member of the 6-A program either as a 6-A Core Partner or as a 6-A Affiliate. From a student perspective, there are two important differences between Core Partners and Affiliates. First, students doing their internship at a Core Partner will typically receive a 6-A Fellowship through MIT during the fall term of their six-month internship. This Fellowship pays the student’s salary, MIT tuition, and health insurance during the fall term (see the questions below for more information on what a 6-A Fellowship is). On the other hand, Affiliate companies do not offer a 6-A Fellowship but they pay the students directly during the fall term. In this case, students interning in Affiliate Companies are responsible for paying the MIT tuition and health insurance expenses directly. To make sure students interning at a 6-A Affiliate company receive the same level of benefits as the ones at a Core Partner company, the 6-A office asks 6-A Affiliate companies to set a minimum salary for their 6-A interns of $1,650 in 2021, which is typically higher than what the students who are doing internships in 6-A core companies receive, in order for them to pay these additional expenses. Please note that some non-profit organizations and government labs are not able to meet these salary guidelines. When in doubt, always ask the company in advance!

The second important difference between interning at a 6-A Core Partner and a 6-A Affiliate is that 6-A Core Partners will partially cover (through the remaining monies in their Fellowship account, approximately $15,640 for the 2021-2022 academic year) the tuition of the student during the spring term of his or her M.Eng. degree, if the student has not been able to secure a Teaching Assistantship that term. Students interning at 6-A Affiliate companies do not have this guaranteed support due to the reduced membership fees paid by 6-A Affiliate companies.

Q. How do I know if a company is a Core Partner or an Affiliate to 6-A?

A. Check the website for the most up-to-date information (http://6a.mit.edu.)
Q. **What if the company I want to do my M.Eng. with is not part of the program yet?**

A. Please talk to us! We are adding new companies to the program every month and we may be able to bring them in as a 6-A Affiliate, as long as they are committed to providing an exceptional environment for the student to work on an exciting thesis project. It is typically easier to overcome the administrative hurdles of bringing a new company into the program if the student has already done an internship at the company, or he/she already knows someone there who would be interested in being the company mentor.

Q. **What is the 6-A Fellowship?**

A. Most 6-A Core Partners offer a 6-A Fellowship to 6-A graduate students in lieu of salary after the first three months of their six-month internship. This 6-A Fellowship gives 6-A graduate students essentially the same benefits as full-time on-campus research assistants receive: one term full tuition and one term medical insurance and stipend while interning at the company. Lincoln Laboratory and Draper offer a Research Assistantship instead of 6-A Fellowship, but the benefits are similar.

For most 6-A graduate students, the 6-A Fellowship has more value than receiving salary during an academic term. Please note that, typically, you receive a salary during the summer term, not a Fellowship (except for Draper which offers a summer Research Assistantship).

If your 6-A company participates in the 6-A Fellowship Program (i.e. it is a 6-A Core Partner) and you have no other Fellowship or other financial support (e.g. your 6-A company is not planning to pay you directly after the summer term), you must send the 6-A office the following signed and dated statement by the drop-date of the academic term before the Fellowship is desired:

```
“I have no other fellowship support during the (year) (Summer, Fall or Spring) term and would like to receive the 6-A Fellowship in lieu of salary.”
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__________________________  ________________
Signature                  Date

Q. **Do I have to pay tuition while I’m working at the 6-A company?**

A. Yes and no. Additional tuition is not charged for the required summer session registrations for undergraduate students, but reduced tuition is due for non-Draper and non-Lincoln Laboratory 6-A graduate students during summer and regular academic year term work assignments. Non-Draper and non-Lincoln Laboratory 6-A Core Partners generally offer financial assistance to 6-A graduate students through the 6-A Fellowship Program, while Draper and Lincoln Laboratories generally offer regular MIT Research Assistantships.

6-A Affiliate companies pay the student directly (i.e. they are not involved in the 6-A Fellowship program) and therefore the student is
responsible for paying his/her tuition and health insurance (if applicable) directly to MIT. The 6-A office asks 6-A Affiliate companies to set a minimum salary for their 6-A interns of $1,650 in 2021, which is higher than what the students who are in the 6-A Fellowship program receive, in order for them to pay these additional expenses.

Keep in mind that 6-A undergraduate students are still responsible for the regular two semester academic year MIT tuition.

If for some reason the 6-A student does not complete the M.Eng. thesis on time, tuition must be paid for later terms while the thesis is still being completed. If MIT enrollment has to be extended beyond the normal period, additional terms of registration will be billed at the prevailing rates for regular term and/or Summer Session tuition.
Appendix A.
Tuition in 6-A M.Eng. Program

TO: 6-A Graduate Students working in companies that are Core Partners of the 6-A Program

FROM: Professor Tomás Palacios, 6-A Director

DATE: August 1, 2021

SUBJECT: M.Eng. Thesis Assignments, Tuition, Registration, and Graduate Financial Support

NON-LINCOLN LAB AND NON-DRAPER LAB 6-A GRADUATE STUDENTS

Tuition and Registration

There are special tuition rates for graduate students on internships if no courses are taken while on 6-A work assignment. Graduate students who are on off-campus internships are charged tuition equal to 35% of regular tuition. This charge applies during the summer as well as during the fall and spring terms, when on 6-A assignment. Thus, during the 2021 summer session, the full tuition will be $2,400. For the 2021-2022 fall and spring terms, the full tuition will be $27,755 per term and for the term you will be away on 6-A assignment, you will be billed $9,715. During a graduate term on campus you will be billed the full tuition of $27,755. Tuition charges for summer, fall, and spring terms of your M.Eng. year will be paid by some combination of the 6-A Fellowship Program and by an EECS Teaching Assistantship during an on-campus term, generally the Spring Term of the M.Eng. year, provided that funds are available, you follow the required procedures described in this memorandum, and you are not receiving any other financial support such as a research assistantship or other scholarship.

Graduate 6-A students while on 6-A work assignments who register for MIT courses in addition to their internship registration (6.951, 6.952, and 6.ThM) typically are also charged the special student per unit rate ($860/unit during the 2021-2022 academic year) up to the maximum term Fall or Spring tuition charge of $27,755. That is, 35% tuition plus the $860/unit charge cannot exceed the full tuition ($27,755) for the term. A 12-unit course would then cost $10,320 and any course work registration of 21 units or more will result in a full tuition charge of $27,755 for which $9,715 is paid by the 6-A Fellowship and summer tuition of $2,400 and the remainder of $15,640 due to course units is paid by the 6-A student. The 6-A Fellowship will not pay for any subject units so 6-A students must plan their graduate program carefully so that courses are only taken when on campus when full tuition is already charged so that there are no additional charges for courses.

As a graduate M.Eng. thesis student, you should generally register 6.951 for your first M.Eng. assignment and 6.952 for your second. You also need to register for a total of 24 units of 6.ThM for your M.Eng. thesis work before you graduate which is usually best distributed as 12 units/term over your fall and spring terms of your graduate M.Eng. year.

6-A Fellowship Program (Core Companies)

The 6-A Fellowship Program for non-Lincoln or non-Draper Lab 6-A graduate students provides both a scholarship computed to cover full tuition and medical insurance for one term, plus a stipend for one term that is identical to those available to on-campus research/teaching assistantships and comparable to fellowship recipients. In lieu of salaries during the graduate work term at the 6-A company, typically fall term, companies who offer the 6-A Fellowship will provide funds to MIT in the amount sufficient to match research/teaching assistantships available to EECS graduate students at MIT.
For 2021-2022 the estimated cost of a 6-A Fellowship will be:

**TABLE I**

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<th>Fall Term</th>
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<td>1 term full tuition</td>
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<td>½ annual medical insurance (est.)</td>
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<td>1 term stipend</td>
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This 6-A Fellowship will be awarded to 6-A graduate students when on 6-A work assignment. The 6-A Fellowship is awarded for the period of one academic term which for the fall 2021 term corresponds to the dates September 1, 2021 – January 15, 2022. Students may choose to decline the 6-A Fellowship (e.g. if they already receive tuition support from other sources) and continue to receive competitive salaries instead while on work assignment at their 6-A Company.

To receive additional financial support from EECS during an M.Eng. term, typically the spring term of the M.Eng. year, while you are not on 6-A work assignment and are taking classes and/or doing M.Eng. thesis work on-campus, you must apply for an EECS Teaching Assistantship (TA) in at least 4 classes, if you only need two courses or less to graduate, and must accept it if offered. Note that a TA can at most take two courses, so it is important for you to plan your courses so that no more than two courses need to be taken to meet graduation requirements when you apply for a TA. If you are in your last term and need more than two courses to graduate, the maximum amount of 6-A support will be any remaining funds in your 6-A Fellowship, typically around $15,640. 6-A M.Eng. students are encouraged to do a TA because of the great value of such teaching experience to their educational and professional development. In addition, a TA provides full tuition and medical insurance plus a $15,277.50 taxable stipend, in total worth about $40,000.00 in 2021-22 as given in Table I above. To maximize your chances of getting a TA, it is very important to contact the faculty members who will be teaching the classes you would like to TA for by the end of September 2021. These professors will be the ones selecting the TAs for their classes, and it is always useful if you have introduced yourself to them in advance.

If you need more than two courses to complete your M.Eng. program, do not apply for a TA if you want to finish your M.Eng. program on time. If you decline an offered TA, the most you can receive is a partial tuition payment from 6-A of any remaining monies in your 6-A Fellowship funded by your 6-A company, typically about $15,050. If you apply for a TA in at least 4 classes and have two courses or less required to complete your M.Eng. program but do not receive a TA appointment, please contact the 6-A office by January 1st, as we may be able to help. If you need three or more courses to graduate and still want to be a TA, you must complete the remaining courses in future terms. Remaining M.Eng. requirements can be taken in future terms but with no 6-A financial support, although RA and TA support is allowed.

**LINCOLN LABORATORY 6-A GRADUATE STUDENTS**

Lincoln Laboratory 6-A Graduate Students should generally not register during a summer assignment and should register for 6.991 as a research assistant (RA) and 12 thesis units during fall and spring terms. This way you will receive a competitive salary during the summer and a RA during fall and spring terms.

**DRAPER 6-A GRADUATE STUDENTS**

Draper Laboratory 6-A Graduate Students should generally register for 6.991 as a research assistant during summer, fall, and spring terms. This way you will receive an RA as a Draper Fellow for all three graduate terms. You should generally register for 12 thesis units during fall and spring terms. This way you will receive a competitive salary during the summer and a RA during fall and spring terms.

If you have any further questions about any aspect of the 6-A Program, please contact the 6-A Director, Professor Tomás Palacios, at tpalacios@mit.edu.
Appendix B.
Calendar of Events 2021
6-A Fall Recruitment

### September 2021

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**September 21, 2021**
6-A Student Orientation Meeting
5PM EST in Grier (34-401) and via Zoom

**September 30, 2021**
6-A Online Applications Due 4PM

### October 2021

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**October 26 and 27, 2021**
6-A Company Interviews
Format is TBD based on Covid-19 guidelines from MIT
November 8, 2021
Company Student Selection Lists Due

November 15, 2021
Company Student Selection Lists Available

December 1, 2021
Students Ranking Due

December 3, 2021
Matching Lists Available

December 10, 2021
Students Sign 6-A Agreement

December 15, 2021
Last Day for Current 6-A Undergraduate students to Withdraw From 6-A Program
May 27, 2022
MIT Commencement
CONGRATULATIONS
6-A GRADUATES!

June 7-August 27, 2022
Summer Work Period

Sept. 8-Dec. 17, 2022
Fall Work Period

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Appendix C.
Interviewing Tips

Advance knowledge about a company’s business impresses an interviewer and avoids need to repeat information that is already available in the brochure. It is important that as much of the interview period as possible be devoted to a discussion of your qualifications and professional interests. Keep in mind that you only have thirty minutes to convince the interviewer that you should be selected. You can learn more about the 6-A program and the companies by viewing the 6-A website at http://6a.mit.edu/

The 6-A companies’ own websites are linked from the Participating Companies page:

http://6a.mit.edu/industrial-partners

For more tips on interviewing, visit the MIT Career Advising & Professional Development website at:

https://capd.mit.edu/

The EECS Communications Lab is also a great resource that you should explore:

http://mitcommlab.mit.edu/eecs/
Appendix D.
The EECS Communications Lab

The EECS Communication Lab
Writing, Speaking, and Visual Design Support
For researchers – by researchers.

What can you get help with?
- Thesis proposals
- Theses
- Grad school applications
- Fellowship applications
- Resumés & CVs
- Coursework
- Posters
- Journal and conference papers
- Conference presentations
- Abstracts
- Figures
- Elevator pitches
- Any other technical communication task

Why use the Communication Lab?
It’s here to help you.

The Comm Lab provides free one-on-one peer coaching for whatever technical communication task you might be working on. Whether you are preparing a fellowship application, working on a paper for a class, giving a talk at a group meeting, or designing a poster, the Comm Lab is here to help.

We also offer just-in-time workshops and events about particular communication tasks, so you can learn skills exactly when you need them.

Check out our online resources about technical communication anytime.

Our coaches have expertise in...
- ML & AI
- Energy
- Systems
- Devices
- Robotics
- And more!

The secret to our success:
Our staff are EECS grad students and postdocs with communication training, making the Comm Lab uniquely able to provide technical communication coaching.

Researchers who don’t write well end up working for those who do.

Make an appointment at mitcommlab.mit.edu/eecs/

Questions or ideas?
Contact eecscommlab@mit.edu
Appendix E.
Special Advantages for International Students

International students attending MIT are eligible to apply to the 6-A Internship Program. However, they should be aware of special conditions imposed by the U.S. Citizenship and Immigration Services (USCIS) and by the employment policies of the companies participating in the Program.

Because 6-A is a regular educational program, work assignments under Curricular Practical Training (https://iso.mit.edu/f-1-curricular-practical-training/) do not count against Optional Practical Training time.

Some of these conditions are described below; specific information can be obtained by contacting the MIT International Students Office (ISO), or by visiting the ISO web site at http://iso.mit.edu/

6-A and Curricular Practical Training

Because the 6-A Program gives academic credit for work performed at the participating companies, International Students with valid VISA status may be eligible for the 6-A Internship Program. Once selected into the 6-A Program, authorization to work for a participating 6-A company is not automatic – students must apply for it through the International Student Advisor. International Students should consult with one of the International Student Advisors in the International Students Office as soon as you are accepted into the 6-A Program.

6-A Company Policies

The companies participating in the 6-A Program determine their own hiring policies regarding International Students. Many, but not all, of these participating companies have restrictions (security clearance, green cards, etc.) which limit the hiring of International Students. Consequently, competition amongst those fewer companies that do have openings for such students becomes exceptionally keen.

Admission to 6-A

Upon an International Student’s acceptance by a company to the 6-A Program, the EECS Department will notify MIT’s International Students Office (ISO). It becomes the responsibility of the student to make an appointment with the ISO and to apply for Curricular Practical Training by filling out the required forms. This process must be repeated for each subsequent employment period (i.e., 6-A Work Assignment). Students who start working without authorization lose their legal status in the United States.

If you have any questions, the 6-A Office and Aurora Brule (abrule@mit.edu) in the International Students Office will gladly assist you in any way they can.
Appendix F.
Nondiscrimination Policy

The Massachusetts Institute of Technology is committed to the principle of equal opportunity in education and employment. The Institute prohibits discrimination against individuals on the basis of race, color, sex, sexual orientation, gender identity, pregnancy, religion, disability, age, genetic information, veteran status, or national or ethnic origin in the administration of its educational policies, admissions policies, employment policies, scholarship and loan programs, and other Institute administered programs and activities; the Institute may, however, favor US citizens or residents in admissions and financial aid.*

The Vice President for Human Resources is designated as the Institute's Equal Opportunity Officer. Inquiries concerning the Institute's policies, compliance with applicable laws, statutes, and regulations, and complaints may be directed to Ramona Allen, Vice President for Human Resources, Building NE49-5000, 617-324-5675. In addition, inquiries about Title IX (which prohibits discrimination on the basis of sex) may be directed to the Institute's Title IX Coordinator, Sarah Rankin, Room W31-223, 617-324-7526, titleIX@mit.edu. Information about the grievance procedures and process for discrimination and discriminatory harassment, including how to report or file a complaint of sex discrimination, how to report or file a formal complaint of sexual harassment, and how MIT will respond is available at idhr.mit.edu. Inquiries about the laws and about compliance may also be directed to the United States Department of Education, Office for Civil Rights, Region I, 5 Post Office Square, 8th Floor, Boston, MA 02109-3921, 617-289-0111, OCR.Boston@ed.gov.

*The ROTC programs at MIT are operated under Department of Defense (DoD) policies and regulations, and do not comply fully with MIT’s policy of nondiscrimination with regard to gender identity. MIT continues to advocate for a change in DoD policies and regulations concerning gender identity, and is committed to providing alternative financial assistance under a needs-based assessment to any MIT student who loses ROTC financial aid because of these DoD policies and regulations.

This statement was last updated on February 11, 2021.
Appendix G.
6-A Core Partner Companies

For the most up-to-date information on the 6-A Core Partner Companies, and for the list of Affiliate Companies, check the 6-A website:

http://6a.mit.edu
Join Analog Devices’ Design Gurus To Solve the Toughest Problems

Internships at Analog Devices For MIT VI-A Students

Analog Devices, Inc. (ADI) is a world-leading semiconductor company specializing in high performance analog, mixed-signal, and digital signal processing integrated circuits (ICs). ADI’s products play a fundamental role in converting real-world phenomena such as temperature, motion, pressure, light, and sound into electrical signals to be used in a wide array of applications. Examples of current applications include high performance audio and video, wireless and wireline communications, industrial controls and factory automation, automotive entertainment and safety systems, and medical and diagnostic instrumentation.

In 2017, Linear Technology became part of Analog Devices. With the power of the combined product portfolios, customer bases, world-class engineering, manufacturing, and sales and support teams, Analog Devices is now the premier, global, high performance industry leader across all major analog segments. Analog Devices’ broad and cutting-edge power product portfolio is now marketed as Power by Linear™. The combination of the two analog-leading companies will produce unprecedented possibilities for innovation and growth. The combined company completed fiscal year 2020 with over $6 billion in sales and a worldwide workforce of approximately 16,500 employees. Our products are now ubiquitous in the most demanding electronic circuits. Prominent examples are smartphones, drones, autonomous vehicles, and surgical robots. Join the team that’s ahead of what possible.

“Through the VI-A program, I found an academic home away from MIT at Analog Devices. ADI gave me the opportunity to work on a cutting-edge topic, taking circuit design skills I gained in 6.012, 6.301, and 6.775 and applying them toward a larger project. It is a great work environment with many MIT alumni and very supportive mentors.”

–Alec Poitzsch, VI-A Alumnus (2014)

“VI-A projects at Analog Devices give students a true experience as an analog IC designer. My project was fabricated in silicon, so I not only got to work with the design in simulation, but also in the lab. I had the opportunity to solve real design challenges, both at the transistor and application level, which led to quality designs which were directly incorporated into my first products as a full-time employee. The resources and responsibility I received as an intern gave me a unique experience I could not have gotten in the classroom, which was integral to learning that a career as an analog IC designer really was for me.”

Why Choose Analog Devices?

The internship experience enhances students’ ability to identify and grasp important concepts integral to analog and mixed-signal integrated circuit design when students return to classes at MIT. Because most of our products are designed by individual engineers, you won’t get lost as a small part of a huge project team. Over the last five years, Analog Devices hired more new college graduates from MIT than from any other school. Many started their careers with Analog Devices as an intern.

VI-A Assignments

Student assignments are determined by matching the student’s interests with our program needs. Positions are available in ADI’s Analog/Mixed-Signal Groups as well as in the Power by Linear Engineering Group. Assignments may be in IC design engineering (transistor and chip-level design, modeling, and prototyping), applications engineering (system design and evaluation of application circuits), and software engineering (software design to simulate and model circuits, microcontroller programming, and more).

Examples of VI-A Projects

- Translation of an RF modulator design from an all-bipolar process to BiCMOS.
- Design of software to automate evaluation of voltage controlled oscillators (VCOs).
- Instrumentation and evaluation of an on-chip buffer for a new analog-to-digital converter (ADC).
- A nanopower IC for the longest battery life in medical devices.
- An ultralow quiescent current buck switching regulator IC for the next generation of high efficiency cars and trucks.
- A new architecture for USB powered battery chargers for tablets and smart phones.
- A new architecture for an RGB LED driver with independent PWM control and fast settling time for 3D cinema and TV applications.
- Design of data-dependent jitter elimination circuit for high speed serial links.
- Integration of a switching power supply into a deep submicron CMOS process.
- Design of a high voltage, high output current drive operational amplifier.

Related Coursework

Classes that give a good idea of the typical work done at ADI are listed below. If you loved any of these classes, then you would make a good fit at Analog Devices!

- Undergraduate courses: 6.002, 6.003, 6.011, 6.012, 6.101, 6.102, 6.111
- Advanced undergraduate/graduate classes: 6.301, 6.302, 6.331, 6.374, 6.376, 6.775, 6.776

Assignment Locations

We have local design centers in:

- Wilmington, MA
- North Chelmsford, MA
- Lyric Lab in Cambridge, MA
- Silicon Valley Headquarters in Santa Clara, CA

Other opportunities may exist in our regional offices:

- Greensboro, NC
- Colorado Springs, CO
- Phoenix, AZ
- Limerick, Ireland
- Shanghai, China

Benefits

Analog Devices participates in the VI-A Fellowship Program, which provides tuition, medical insurance, and a stipend during the final term after the senior year while students are finishing their master’s thesis research at ADI. ADI will provide relocation assistance, as well as housing and/or transportation stipends to interns who need this additional benefit.

Intern Activities

VI-A interns are part of ADI’s larger summer internship program, and enjoy summer intern activities such as talk and learn sessions, workshops, a wafer fab tour, intern presentations, and an end of summer outing. Talk and learn sessions cover technical talks held by members of the senior technical staff to introduce students to products and disciplines outside their assignments. Workshops are meant to provide career development coaching for interns’ career growth and understanding.

“Doing 6-A with Analog Devices has provided me with a rich experience in circuit design. At Analog Devices, there are plenty of people who you can learn from, and they are always willing to help. Coming in with a rich background from MIT, my 6-A project enhanced it with applications of some of the concepts I learned in school. You will probably have a good project at Analog Devices where you will learn plenty of new things.”

- George Kakuru, VI-A Alumnus (2016)

Foreign Students

International students are welcome with a valid F-1 or J-1 visa. A security clearance is not required. For some positions, ADI may have to obtain export licensing approval from the U.S. Department of Commerce — Bureau of Industry and Security and/or the U.S. Department of State — Directorate of Defense Trade Controls. As such, applicants may have to go through an export review process.

Drug-Free Workplace Requirements

Analog Devices does not have a policy on drug testing or screening.

Equal Opportunity Employer

Analog Devices is an equal employment opportunity/affirmative action employer M/F/D/V.

More Information

To learn more about Analog Devices, please visit: analog.com/college

For more information about VI-A at ADI, please contact: Natalia Hing natalia.hing@analog.com

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Career Opportunities at Cadence for MIT 6-A Students

Company Overview
It’s an exciting time at Cadence, as we further our Intelligent System Design strategy with innovative products that enable tomorrow’s world! Cadence is the only company that provides the expertise and tools, IP, and hardware required for the entire electronics design chain, from chip design to chip packaging to boards and to systems, which allows our customers to create revolutionary products and experiences.

Thanks to the outstanding caliber of the Cadence® team and the empowering culture that we have cultivated for over 30 years, Cadence continues to be recognized by Fortune Magazine as one of the 100 Best Companies to Work For. We have differentiated ourselves through our shared passion for solving the world’s toughest technical challenges, our dedication to pushing the limits of what’s possible, and our drive to do meaningful work.

6-A interns will be a part of our global community of interns and recent graduates called CHIPs (College Hires and Internship Programs). CHIPs provides the opportunity to meet interns from different business groups, participate in formal and informal networking events, and attend learning and development seminars.

6-A Assignment Locations
Cadence is headquartered in San Jose, CA. The company has offices in Chelmsford, MA; Austin, TX; Columbia, MD; Endicott, NY; and Pittsburgh, PA; as well as other centers around the globe.

Thesis Topics
We have several areas of interest that can be initiated from a thesis and then transformed into an actual product, most of these will also result in patent work by the student.

- Modeling of circuits that cross substrate boundaries, and developing fast extraction and simulation models for cross-fabric (PCB/package/IC) circuitry
- Novel optimization techniques for solving otherwise NP-complete problems
- All aspects of photonics design, including layout, modeling, and simulation
- Using cloud computing to build/test/deliver software modules
Foreign Student Employment
International students with a valid F-1 or J-1 are welcome.

Security Clearance Requirements
The majority of our positions don’t require a security clearance. However, depending on the position, a function of the job with Cadence may require access to data that is restricted to U.S. export regulations. If the position offered does require the individual to be able to access export-restricted data, then the offer of employment is also contingent on the individual’s ability to access the data in accordance with the regulations, which is based on their residency status. If they are not a “U.S. Person” (citizen, green card holder, or protected refugee), an export license may be required before access to the data is granted.

Drug-Free Workplace Requirements
Cadence is a drug-free environment and does not have a policy on drug testing or screening.

Financial Assistance
Cadence participates in the 6-A Fellowship Program, which provides tuition, medical insurance, and a stipend for one term.

Equal Employment Opportunity Policy
Cadence is firmly committed to Equal Employment Opportunity.

More Information
To learn more about Cadence, please visit www.cadence.com/go/university-careers

Zachary Zumbo, former 6-A intern, now Lead Software Engineer at Cadence, Recipient of the 2019 Reintjes Excellence Award
MIT Lincoln Laboratory

Create Prototype Deliver
As a research and development center of MIT, Lincoln Laboratory offers 6-A students an exceptional environment for conducting research. The eight technical divisions of MIT Lincoln Laboratory perform basic research, develop devices and components, and design, construct, and test complex systems for the Department of Defense (DoD), Department of Homeland Security, NASA, FAA, and NOAA. MIT Lincoln Laboratory is located on Hanscom Air Force Base in Lexington, Massachusetts. While MIT 6-A students are pursuing their MEng degrees, they will be supported as Research Assistants at Lincoln Laboratory during the fall and spring semesters. A shuttle bus is provided so that students may commute to Lincoln Laboratory from campus.

**Major Capabilities and Research Areas**

- Advanced imaging
- Advanced microelectronics
- Advanced RF technology
- Biological/chemical agent detection
- Communication systems
- Cyber security
- Environmental monitoring
- High-performance adaptive signal processing
- Homeland protection
- Integrated sensing and decision support
- Laser communications
- Net-centric architectures
- Open systems architectures
- Optics and lasers
- Rapid prototyping
- Space situational awareness
- Speech/language processing
- Systems analysis
- Threat assessment
- Weather sensing

**Summer Housing**: Subsidized housing on Northeastern University’s campus up to 10 weeks for students whose permanent address is greater than 50 miles outside the Boston area.

MIT Lincoln Laboratory is an Equal Employment Opportunity (EEO) employer. All qualified applicants will receive consideration for employment and will not be discriminated against on the basis of race, color, religion, sex, sexual orientation, gender identity, national origin, age, veteran status, disability status, or genetic information. Since a security clearance is required by the DoD, only students who are U.S. citizens can be considered. Interested students should contact Gary Hackett, Office of Human Resources, 781-981-7056, or hackett@ll.mit.edu.

For more about our summer programs, please visit [www.ll.mit.edu/careers/student-opportunities](http://www.ll.mit.edu/careers/student-opportunities)
Past Thesis Projects of Lincoln Laboratory 6-A Students

- Wideband active antenna cancellation
- Choosing a dielectric for graphene transistors
- Automated identification for weather avoiding air traffic flows
- Designing electronics for the missile alternative range testing instrument
- Tracking system for photon-counting laser radar
- Markov chain Monte Carlo and its applications of phylogenetic tree construction
- Tracking algorithms under boundary layer effects for free-space optical communications
- Radar tracking system development
- Epidemic modeling techniques for smallpox
- Application of three-dimensional circuit integration to global clock distribution
- Dynamic Bayesian networks for the classification of spinning discs
- Low-power image-based triggering for extended operation surveillance
- Multiple region finite-difference time-domain modeling of duct cavities
- Experimental study of the frequency correlation of space-time entangled photons
- Laser speckle modeling for three-dimensional metrology and ladar
- Finite-difference techniques for body of revolution radar cross section
- A pixel-level analog-to-digital converter for the imaging array of an advanced interferometer
- Spatial filter performance on point-target detection in various clutter conditions using visible images

How to Apply

Gary Hackett
Office of Human Resources
MIT Lincoln Laboratory
781-981-7056

Follow us on

www,ll.mit.edu

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© Massachusetts Institute of Technology
WE ARE THE DATA AUTHORITY.

We are the Fortune 500 Company that manages and protects the world’s data. We enable DreamWorks to use data to create the most imaginative stories. We enable Ducati to use data to build best in class sports vehicles. We enable enterprises to store and manage their data wherever they need it. We are the partners Google, Azure, and AWS clouds chose to enable data visionaries around the globe.

We are Big Data.
**YOU ARE A DATA VISIONARY.**

**OUR VI-A INTERNS GET TO WORK ON STUFF LIKE THIS AND MORE:**

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<th>ALGORITHMS FOR INFRASTRUCTURE TOPOLOGY</th>
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<td>We protect and manage the world’s data. That means... we are always pushing the innovation envelope. We think about both symbolic and statistical AI techniques (ranging from rule-based systems to deep learning) and how we can apply those techniques to enable our systems to heal themselves. What does that mean? Well, we have thousands of devices all over the world and those devices collect data about themselves. We have experts who understand the performance of those devices and diagnose problems on those systems, and we would like to automate our knowledge and build data driven models to enable these experts.</td>
<td>Small to medium size physical enterprise infrastructures can be modeled and scaled in SQL with minimum compute resource requirements. However, this model inhibits scalability problems when physical enterprise infrastructure gets larger and spans multiple Data Centers, Regions, Hybrid networks and World. This project will concentrate on researching how to take current physical path based infrastructure topology and move it out of straight SQL into a more of a Big Data graph based technology that can provide compute level horizontal scaling in single and multitenant configurations for Software as a Service (SaaS) and traditional on-prem models.</td>
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**AND GET TO LEARN THINGS LIKE THESE:**

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**BECAUSE OUR VI-A PHILOSOPHY IS THIS:**

We want you to get the best of both – corporate internship and academic research. We also want you to love your project, be motivated by the work you do and be supported by an amazing team of engineers. Our job is to give you a base to work with and help you learn the tools that will enable you to get creative. We will give you the guidance you need and the freedom you want to craft your thesis into something you can own and be proud of. We have been thinking about how to do VI-A the right way for a long time. It is not just an internship – it is your opportunity to become a subject matter expert and set up your career for years to come, and we will do everything in our power to give you the best experience, because we believe in teamwork and innovation, and we take care of our people. Speaking of which, our people are our biggest treasure, and we cannot wait for you to meet them.
YOU SHOULD COME WORK WITH US.

THESE ARE OUR VI-A LOCATIONS:
*NetApp is still operating in a virtual capacity. This will continue to be the case until January 2022 and will be managed on a team-by-team basis.

Sunnyvale, California
Waltham, Massachusetts
Research Triangle Park, NC

THIS IS WHAT OUR VI-A STUDENTS SAY ABOUT US:

“NetApp has a culture of learning - you will have every opportunity to interact with people who know more than you do, and they, despite having every opportunity to ignore you, will choose to help you.”
– Rebecca Kekelishvili

“10/10, would recommend to a friend.”
– Tho Tran

THIS IS OUR TEAM.

There is actually nobody we like better. We have had 25 years to confirm it.

*Visa sponsorship available if applicable.
BECAUSE WE MAKE A GREAT TEAM.

THIS IS HOW WE TELL OUR VISION.

THIS IS WHERE WE WORK.

NetApp

THIS IS ONE OF OUR PRODUCTS.

THIS IS HOW WE CELEBRATE INNOVATION.

INSIGHT 2018
Appendix H.
6-A Affiliate Companies

For the most up-to-date information on the 6-A Core Partner Companies, and for the list of Affiliate Companies, check the 6-A website:

http://6a.mit.edu
Overview

We are the global leader in materials engineering solutions used to produce virtually every new chip and advanced display in the world. Our expertise in modifying materials at atomic levels and on an industrial scale enables customers to transform possibilities into reality. At Applied Materials, our innovations make possible the technology shaping the future.

Engineering Positions

Though Applied Materials nominally sells semiconductor equipment, we also sell the knowledge of the performance of this hardware. There is a large data stream collected by the tool that monitors the current performance. Engineers will typically analyze this data stream and, combined with their technical knowledge, troubleshoot problems, identify root causes and suggest design improvements to improve value to our customers, who are typically semiconductor manufacturing companies.

*Potential interns will have the following roles:* data analysis including experimental design in order to understand tool behavior, developing methods to link the experimental data to physics-based simulations (either carried out by the intern or by team members), developing and implementing process control schemes to improve alignment to customer specs.

Knowledge of semiconductor devices and semiconductor processing is desirable, but not required.

Internships & New College Graduate Programs

Applied Materials invests in talent. Our Internship Program and New College Graduate Programs are designed to train and engage emerging technology professionals in a variety of disciplines and assist with the transition from academia to a corporate environment. We provide networking, leadership, and team building opportunities, giving participants both valuable business contacts and practical skills.
FAQs

Where are your opportunities located?
Santa Clara, California,
Austin, Texas
Gloucester, MA

Are there any security clearances or drug tests required to apply to Applied Materials?
Interns go through the formal interview process and will be asked to complete a basic employment application. Interns are not required to have security clearances. *Only our Austin, Texas location requires interns to complete drug tests.*

Does Applied Materials hire international students?
Yes, Applied Materials will hire and sponsor international interns and full-time employees. **Acceptable Visas include:** J1, F1, and H1B

Does Applied Materials assist with housing or relocation?
A housing stipend will be provided for non-local students, which is meant to reimburse interns for expenses related to securing travel and temporary housing arrangements. We also provide ways for our interns to connect with each other (as appropriate) in case interns are interested in having a roommate for the summer.

Why Applied Materials?
http://www.appliedmaterials.com/university
Overview

Bose Corporate was founded in 1964 by Dr. Amar G Bose, then a professor of electrical engineering at Massachusetts Institute of Technology. Today, the company is driven by its founding principles, investing in long-term research to develop new technologies with real customer benefits. Bose innovations have spanned decades and industries, creating and transforming categories in audio and beyond. Bose products for the home, in the car, on the go and in public spaces have become iconic, changing the way people listen to music and engage with the world around them. Bose Corporation is privately held. The company’s spirit of invention, passion for excellence, and commitment to extraordinary experiences can be found around the world – everywhere Bose does business.

Divisions of Bose and the areas we work in:

**Bose Health Division** – For years, we’ve developed innovative, high-performing products that help you get closer to your music and home entertainment. But we’ve always been more than our headphones and speakers. Our long-standing mission is to create products that improve people’s lives. We are working on the first of many products designed to help consumers and patients live a healthier, more engaged life. Bose SoundControl™ Hearing Aids paired with the Bose Hear app, the first self-tuning mobile app that’s clinically proven to provide audiologist-quality customization give you total control, and the freedom to make the most of every moment. And Bose noise-masking Sleepbuds™ II, tiny and comfortable, these work with the Bose Sleep app to deliver relaxing sounds to help you fall asleep, and use Bose noise-masking technology so you stay asleep all night.

**Bose Consumer Electronics Business** – In 1968, Bose introduced the 901 Direct/Reflecting speaker system, garnering the international acclaim and beginning a long history of challenging conventional thinking. For more than 50 years, Bose has developed audio products that have changed norms, defied trends, and delighted listeners including the new Home Speaker 500, the best way to experience the widest sound of any smart speaker. Over the past quarter-century, Bose has set a standard for excellence in the burgeoning headphones market. In 1989, it introduced the very first noise-cancelling headset for aviation, later adapting the concept for military use. Bose then applied that technology to the iconic QuietComfort headphones, a product line synonymous with unprecedented noise reduction, audio performance, and comfort – and now available in the wireless design with virtual personal assistance. But we believe there is a marker that goes beyond headphones to a new category of products called wearables. We’ve recently launched Bose Frames sunglasses, with audio and more built right into them. Now customers can bring along an everyday item, like sunglasses, and experience an audio augmented world that helps keep them heads-up and hands-free.
Bose Automotive Sound Systems – In the early 1990’s, Bose pioneered the automotive sound market with the first factory-installed premium sound systems custom-designed for individual car models. Since then, we’ve brought the power of sound to the road, where we can enrich the drive with emotion and meaning. We partner with carmakers around the world to make that a reality, providing custom audio solutions for a wide range of vehicles. From the smaller, entry-level cars to crossovers, SUVs and pickup trucks, all the way to high-performance sports and luxury cars, Bose Automotive is there.

Bose Professionals Systems – In 1972, Bose introduced its first professional speaker for performing musicians. For more than 45 years, Bose Professional has developed innovative loudspeakers, electronics and software to meet the needs of demanding professional audio applications. Our products are sold through authorized pro-audio dealers, AV-system integrators and distributors. We provide substantial support for our distribution network, including product technical information, system design support and after-sale support. Bose sound is found throughout the world in performing arts centers, theaters, houses of worship, stadiums, restaurants, retail stores, corporate buildings and hospitality establishments. Our product offerings span Loudspeakers, Amplifiers, Signal Processing, Networking and software. We’ve also brought our expertise to products specifically designed for the musician, like the S1 PRO system.

Every division of Bose has a need for Electrical and Computer Engineering students. No matter your passion or interest, we can find an interesting project that will give you hands-on engineering experience while being a part of a team.

Some examples of intern job titles:

Audio System Tools Engineer
Software Engineer
Embedded Software Engineer
Digital Signal Processing Software Engineer
Acoustical Engineer
Electrical Engineer
Wireless Networking Applied Research
Wearable Sensors Applied Research
Embedded Software Engineer
FAQs:

Where are the opportunities located?
-Boston, MA (Boston Landing)
-Framingham, MA
-Stow, MA

What is the hiring process?
For both interns and full-time, you will need to go through either a phone or in-person interview process with the Hiring Manager and be given an offer by the College Relations team.

There are no background checks or drug screens for interns.
All full-time employees must complete a background check.

You will go through a full-day orientation to connect with the other interns on your first day. In addition to your engineering internship project, you will have the chance to attend social and professional events throughout the duration of your internship to fully experience the Bose culture.

Does Bose hire international students?
Yes, acceptable visas include: J1, F1 and H1B

Is Housing or transportation offered?
Bose does not offer housing or transportation for interns, but we provide you with information on common housing options and connect you with the other interns to arrange housing and carpools.

Financial Assistance:
Bose compensates on an hourly basis.

Interested in learning more?
Connect with the College Relations team, College_Relations@bose.com
Cambridge Mobile Telematics (CMT) is the world’s largest smartphone telematics provider, powering more than 70 enterprise programs in 20 countries. Founded in 2010 based on MIT research, our technology serves several million drivers through our partnerships with leading insurers, rideshares, cellular carriers, personal safety companies, and automakers. CMT’s telematics platform measures driving behavior to empower driver improvement and reduce risk, provides instant crash alerts and roadside assistance to drivers in need, and creates a smooth and efficient connected claims process. CMT’s headquarters are in Cambridge, with offices in Milan, Seattle, Tokyo, Chennai, Budapest and London.

CMT employees thrive in a collaborative and fast-paced work environment, are excited to learn and problem solve, and are committed to helping consumers become smarter, safer drivers.
Here are some of the complex problems we are trying to solve, and ways in which interns have contributed to our mission in the past:

The Mobile Team:

- **Experiment with moving processing from backend to mobile in order to optimize battery consumption.** How do we optimize battery consumption for our consumers? For example, if we can detect that the driver is on a train on the phone, then we know that they are not driving and we can avoid gathering as much data as we normally do. This would improve battery life of the phone and benefit the end user...

- **Investigate ways in which our telematics services extend beyond the smartphone.** Are there IoT devices already at play (like smartwatches) that can enhance our offering? Imagine if we could gather data from a smartwatch to improve our passenger/driver classification...

The Cloud Team:

- **Improve customer communications** – the world is your oyster! Improve push notification services, add new features to the customer web app, or even build a new one to enable specific notifications, like when cars enter/exit geographical regions for family safety features.

- **Optimize it all!** Help us with data pipelines for our data lake; improve monitoring of metrics to make underperforming code paths more easily discoverable; work on cost optimization for several data backends; and as always, keep privacy and security standard improvements at the forefront.

The Data Science Team:

- **Explore deep neural networks for identifying drive patterns from sensor data.** Apply your classroom knowledge to a novel real-world application using vast amounts of unlabeled data. One of our previous interns was able to learn risky braking patterns only from sensor data by using these deep neural network methods!

- **Develop algorithms and models for crash reconstruction with real-world data.** One of our interns created algorithms and models for reconstructing a motor vehicle crash from sensor data captured from smartphones and IoT sensors, laying the foundation for CMT’s Claims Studio current offerings.

- **Work with dynamic AWS workload scaling to improve processing delay and reduce AWS cost.** CMT is growing and we need to process vast amounts of data in semi-real-time. An inefficient workload scaling policy will either incur high cost or high processing latency or both. One of our interns was able to combine results from queuing theories with event-driven simulation to propose simple yet effective approaches for the scaling problem. This could be you!

- **Apply your classroom learnings to real-world data science problems** – like device orientation estimation. When reconstructing a crash, we need to know how the device was oriented with respect to the vehicle and whether it was affixed in a stable position. This greatly helps processing the raw sensor data captured by smartphones and IoT devices. Interns will
be able to apply their knowledge of physics and state estimation to come up with practical solutions to problems like these.
About Cell Signaling Technology

Cell Signaling Technology (CST) is a private, family-owned company, founded by scientists and dedicated to providing the world’s highest quality, innovative research and diagnostic products to accelerate biological understanding and enable personalized medicine. The mission of our Bioinformatics Department is to foster excellence in the art of combining data integration, software development, computer science, mathematics, and artificial intelligence, in order to decipher complex biological processes, enhance product development, and contribute to translational research.

VI-A at CST

Our employees operate worldwide from our U.S. headquarters in Massachusetts, and our offices in the Netherlands, China, and Japan. This year, CST is hiring one VI-A student for the Bioinformatics Department in Danvers, Massachusetts.

VI-A Projects

Student assignments are determined by matching the student’s interest with our research projects. In particular:

Most biological operations at the cellular level are performed by proteins. In humans for example, there are about 20,000 genes encoding those proteins. Like pieces of a puzzle, those proteins are able to assemble entire organisms. Proteins orchestrate a variety of processes that far exceed their numbers by taking part in a myriad of different interactions with each other. Many of those interactions are controlled by natural biochemical modifications applied to the amino acids that constitute those proteins. We refer to them as Post Translational Modifications (PTMs). Regulated networks of interacting proteins are responsible for normal cellular functions. Tumors for example are groups of cells where one or more networks have lost their ability to control (stop) grow. It is therefore important to understand protein regulation to offer biomedical solutions.

At phosphosite.org, we curate and offer the scientific community the world’s most comprehensive record of phosphorylation events, which are the most common type of PTMs. Although thousands of PTM events are known and some of them are understood, there are potentially thousands events more awaiting to be discovered.

We are interested in using machine learning tools like TensorFlow to help us identify those unknown phosphorylation events and also to help us identify the most probable enzymes responsible for those modifications—called kinases. Identifying those kinases can help even more to understand and potentially control cellular processes.

Foreign Student Employment

CST does not sponsor visas.

Drug-Free Workplace Requirements

CST does not have a policy on drug testing or screening.

Transportation

Our headquarters is located in Danvers, MA, about 25 miles driving distance from Cambridge or Boston. Public transportation is available including a shuttle from the Beverly commuter rail station to CST offices; however access to a car may be more convenient.

Financial Assistance

As a 6A affiliate CST provides a salary for the summer and on-site semester.

Additional Information

For more information about VI-A at CST, please contact: Chris Falling (cfalling@cellsignal.com)

Additional Resources

The following articles provide information on related research:


CST: Rooted in Science

To learn more about CST, please visit www.cellsignal.com.
**IN A NUTSHELL**

FreeWheel and Comcast Advertising are redefining the future of TV advertising, built on a culture of creativity, ingenuity and inclusion.

**WHY COMCAST**

Comcast brings together the best in media and technology. We drive innovation to create the world's best entertainment and online experiences. As a Fortune 50 leader, we set the pace in a variety of innovative and fascinating businesses and create career opportunities across a wide range of locations and disciplines. We are at the forefront of change and move at an amazing pace, thanks to our remarkable people, who bring cutting-edge products and services to life for millions of customers every day. If you share in our passion for teamwork, our vision to revolutionize industries and our goal to lead the future in media and technology, we want you to fast-forward your career at Comcast.
WE KNOW GREAT IDEAS COME FROM EVERYWHERE

At Comcast Advertising, which includes FreeWheel and Effectv, we know that great ideas come from everywhere. We believe that the best solutions are fostered in a diverse, open culture where employees are appreciated for the unique value they bring, and there is no boundary to how successful you can be. Our investment in growth and development has created an environment where employees are encouraged to ask the tough questions and are empowered to take risks so that we can build the best possible solutions for the industry. Voted one of Fortune’s best companies to work for in 2021, Comcast Advertising is redefining the future of TV advertising, built on a culture of creativity, ingenuity and inclusion.

“TV ADVERTISING IS SUCH AN INTERESTING AND COMPLEX ECOSYSTEM. FREEWHEEL GIVES ME THE OPPORTUNITY TO UNDERSTAND THE INTRICACIES AND TO BUILD NEXT-GENERATION SOLUTIONS THAT OPTIMIZE FOR BOTH YIELD AND USER EXPERIENCE. IT’S THE PERFECT HOME FOR ENGINEERS OF ALL LEVELS.”

- Yushi Xu, Sr. Director, Software Architecture
POTENTIAL ASSIGNMENTS

Location: Virtual, New York City, Chicago
Sponsorship: Sponsorship will be considered for relevant open roles, including OPT visas
Clearance: No specific securities are required
Salary: Students will be paid a competitive salary commensurate with market pay and relevant experience

BIG DATA ENGINEERING
Our Data Production Engineering team deals with tens of billions of daily events coming in from both the outside world and our own internal systems. This team works to then process these events: aggregate, normalize, de-normalize and distribute them out to the various systems that they need to flow to, some in near real time. At our scale we're hitting the maximum number of Kinesis shards allowed on an AWS account and need to refactor our approach and software. This is a fantastic opportunity to do data engineering at a massive scale, working through the various ways of how to handle such a firehose of data while exploring the tradeoffs in performance vs cost.

USER DATA
Our Userdata team handles 100s of Gigabytes of batch and real-time incoming data per day and processes it to make it available in multi-terabyte caches to our ad serving system. The data this team processes maps users to categories and groups leading to not just challenges of scale but also challenges around which data to use and what form it should be in. For example, we receive graphs that map users to all the devices they use (phone, laptop, smart tv, etc.) from multiple vendors. How should we combine them? How can we have confidence that a graph by one vendor is more accurate than another vendor? Could we devise data models, as well as algorithms, for such "combined graph"? Can we run these algorithms in a performant and cost-effective way with decent accuracy? These are all the types of questions that we'd expect an intern to dig into as part of their time on the Userdata team. Our challenges involve applying core CS concepts on massive scales and understanding the engineering tradeoffs involved in the possible solutions.

MACHINE LEARNING AND FORECASTING
Forecasting is one of the most challenging problems in computational advertising. There are two classic questions in advertising forecasting: how much inventory is there, and how well can my campaign deliver. The first question is a combination of the prediction of viewership, and the prediction of the ad load. The second question further layers in the specific ad campaign parameters. In FreeWheel, we provide an advertising platform where the clients can manage the inventory, execute the ad campaigns, and trade inventory with each other on different types of guaranteed and non-guaranteed contracts. Forecast Alpha is a recently initiated project aiming at building a ML based statistical engine to predict the inventory availability and campaign delivery in such a complex environment, leveraging the abundance of in-house data. There are many interesting and hard problems to solve in this project. For example, how to model the reselling and re-packaging of inventory from one client to another? How does the demand information play a role in this model? How do we capture competitive separation and frequency capping in the campaign delivery model?

In this project, the student will have the opportunity to learn about the ad industry, understand how an ad is served from pitch to pay, and have a close look at FreeWheel's state-of-art advertising platform. The student will have access to the ad inventory and ad campaign data, and will contribute to the data collection, analysis, modeling and feature engineering, and the evaluation of the models.
POTENTIAL ASSIGNMENTS

LOW LATENCY SYSTEM DESIGN
Our Serving systems process millions of incoming queries per second. Our code must decide on whether we’re going to bid on the incoming auctions and how much within just 30ms. We’ve been improving the performance of this system as we’ve grown but we often discover there are code paths that unexpectedly impact performance. This creates a great opportunity to set up a profiling framework to track the cpu usage of the code in a system way. We would love to have someone come in and set up this framework and then demonstrate and use it to drive down our system’s CPU usage. Take the theoretical CS and data structures skills that you’ve learned in a classroom context and put them to practical use at a massive scale.

This information has been designed to indicate the general nature and level of work performed by employees in this role. It is not designed to contain or be interpreted as a comprehensive inventory of all duties, responsibilities and qualifications.

- Consistent exercise of independent judgment and discretion in matters of significance.
- Regular, consistent and punctual attendance. Must be able to work nights and weekends, variable schedule(s) and overtime as necessary.
- Other duties and responsibilities as assigned.

EMPLOYEES AT ALL LEVELS ARE EXPECTED TO:

- Understand our Operating Principles; make them the guidelines for how you do your job.
- Own the customer experience - think and act in ways that put our customers first, give them seamless digital options at every touchpoint, and make them promoters of our products and services.
- Know your stuff - be enthusiastic learners, users and advocates of our game-changing technology, products and services, especially our digital tools and experiences.
- Win as a team - make big things happen by working together and being open to new ideas.
- Be an active part of the Net Promoter System - a way of working that brings more employee and customer feedback into the company - by joining huddles, making callbacks and helping us elevate opportunities to do better for our customers.
- Drive results and growth.
- Respect and promote inclusion & diversity.
- Do what’s right for each other, our customers, investors and our communities.

Comcast is an EOE/Veterans/Disabled/LGBT employer. Comcast is a drug-free working environment.
Inkbit is leveraging machine vision and machine learning to build the world’s most advanced multi-material 3D printer

Overview

Inkbit is an MIT spinout developing a multi-material 3D printing system that offers unparalleled throughput and economics. The core of our technology is a sophisticated 3D scanning system that monitors the print process in real-time. The 3D scan information is used in a closed feedback loop to actively control the print’s geometry. Our Vision Controlled Jetting (VCJ) process unlocks the use of new and exciting materials not accessible by any other printing technology. Our technology is being used by top global customers in a variety of exciting application areas. Inkbit is backed by top strategic and financial investors including 3M, St. Gobain, Ocado Technology and Stratasys.

6-A Opportunities

Inkbit is looking for two passionate and motivated students looking to work in a fast-paced startup environment with a diverse and multidisciplinary team of engineers and scientists. The positions will have direct responsibility for critical initiatives that will push the state-of-the-art of 3D printing. The positions will be based in Boston, MA and will offer competitive pay.
Positions

**Digital Design and Computer Graphics**
Inkbit is looking for a motivated student passionate about computer graphics, design, and digital fabrication. The student will learn about the latest methods and implement a selection of the algorithms to enhance our interactive 3D design tool. The topics include numerical simulation, geometry processing, rendering, and optimization. Our goal is to provide designers with an advanced design software to create and visualize stunning 3D objects that can be manufactured using Inkbit’s 3D printing technology. The design tools will be used by designers and engineers around the world and will have a direct impact in disrupting how products are designed and manufactured.

**3D Computer Vision and Machine Learning**
Inkbit is looking for a motivated student passionate about computer vision and machine learning. The student will learn the state-of-the-art methods and implement a selection of algorithms to improve 3D geometry processing for the real-time computer vision system. The relevant topics include 3D scanning, machine learning for 3D geometry processing, and high-performance computing. The task of the internship is to work with Inkbit’s research scientists to develop a layer of intelligence for the next generation manufacturing machines. The internship will focus on modeling of the 3D data captured by Inkbit's real-time scanners for control of a 3D manufacturing system.
Do you like to test your limits—to see what you can achieve? Maybe you aspire to do something important, audacious, world-changing. Or to work alongside the greatest minds in your field. Maybe you want answers to the Big Questions that have captivated humankind through the ages. You can discover all that and more at JPL.

About: The Jet Propulsion Laboratory—we call it JPL, or simply the Lab—is a federally funded research and development center (FFRDC) for robotic space and Earth science missions. We are managed by Caltech for NASA. Since the 1930s, JPL creations and discoveries have led to many of the nation’s “firsts,” including the first U.S. Earth-orbiting satellite, interplanetary spacecraft, lunar lander, planetary rover, and first spacecraft to leave the solar system. A unique blend of decades of experience, combined with a drive for innovation and development, propels JPL to consistently achieve success in our missions. Our role as an operating division of Caltech profoundly shapes the intellectual environment, while our relationship with NASA instills a sense of mission. Together, they allow us to serve the greater good. As our vision states, “We serve the nation by exploring space in pursuit of discoveries that benefit humanity.”

Culture: Part of the thrill of being at JPL is working with the experts in their fields. Our campus in the Southern California foothills fosters plenty of broadband intellectual exchanges through both planned and chance encounters with colleagues. Over time, such relationships have forged a culture that binds JPLers together—and sets them apart from everything else. When science, technology, and engineering collide, a workplace culture unlike any other is created, where creativity is not only encouraged, but also backed up by a deep ability and drive to achieve. At JPL, we all have a vested interest in each other, because our mission won’t succeed unless we all succeed. It’s a simple reality with a powerful effect – when you need help, it will always be there, because what elevates one will elevate us all.

While diversity and inclusion are worthy ideals, at JPL, they are more than that – they are mission-critical necessities. Our Lab depends on an inclusive workforce of independent-minded people. We seek out different voices to contribute to the science, engineering, technology, and business discourse. As the saying goes, if you get five JPLers together, you will have at least seven viewpoints. This give-and-take characterizes our meetings and decisions, and strengthens our designs, plans, and results. It’s also part of what makes working at JPL so stimulating, challenging, and fun. Consider the universe that we explore every day. There is nothing homogenous or monochromatic about it—and it is magnificent. Why should our workforce be any different?
Teamwork: There is no one “typical path” at JPL. Scientists at the top of their fields from planetary science to astrophysics; from geology to atmospheric science, work together with engineers who work from orbit design to power supplies, from to testing on the ground here, to operating spacecraft on the surface of other planets. People work across disciplines, education levels, skills, and specialties to achieve success. Everyone is encouraged to learn, grow, and expand as they progress in their careers, and pathways are always open to try and learn something new.

Purpose: Our scientific targets are spread across our planet, throughout our solar system, and out into the universe. Earth-orbiting satellites use the vantage point of Earth orbit to make observations of our ever-changing world, while planetary landers let us virtually touch the surface of other worlds. Telescopes from the vantage point of space are able to peer out beyond our current physical reach, and even discover thousands of new worlds around other stars that were once unimaginable.

Of these targets, we seek to answer some of the biggest questions that exist: how did the universe, our solar system, and life begin? How are they evolving now? Is there life beyond Earth? How can we improve humanity with what we discover and learn? Are you ready to tackle these problems and “dare mighty things?”

Opportunities: JPL has a wide variety of opportunities related to Electrical Engineering and Computer Science across our Engineering and Science Directorate, our Office of Safety and Mission Success, and our Information Technology and Solutions Directorate. Particular areas of interest include:

- Artificial Intelligence and Machine Learning
- Autonomy and Control Systems
- Cybersecurity
- Data Science/Data Analytics
- Embedded Software/Flight Software
- Electronics and Mechatronics
- Hardware & Software Quality Assurance
- Human-Computer Interactions
- Modeling and Simulation
- Software Verification and Validation

@NASAJPLCareers
FAQs:
Locations (or remote work status) for 6-A assignments?
Both remote and physical opportunities are possible. All research opportunities in person would take place in Pasadena, CA

Security clearance requirements (if any)?
None. However, a background screen must be completed and passed prior to starting at JPL. This includes a criminal background check and employment verification check.

Drug-Free Workplace requirements?
Drug screen and drug test is required to be passed prior to start at JPL.

Conditions for employment of foreign students—will they be considered? Type of visa acceptable (e.g. F-1, J-1, etc.)?
This is dependent upon individual job responsibilities and project requirements.

Housing and relocation information—any company assistance (e.g. hotel, rental car, any special arrangements for local housing)?
Relocation is provided, which includes travel reimbursement to and from Pasadena, CA and bi-weekly housing stipend.

Personal transportation needs and availability?
Student is responsible for their own transportation to/from JPL for in-person research opportunities.

Details of financial assistance given during graduate work term (if any)?
To be negotiated as part of the selection process.
About LLNL

Ranked by Glassdoor as the #1 Government/Government Contractor Employer and the #1 Laboratory employer, we’re proud of our culture as well as our scientific achievements. 6-A participants will gain in-depth knowledge in their subject areas, thanks to our record of excellent mentorship and a long history of hosting students from various universities.

Lawrence Livermore National Laboratory (LLNL) is one of three high-security national labs in the United States. Funded primarily by the federal government, its mission is to support national security across a range of research areas including nuclear weapons stewardship (nonproliferation, counterterrorism, and maintenance), climate change, and biological threats.

A budget of $2.5 billion funds work by over 7,500 employees on a one-square-mile campus that houses 684 facilities – one of which is NIF (National Ignition Facility), the world’s largest and highest-energy laser, whose scientists were recently responsible for a breakthrough in nuclear fusion. We’ve also put six new elements on the periodic table.

Where We’re Located

Livermore is part of California’s Bay Area. About 45 minutes from San Francisco, it’s home to the state’s oldest wine region and a vibrant community with a heart in the historic downtown.

Thesis Topics

Students may choose from a variety of potential thesis topics that complement Lab objectives:

• Machine Learning for segmented particle detector event ID
• High-Performance Computing (HPC) enabled acceleration of Machine Learning algorithms (Deep Learning, Reinforcement Learning, Probability Density Estimation, and Bayesian Methods)
• Specialized HPC hardware for Machine Learning
• Explainable AI for scientific and national security applications
• Large-scale learning representations of speech, text, image, and video data
• Applications of Machine Learning to scientific and national security problems
• Development of theoretical generalization bounds for Machine Learning algorithms
• Adversarial and countering adversarial AI
• Applying AI & Machine Learning to computer-aided design, modeling & simulation, and operations research
• Developing Graph neural network models for nuclear science applications

Citizenship/visa requirements vary by role.
Data Science Graduate Level Internship

It's a data-driven world. Be part of a growing community of data science professionals that harness the power of data to analyze performance trends, identify opportunities, and keep Liberty Mutual moving forward.

The details

Calling all aspiring data scientists! Here’s the perfect opportunity to grow your knowledge and skills in key areas such as cloud computing, machine learning, and various modeling techniques and software.

In the 10-to-12-week Data Science Graduate Level Internship, you’ll build robust models and use statistical software, such as R, Python, and SAS, to solve critical business problems in product management, claims, distribution, marketing, HR, legal, finance, and other business functions.

At the conclusion of your summer internship, you’ll deliver a presentation of your work and skills to your colleagues and the data science management team.

The Data Science Graduate Level Internship may be your first step toward pursuing a rewarding career at Liberty Mutual, one of the leading property and casualty insurers in the United States. Our interns often transition into full-time opportunities at our Boston, Chicago, and Seattle offices.

What you’ve got

- You possess proven statistical, mathematical, computational, and analytical skills, which you have acquired through the pursuit of a Master’s degree or Ph.D. in Mathematics, Statistics, Economics, Operational Research, Computer Science, or a related field.
- You have completed doctoral qualifying exams (preferred).
- You have a record of academic achievement and minimum 3.5 cumulative GPA.
- You demonstrate solid oral, written, communication, and interpersonal skills.
- You are a whiz at statistical software, such as R, Python, and SAS. Programming skills are highly desirable.

A little about us

At Liberty Mutual, our purpose is to help people embrace today and confidently pursue tomorrow. That’s why we provide an environment focused on openness, inclusion, trust and respect. Here, you’ll discover our expansive range of roles, and a workplace where we aim to help turn your passion into a rewarding profession.

Liberty Mutual has proudly been recognized as a “Great Place to Work” by Great Place to Work® US for the past several years. We were also selected as one of the “100 Best
Places to Work in IT™ on IDG’s Insider Pro and Computerworld’s 2020 list. For many years running, we have been named by Forbes as one of America’s Best Employers for Women and one of America’s Best Employers for New Graduates—as well as one of America’s Best Employers for Diversity. To learn more about our commitment to diversity and inclusion please visit: https://jobs.libertymutualgroup.com/diversity-inclusion

We value your hard work, integrity and commitment to make things better, and we put people first by offering you benefits that support your life and well-being. To learn more about our benefit offerings please visit: https://LMI.co/Benefits

Liberty Mutual is an equal opportunity employer. We will not tolerate discrimination on the basis of race, color, national origin, sex, sexual orientation, gender identity, religion, age, disability, veteran’s status, pregnancy, genetic information or on any basis prohibited by federal, state or local law.
About Us:
Mercari is Your Marketplace. We make it super easy to sell (or buy) almost anything. We all have things we don’t use, never used or simply outgrew. But that stuff still has value. Mercari gives you the power to simply sell it, ship it, and earn some cash for it. Fashion to toys. Sporting goods to electronics. All the brands you know and love. Our mission is simple: to make selling easier than buying. And with 50M+ downloads in the U.S. and 350k+ new listings every day, we’re just getting started.

Mercari is seeking highly motivated software engineering students eager to learn and gain practical industry experience in the areas of Backend, Data, and Machine Learning engineering. Co-ops will develop and validate software for Mercari’s current and future products and programs. We want you to challenge the way we think and work and be an impact on the future of Mercari.

Where you will be working:
You will be working remotely as Mercari is currently 100% remote.

What You’ll Be Doing:
You will contribute to cross-functional system architecture, software system design, analytics applications and rapid prototyping. Depending on your skills, experiences, and interest, you will be working on some of the following:

- Production tasks (examples):
  - **Data Engineering**
    - Creation and maintenance of new ETL of 3rd party feeds to support UA (digital ad networking) needs
    - Processing data from 3rd party APIs to categorize and detail out item information within our inventory
  - **Backend Engineering**
    - Building out and maintaining API endpoints that provide user and item information for CRM campaigns
    - Implementing microservices in Go and/or Python in GCP
- R&D tasks/topics (examples):
  - Analysis and implementation of ML models of user behavior to target users for recommendations
  - Forecast user and item inventory trends using Time Series modeling
Requirements:
• Drug-Free Workplace Requirements:
  • No Drug test Required
• Conditions for Employment of Foreign Students:
  • All Visa types are accepted as long as the student can provide valid employment authorization
• Housing Information:
  • There will be no relocation/ housing assistance as we are 100% remote

Perks: to name a few
• Work with the best talent and gain practical industry experience
• Great autonomy where you get to make an impact
OVERVIEW: The MIT-IBM Watson AI Lab is a community of scientists from MIT and IBM Research dedicated to pushing the frontiers of artificial intelligence and translating breakthroughs into real-world impact. Founded in 2017, the Lab works with industry to translate fundamental science into applications that solve immediate problems in the business world and beyond. The Lab currently manages a research portfolio of more than 80 projects, with an emphasis on data-driven, deep learning approaches to understanding language and the visual world and techniques for making large-scale AI systems more efficient and robust, and a variety of decision-making applications. In all of its work, the Lab is committed to building trustworthy and socially responsible AI systems.

At MIT and IBM Research, we approach our physical, interpersonal, and organizational environment with intentionality, balancing the group energy and transparency of open spaces with the need for deep focus that quiet privacy provides. We cultivate an academic ethos and work-style while also tapping into the power of our institutions as global leaders in science and technology.

Participants will develop their software engineering skills, get professional perspective on the impact of AI, and work on AI-related projects with the potential for real-world impact.

LOCATION: MIT-IBM lab in Cambridge, MA

EXAMPLES OF PAST PROJECTS:
- Robust learning with limited labeled data
- Cross-domain few-shot action recognition
- Efficient deep learning
- Advancing machine learning with optimal transport
- Knowledge-graph based financial forecasts
- Improving supply chain decisions through fine-grained forecasts

OTHER INFORMATION:
Security clearance requirements – None
Drug-free workplace requirements - None
Housing and relocation assistance – None
Transportation – Public Transit Accessible
INVENT THE FUTURE WITH US

YOUR FUTURE STARTS HERE

NVIDIA’s invention of the GPU sparked the PC gaming market. The company’s pioneering work in accelerated computing—a supercharged form of computing at the intersection of computer graphics, high performance computing and AI—is reshaping trillion-dollar industries, such as transportation, healthcare and manufacturing, and fueling the growth of many others.

FIND YOUR PERFECT FIT

There are endless opportunities at NVIDIA, and you have the freedom to explore them all. It is all about landing where you are the most valued, challenged, and inspired in your work.

Below are general hiring areas for NVIDIA. Check out where your skills fit and search for your area of interest at www.nvidia.com/university for more specific roles.
<table>
<thead>
<tr>
<th>HARDWARE</th>
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</thead>
<tbody>
<tr>
<td><strong>ASIC DESIGN</strong></td>
</tr>
<tr>
<td><strong>Programming Skills:</strong> Verilog/VHDL, C/C++, Perl</td>
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<tr>
<td><strong>VERIFICATION</strong></td>
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<tr>
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<tr>
<td><strong>Programming Skills:</strong> Verilog, C/C++/UVM, Perl</td>
</tr>
<tr>
<td><strong>PHYSICAL DESIGN</strong></td>
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<tr>
<td></td>
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<tr>
<td><strong>Programming Skills:</strong> Perl, C, C++, TCL, Scheme, Python, SKILL and Make</td>
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<tr>
<td><strong>ARCHITECTURE</strong></td>
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<tr>
<td><strong>COMPUTER ARCHITECTURE</strong></td>
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<tr>
<td><strong>Programming Skills:</strong> C++, scripting languages (Python, Perl), modern graphics APIs (DirectX, OpenGL, Vulkan), modern GPGPU APIs (CUDA, OpenCL), revision control (Perforce, Git)</td>
</tr>
</tbody>
</table>
# Artificial Intelligence

## Deep Learning Applications and Algorithms

- Solid knowledge of deep neural networks with experience in developing deep learning frameworks such as PyTorch and TensorFlow
- Understanding of mathematical fundamentals (linear algebra/numerical methods) and/or computer vision areas
- Solid foundations of software design, computer memory model [disk, memory, caches], CPU and GPU architectures, networking, and numeric libraries
- Experience in design and development of embedded systems, drivers, and real-time software

**Programming Skills:** Python, C, C++, CUDA

**NVIDIA Projects:** Riva (Conversational AI), Metropolis (Smart Cities), Clara (Medical Imaging), and more

## Autonomous Vehicles

- Experience with training frameworks (Tensorflow, Keras, or Pytorch)
- Background in one or more of the following: computer vision, mapping/localization, SLAM, sensor input devices [LiDAR, cameras, radars], image processing/segmentation

**Programming Skills:** C/C++, Python, CUDA

**NVIDIA Projects:** DRIVE

## Robotics

- Experience working with autonomous vehicles or robotics stack
- Experience with simulators, designing and building validation frameworks for machine learning/deep learning, and working with cloud technologies
- Good operating systems and data structure knowledge (threads, processes, memory, and synchronization)
- ROS, physics simulation software, computer graphics, version control, and computer vision

**Programming Skills:** C/C++, Python, CUDA, OpenGL

**NVIDIA Projects:** Isaac SDK, Isaac Sim, Omniverse, Jetson AGX Xavier

## Deep Learning Frameworks and Libraries

- Building underlying frameworks and libraries that accelerate deep learning on GPUs
- Experience with performance-oriented parallel programming, optimizing for high performance computing, or algorithms/numerical methods fundamentals
- Experience with one or more of the following: Docker containers, computer architecture, large complex codebases

**Programming Skills:** Python, C, C++, CUDA

**NVIDIA Projects:** Deep Learning Frameworks, TensorRT, cuDNN
<table>
<thead>
<tr>
<th>RESEARCH</th>
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<tbody>
<tr>
<td>RESEARCH</td>
<td>&gt; PhD candidacy in CS, CE, EE, mathematics, physics, signal processing, statistics, neuroscience, or equivalent research experience in those fields</td>
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<td>&gt; Track record of research excellence with a strong publication record</td>
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<td>&gt; Familiarity with deep learning frameworks such as PyTorch or TensorFlow</td>
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<td>&gt; Knowledge of applications areas such as parallel algorithms, parallel programming systems, computer vision, robotics, NLP, or recommender systems</td>
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<tr>
<td>Programming Skills: Python, MATLAB, C, C++, CUDA</td>
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<tr>
<td>Check out research areas here</td>
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<tr>
<td>APPLIED RESEARCH</td>
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<tr>
<td></td>
<td>&gt; Deep learning: theory and applications to NLP, Computer Vision, Graphics, Speech, Reinforcement Learning, or another domain</td>
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<td></td>
<td>&gt; Experience with deep learning frameworks such as PyTorch or TensorFlow</td>
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<tr>
<td>Programming Skills: Python and C/C++</td>
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WHAT WE DO.

<table>
<thead>
<tr>
<th>Autonomous Machines</th>
<th>Healthcare</th>
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<tbody>
<tr>
<td>Cloud and Data Center</td>
<td>High Performance Computing</td>
</tr>
<tr>
<td>Deep Learning and Artificial Intelligence</td>
<td>Self-Driving Cars</td>
</tr>
<tr>
<td>Design and Pro Visualization</td>
<td>Gaming and Entertainment</td>
</tr>
</tbody>
</table>

WHERE WE WORK.

> Austin, TX  > Bethesda, MD  > Boulder, CO  > Champaign, IL
> Durham, NC  > Hillsboro, OR  > Holmdel, NJ  > New York, NY
> Pittsburgh, PA  > Redmond, WA  > Santa Clara, CA  > Seattle, WA
> Toronto, Canada  > Westford, MA

A TRULY INCLUSIVE CULTURE.

> **EVERYONE IS WELCOME.** Every background offers a new perspective that can only help us grow smarter and better.

> **EVERYONE HAS A VOICE.** Great ideas drive us, no matter who or where they come from.

HOW TO APPLY.

1. **EXPLORE INTERNSHIP AND NEW COLLEGE GRADUATE OPPORTUNITIES.** Check out our general hiring areas above and see where your skills and interests may fit. Search for your area of interest at [www.nvidia.com/university](http://www.nvidia.com/university) and apply directly there!

2. **GET NOTICED.** Make sure your resume aligns with the roles you’re interested in. Our teams like to see your technical and programming skills through cool projects.

3. **HEAR BACK.** Once your online application has been submitted; you will hear back within 2-3 weeks if there is a match.

If you met us at an event or career fair, you still need to apply online.
Company Description
Shell is an international energy company whose purpose is to power progress together with more and cleaner energy solutions. Shell uses advanced technologies to take an innovative approach to produce and distribute energy in more efficient, reliable and sustainable ways. Digital technology is making our existing operations more effective and efficient, helping to offer our customers low-carbon solutions. We are also working with others to address industry challenges and opportunities while investing in the next generation of clean energy technology. We are looking for people with a passion for developing solutions in the energy domain with potential for unlocking more, cleaner energy for all.

Location of Work
Shell TechWorks – 2 Drydock Ave., Boston, MA

Typical 6-A Assignments:
- Advanced AI Algorithms in the space of Deep Learning, Reinforcement Learning, and Generative Adversarial Networks.
- Physics-Based Machine Learning.
- Human-AI Interaction and Decision-Making.

Security Clearance Requirement
No security clearance required.

Drug and Alcohol Policy
Interns are required to follow Shell policies.

Conditions for Foreign Students
Authorization to work in US requirement for employment. J1 and F1 visas for students based in US will be considered.
Housing and Relocation Information
Shell does not provide relocation assistance.

Personal Transportation Needs
On-site parking and bike racks are available. Discounts for other transportation options are available. Shell TechWorks is located in Seaport nearby many MBTA Silver line stops.

Salary and Benefits
- Shell offers a competitive salary.
- 9/80 work schedule, where US employees can work 80 hours over 9 days across two weeks. Results in having every other Friday off.
- On-site gym available.
- Other discounted goods and services., e.g., phone plans, software products, etc.

Contact Information
Jeremy Vila
AI Innovation Lead
Jeremy.Vila@shell.com
+1-281-544-8947
Company Description

Signify, the new company name of Philips Lighting, is the world leader in lighting for professionals, consumers and lighting for the Internet of Things. Our energy efficient lighting products, systems and services enable our customers to enjoy a superior quality of light, and make people’s lives safer and more comfortable, businesses more productive and cities more livable. With 2018 sales of EUR 6.4 billion, approximately 29,000 employees and a presence in over 70 countries, we’re unlocking the extraordinary potential of light for brighter lives and a better world Signify Research is a global team with presence in Burlington, where performance is powered through diversity. We shape the future of light in the Internet of Things and work on our commitment to achieve a more sustainable future.

Project descriptions

Imagine lights that personally illuminate a space for whomever is in a room and how they feel. At Signify Research, we are working on context-aware adaptive scene recommendation solutions for our connected home lighting systems. These lights can be remotely controlled and change to any color, hue, and mood. Based on user-system interactions for millions of customers, we work to design a recommender system to automatically knows the best lighting recipe given activity, space, user’s preferences, day and time.


Locations:

Burlington, MA
Remote
Palo Alto, CA

Foreign Students: Yes (F-1, CPT, OPT) – must be currently enrolled in school

DRUG AND ALCOHOL POLICY: All internship students should follow all Signify policies.

DETAILS OF FINANCIAL ASSISTANCE GIVEN DURING GRADUATE WORK TERM (if any): Signify will pay salary to internship students during graduate work term.