6.UAR – SUPERUROP
Preparation for Undergraduate Research

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Information Session March 2024

MIT EECS

Launched in 2012 by EECS and the MIT UROP Office and later expanded to multiple departments in the School of Engineering

Goals of SuperUROP:

1. Expand undergrads' participation in research.
2. Connect communication requirements and research.
3. Connect research, education, entrepreneurship, and ethics.

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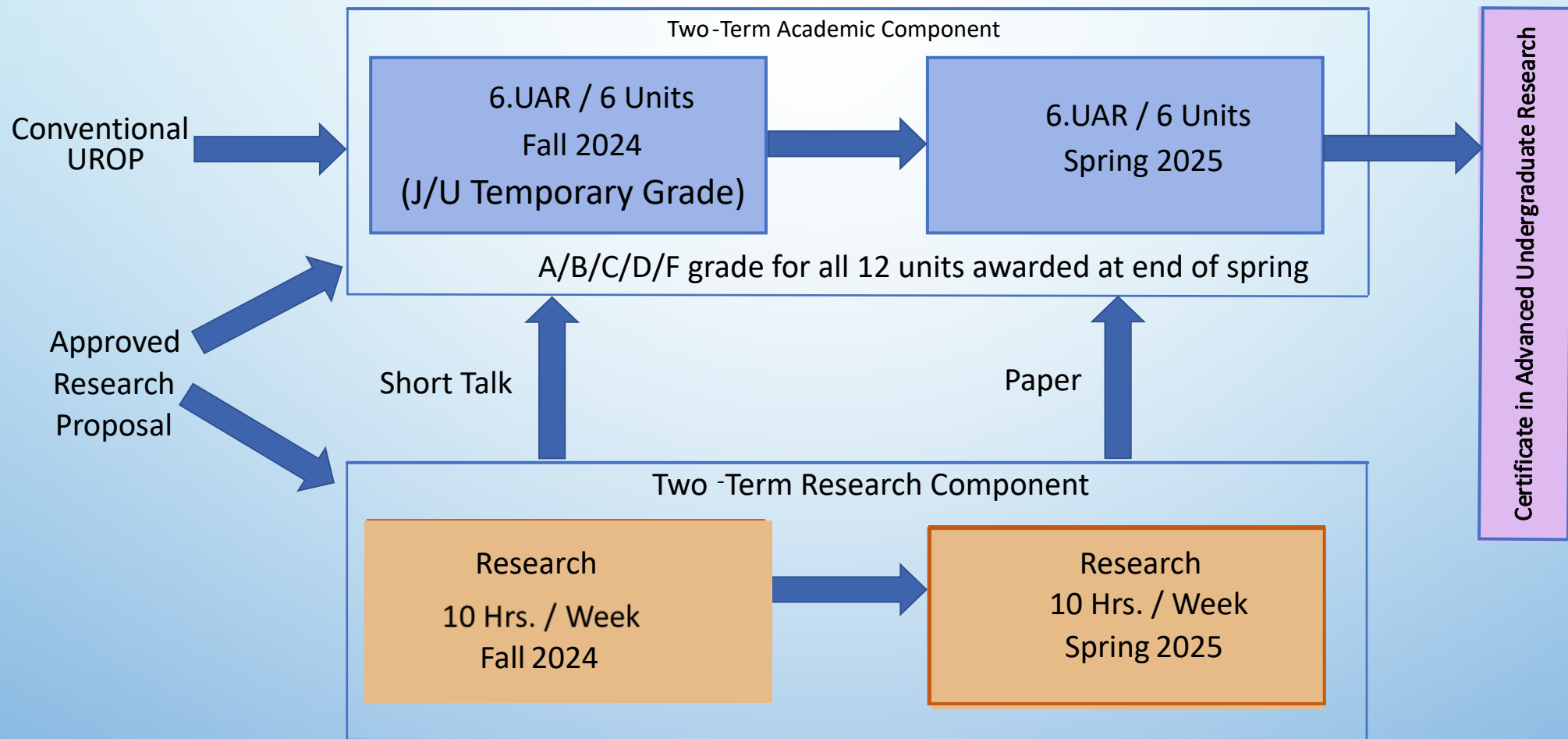# What is SuperUROP (6.UAR)?

2023-2024 SuperUROP Scholar Max Burns

Students work with a faculty member or MIT researcher, take a two-semester course (6.UAR) on undergraduate research, spend an average of 10 hours/week in the lab, and, by the end of the year, present their research and write a paper about it. Often, students' year-long projects evolve into graduate theses or academic papers.

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SuperUROP is a Year-Long Class with Two Components

1. Research project overseen by a SuperUROP supervisor, and

2. Required class (6.UAR) that teaches skills for writing papers, giving talks, and presenting research.

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SuperUROP is a Year-Long Class

Two-Term Academic Component

Conventional UROP →

| 6.UAR / 6 Units Fall 2024 (J/U Temporary Grade) | → | 6.UAR / 6 Units Spring 2025 |

A/B/C/D/F grade for all 12 units awarded at end of spring

Approved Research Proposal →

Short Talk

Paper

Two-Term Research Component

| Research 10 Hrs. / Week Fall 2024 | → | Research 10 Hrs. / Week Spring 2025 |

Certificate in Advanced Undergraduate Research

For EECS only : 6.UAR (12 units) can satisfy second CI-M requirement

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SuperUROP Research

Paid up to $3K (or up to 120 hours total) per semester for research, in addition to 6.UAR coursework.

OR

Students with projects done for non-participating departments can apply for funding from their supervisors or from the UROP office.

OR

Students can take the year-long program for credit.

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Class Structure

- One-hour weekly lectures.
  - Invited speakers.
  - How to write a paper, give a talk, present a poster.
- One-hour recitation every other week.
- Assignments — posted on Canvas.
- 15-min research meeting with a TA every other week.
- Average of 10 hours/week of research in the lab.

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# Invited Speakers

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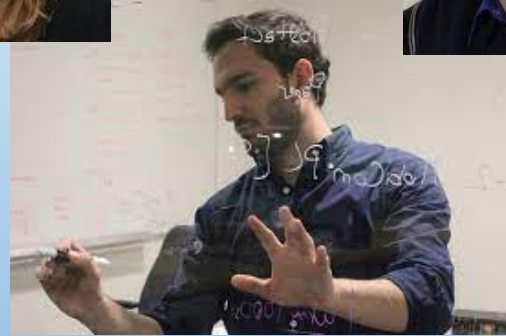
Fall Deliverables

- Attending class, recitations, and check-ins with TAs.
- Completing assignments.
- Developing short talk and poster.
- Presenting at the SuperUROP Showcase.

NOTE: Grade is based on the completion of both terms and the students' performance in both terms. Credit is only given to those who complete both fall and spring terms.

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Spring Deliverables
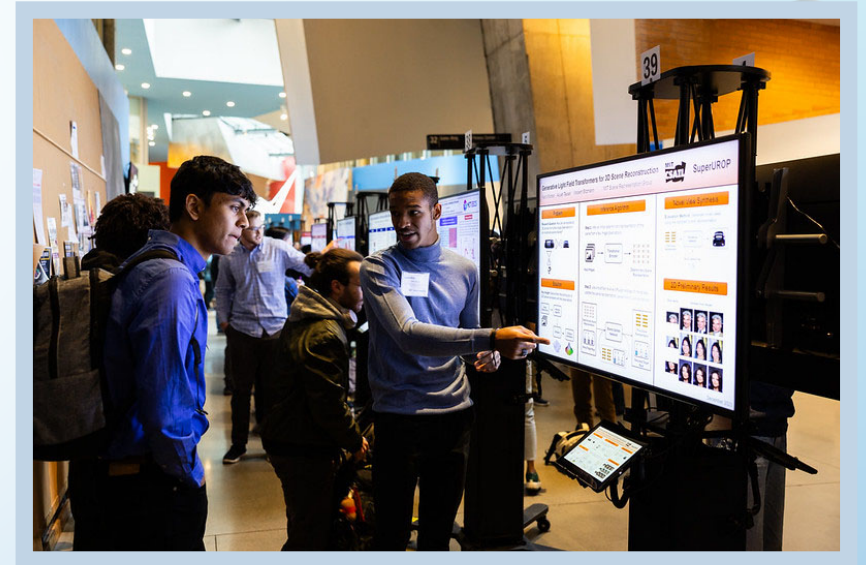
2022-2023 SuperUROP Scholar John Yang

- Attending class, recitations, and check-ins with TAs.
- Assignments every other week.
- Developing 10-page research paper.

NOTE: Again, grade is based on completion and the combined performance in the two terms.

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Certificate Reception

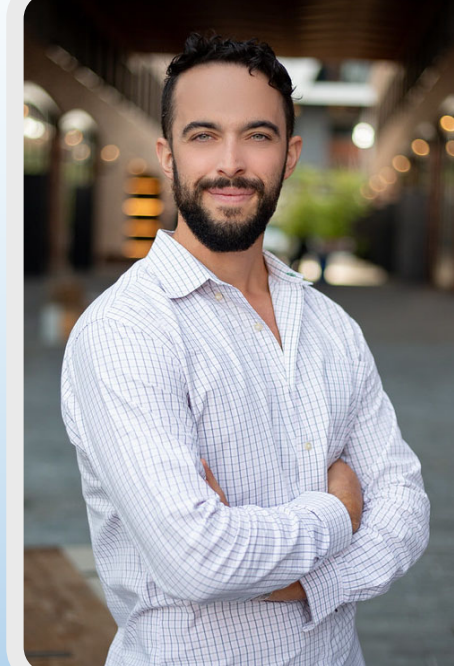# 2022-2023 Class Photo

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SuperUROP Scholars' Achievements

- Many projects lead to publications.
- Some students win awards.
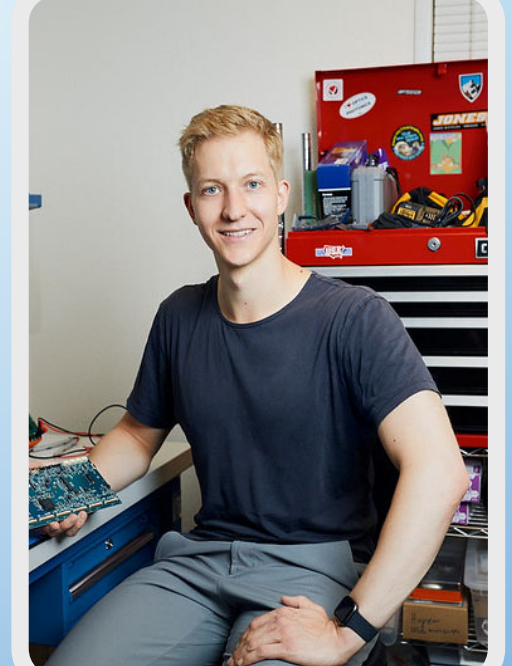- SuperUROP experience helps with admission to grad programs and future careers.

Jennifer Madiedo
Sr. Software engineer, Microsoft

Chelsea Finn
Assistant Prof., Stanford University

Luis Voloch
Co-founder of Immunai

Eric Dahlseng
Co-founder of Empo Health

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Why SuperUROP?

- Research experience

- Money

- Meeting CI-M requirements

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2024-2025 Application Schedule

- **April 5, 2024**: Deadline for students to indicate intent to apply by uploading an unofficial transcript and résumé.
- **April 29, 2024**: Deadline for students to submit proposals.
  - Keep proposals short (between 2 paragraphs and 2 pages. A figure is recommended).
  - You will need to ask your SuperUROP faculty supervisor to submit a letter of recommendation.
- **June/July, 2024**: Funding announcements for 2024-2025.
- **August 2024**: Submit a UROP application and register for 6.UAR
- **January 2025**: Submit a UROP application and register for 6.UAR

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Special Opportunities

1. Projects combining computer science with the humanities, arts, or social sciences (CS+HASS).

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Special Opportunities

2. Projects at the Intersection of Machine Learning and Biology at the Eric and Wendy Schmidt Center at the Broad Institute.

Current SuperUROP Projects @ Broad Institute:

Elucidating Cardiometabolic Disease Pathways & Biomarkers using Deep Learning
- Victory M. Yinka-Banjo
Keywords: Computational Biology; AI and Machine Learning

Causal Disentanglement of Nonlinear Additive Noise Models
- Ryan Welch
Keywords: AI and Machine Learning

Cross-Modal Conditioning for Generative RNA Aptamer Design
- Divya Vani Nori
Keywords: Computational Biology; AI and Machine Learning

Causal Inference and Reinforcement Learning
- Fareed Sheriff
Keywords: AI and Machine Learning

Questions? ericandwendyschmidtcenter@broadinstitute.org

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Where to Learn More?

Overview: superurop.mit.edu

Application: superurop-apply.mit.edu

Contact: superurop-contact@mit.edu

Questions?

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