

Sophia Wang

Woodbridge, CT | (203) 507-0590 | wangsj@mit.edu | sophiajwang.com

EDUCATION

Massachusetts Institute of Technology (MIT), Class of 2024

Cambridge, MA

- B.S. in Aerospace Engineering, GPA: 4.8/5.0

CURRENT WORK

Gelephu Mindfulness City (GMC)

Thimphu, Bhutan

Policy Analyst, Sustainability and Digital Architecture

March 2025 – present

- Writing sandbox policy briefs for sustainability and digital innovation for His Majesty Jigme Khesar Namgyel Wangchuck

Chiba Institute of Technology (CIT), Joi Ito

Chiba, Japan

Research Analyst

March 2025 – present

- Developing founding working principles, funding scheme, and exploratory research areas for School of Design and Science (SDS)

Fab Foundation, MIT International Science and Technology Initiatives (MISTI)

Worldwide

Digital Fabrication Global Ambassador

September 2024 – September 2025

- Investigating educational, economic, sociocultural models across global makerspaces for monograph and comparative study at FABx
- Supported by MISTI as the first cross-continental student innovation ambassador in the program's 40-year history
- Notable residencies include: Huaqiangbei in Shenzhen, China (electronics manufacturing), Thimphu, Bhutan Super Fablab (material circularity), Amazon Floating Fablab (biodiversity platform), Amsterdam WAAG Future Lab (digital methods for arts preservation)

RESEARCH AND ENGINEERING

MIT Media Lab: Center for Bits and Atoms (CBA), Prof. Neil Gershenfeld

Cambridge, MA

Project Lead, Demonstrating Robotic Self-Assembly and Self-Replication in Aerospace Applications

February 2023 – June 2024

- Developed modular quadcopter with automated assembly and custom flight controller library with scalable dimensionality
- Performed tethered and in-flight testing to profile drone load and drag performance and assembly time, cost, and power
- Fabricated embedded force sensors with Toyota Research Institute for selective load placement during assembly
- (separate project) Developed and launched Voxel Invention Kit to create construction-scale, electromechanical unit cells; Contributed to NASA NIAC proposal for voxelized Starshade construction, the first demonstration of self-assembly in space

MIT Media Lab: Tangible Media Group (TMG), Prof. Hiroshi Ishii

Cambridge, MA

Project Co-Lead, Methods and Applications of 4D Printing, from artificial grafts to pneumatic devices.

June 2023 – June 2024

- Designed, built, and characterized a 4D printer for the continuous extrusion of photoresponsive liquid crystalline elastomers (LCE)
- Developed a library of actuation primitives for soft-robotic structures and wearables capable of noncontact manipulation
- Achieved multi-stimulus, free-standing laser-induced graphene/LCE composites with electrothermal and photoresponsive methods

NASA Jet Propulsion Laboratory (JPL)

Pasadena, CA

Payload and Small Spacecraft Mechanical Engineering Intern, Mars Perseverance Sample Return Mission

June 2022 – August 2022

- Designed heat seal circuits and containment units for in-vacuum testing to eliminate contamination of samples in space capsule
- Successfully tested heat seal with on-site, five-story drop tower used to simulate re-entry into Earth's atmosphere
- Implemented gear computation tool to determine transverse and fundamental bending stress and pitting resistance

MIT Space Telecommunications Astronomy Radiation (STAR) Lab, Prof. Kerri Cahoy

Cambridge, MA

Undergraduate Researcher, Direct Imaging of Exoplanets in search of life-supporting Earth analogs

August 2020 – August 2022

- Commanded satellite overpasses for DeMi, a flagship deformable-mirror imaging satellite, launched in Northrop Grumman Cygnus
- Validated trajectory matching algorithm to "deconfuse" multi-planet systems detected in direct imaging using 100,000+ samples
- Developed and implemented algorithm to measure predictive distance from true-positive detections of planets
- (separate project) Designed circuits to thermally modulate the Portable Telescope for Lasercom (PorTeL) ground station

Sinkhole Detection and Prediction

Woodbridge, CT

Project Director, Chief Engineer

September 2016 – September 2020

- Engineered a novel real-time sinkhole detection and prediction system with 93% testing accuracy at less than 5% of the current cost
- Developed (Structural Monitoring, Machine Learning based) sensing device used in generation of time/location predictions
- Led field studies and land surveys of sinkhole sites, in collaboration with EPA, USGS, and University of Connecticut (UConn)
- Secured \$20,000+ in project funding and filed for Utility Patent in May 2020 as UConn IP Law Clinic Pro-Bono Patent Recipient

Other affiliations: Facebook (2021): iOS Intern. Columbia Poromechanics Laboratory (2019-2020): US. Army Research Intern

TEACHING

MIT Spokes

Teacher and Cyclist

U.S.A

June 2024 – August 2024

- Cycled 4,037 miles and climbed 171,691 feet of elevation across America in 75 days, stopping in rural towns to run learning festivals
- Taught over 200 students across seven juvenile correctional facilities, libraries, museums, and after-school clubs
- Developed open-source digital fabrication and 3D printing workshops, concurrently teaching 75 students virtually in a 2-week camp

MIT Eurasia, Global Teaching Labs (GTL)

Math, Science, and Engineering Teacher at Haileybury Almaty

Almaty, Kazakhstan

January 2024 – February 2024

- Developed and taught Space Systems Engineering course for 300+ students in grades 7-9, emphasizing hands-on learning with telescope construction kits, laser communication demonstrations, Mars Landing build challenges, and single-rotor helicopter flights
- Led school-wide assemblies before 500 students, gave research talks, and ran after-school engineering competitions

MIT Germany, Global Teaching Labs (GTL)

English and Science Teacher at Leibniz Gymnasium

Essen, Germany

January 2023 – February 2023

- Taught grades 9-12 physics and engineering, supplementing curriculum with school-wide robotics demos and research talks
- Ran debate seminars for English and Government classes, covering topics including welfare, bioethics, and freedom of speech

Amity Science Mentorship Program

Program Lead

Woodbridge, CT

June 2018 – June 2019

- Taught 30-student sixth grade water science classes at Bethany Community School, with end of the term trips to a local stream to collect and test water samples and present findings in a report to the Woodbridge Town Hall
- Collaborated with teachers and administrators to secure funding for weekly bus services and classroom laboratory space

COOKING

Mince

Creator and Head Chef

Cambridge, MA

September 2022 – June 2024

- Served over 3,500 guests with over 10,000 people on the waiting list, with tickets to dining events chosen by lottery
- Crafted dining experiences in two formats: a formal pop-up, 5-course tasting menu priced at \$17 with seatings for 30 – 60 guests, and pop-downs, à la carte casual dining through food trucks, stands, and picnics for anywhere between 250 – 600 guests
- Ran a 25-person team responsible for all creative and business tasks, from menu design to recipe development to seating charts
- Invited to dine with and learn from Tracy Chang (Chef/Owner of Pagu, a James Beard nominated restaurant), Eneko Atxa (Head Chef of 3-Michelin Star restaurant Azurmendi), and Joxe Mari Aizega (General Manager of the Basque Culinary Center)

Bone Kettle

Line Cook

Pasadena, CA

June 2022 – August 2022

- Prepped for and co-ran the small plates station, serving ~300 guests a night with ~600 dishes daily from my station
- Butchered meats for all stations, prepared family meal for staff before service, and cleaned the kitchen at the end of every shift
- Rotated across stations, from the garde mangier where I shucked oysters and plated desserts, to the grill where I seared Wagyu

Yume Wo Katare

Host

Cambridge, MA

June 2023 – December 2023

- Facilitated more than 1,000 dreams. *Yume Wo Katare* means *Talk about your dream*. As host, when each customer reaches the end of their bowl of Tonkotsu pork ramen, I ask them to share a yet unfulfilled dream before a full seating of 18-people, intent on listening.
- Served ramen and set the seating pace for ~150 guests nightly, prepped stock and toppings, and cleaned dining area and kitchen

AWARDS

International: **Ms. Monopoly** (2019): Chosen globally as one of three young female inventors to be featured in Ms. Monopoly campaign docuseries, awarded \$20,580 in funding through Hasbro, Inc. Innovation Grant for sinkhole detection/prediction project. **Intel ISEF:** 1st in Earth and Environmental Sciences (EAEV) and 2nd Award from Geological Society of America (2019); 3rd in EAEV, 1st in EAEV from Air Force Laboratory, and 3rd in Experimental Mechanics from Society of Exp. Mechanics (2018) **Tsinghua Summer Fellowship** (2024)

National: **Coca Cola Scholar** (2020) **Regeneron STS Scholar** (2020) **Citizens Scholar** (community merit scholarship) (2020) **Milton Fisher Scholar** (creativity in STEM scholarship) (2019) **National Invention Convention**, 1st in Grade (2019)

Grants: **Jameel World Education Lab (J-WEL) Innovation Grant** (2024) **MIT pk12 Open Learning Grant** (2024) **MIT Council for the Arts Seed Grant** (2023-2024) **MIT Sandbox Innovation Fund** (2020-2022)

PUBLICATIONS AND PATENTS

Sophia Wang, Miana Smith, and Neil Gershenfeld. 2023. Voxelcopter: Modular Autonomous Aerial Systems. In Proceedings of the 8th ACM Symposium on Computational Fabrication (SCF '23). Association for Computing Machinery, New York, NY, USA, Article 18, 1–2. <https://doi.org/10.1145/3623263.3629155>

Rhonda Morgan, Sophia K. Vlahakis, Leonid Pogorelyuk, Jenny Gubner, Riley Fitzgerald, Sophia Wang, Kerri Cahoy, "Planet matching and orbit determination in multi-planet systems for exoplanet direct imaging," Proc. SPIE 11823, Techniques and Instrumentation for Detection of Exoplanets X, 118230F (3 September 2021); <https://doi.org/10.1117/12.2594998>

Wang, Sophia. 2020. System, method, and device for real-time sinkhole detection. US Patent 20210109248A1, filed May 7, 2020, and published April 15, 2021.

Miana Smith, Jack Forman, Amira Abdel-Rahman, Sophia Wang, and Neil Gershenfeld. 2025. Voxel Invention Kit: Reconfigurable Building Blocks for Prototyping Interactive Electronic Structures. In CHI Conference on Human Factors in Computing Systems (CHI '25), April 26–May 01, 2025, Yokohama, Japan. ACM, New York, NY, USA, 15 pages. <https://doi.org/10.1145/3706598.3713948>