

STEPHANIE KHAGULI

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EDUCATION

MASSACHUSETTS INSTITUTE OF TECHNOLOGY (MIT)

CAMBRIDGE, MA

Bachelor of Science in Engineering (Mechanical Engineering, with a concentration in Sustainable Global Development)

September 2023

- Relevant Coursework: Global engineering, Energy in Global Development, Product design, Ethical Entrepreneurship, Mechanics of Materials, Numerical Computation with MATLAB, Dynamics, Thermal-fluids engineering, Nanoengineering.
- Minor in German Studies

PHILIPPS UNIVERSITY

MARBURG, GERMANY

Semester Abroad

Spring 2019

- Intensive German language classes at the C1 level alongside classes in German Studies and Literature. Taught in German

WORK EXPERIENCE

SORA FUEL CORPORATION

CAMBRIDGE, MA

Research and Development Engineer

Apr 2024 – Feb 2025

- As the 3rd official employee; set up, troubleshoot, and developed SOPs for lab infrastructure such as gas lines, gas chromatographers and various electrical analysis hardware, onboarding and training 9 subsequent employees and co-ops on their use.
- Led the design, construction and operation of lab scale equipment for in-house direct air carbon capture experiments, the results of which revealed a major oversight in the previous direct air capture to utilization model, allowing the company to pivot capture methods early and save hundreds of thousands in funding.

FABRICATION AND CHARACTERIZATION OF HYDROGELS USING NOVEL DIRECTIONAL FREEZING METHODS

CAMBRIDGE, MA

Undergraduate Research Assistant

Jun 2023 – Oct 2023

- Investigated properties of hydrogels in the context of greatly increasing the evaporation rate of water during atmospheric water harvesting processes.
- Developed remote sample monitoring system to record and investigate collapse of sample structures while undergoing water sublimation within a lyophilizer, saving several hours to days in interrupted or repeated experiments.

BIORESORBABLE OSMOTIC PUMP FOR LONG-TERM CONTRACEPTION

CAMBRIDGE, MA

Undergraduate Research Assistant

Feb 2022 – Dec 2022

- Investigated properties of bio-resorbable polymers for fabrication of implant contraceptives, and shared research through MIT's Fall '22 SuperUROP showcase.
- Fostered strong connections between lab group and separate research institute, relieving several days of backlog in experimental progress from high demand for on-campus characterization equipment and saving one to two days of lead time on sample analysis.

FABRICATION OF HYDROPHOBIC MEMBRANES FOR ENERGY AND WATER APPLICATIONS

CAMBRIDGE, MA

Undergraduate Research Assistant

Jun 2021 – Sep 2021

- Constructed infrastructure to safely run high-voltage electrospinning experiments, and troubleshoot other electromechanical components, saving the group up to \$5000 and several day lead-times in outsourced construction and repairs.
- Developed SOPs and trained two incoming research assistants.

LEADERSHIP

EC.703 ENTREPRENEURSHIP FOR THE IDEALIST

CAMBRIDGE, MA

Project Lead

Feb 2023 – Jun 2023

- Developed and presented a project plan to bridge access to agricultural entrepreneurship opportunities among Kenyan youth through multifaceted digital and community outreach.
- Internalized and applied lessons on defining vision, system and stakeholder analysis, business model and scale design, to craft a pilot intervention timeline, budget, report and presentation suitable for potential funding, which was featured on the MIT D-Lab website.

EC.711 INTRODUCTION TO ENERGY IN GLOBAL DEVELOPMENT

CAMBRIDGE, MA

Stakeholder Engagement Lead, Cameroon Chick Brooder Team

Feb 2023 – Jun 2023

- Worked in a team of 5 to design a heating chamber that utilized sustainable hot water cell chambers to replace firewood in chick brooder boxes in smallholder farms in Cameroon, saving up to \$500 in wood fuel costs every year.
- Worked closely with 3 local partners and 5 farmers in Cameroon to establish needs, budget and technical constraints and project scope, navigating unique socioeconomic constraints to build trust and sustainable growth in a key agricultural sector.

EC.720 MIT D-Lab DESIGN

CAMBRIDGE, MA

Stakeholder Engagement Lead, Colombia Açend Team

Feb 2023 – Jun 2023

- Worked in a team of 4, in collaboration with Corpocampo-- a local NGO, to design a ground-operated, tree climbing mechanism to improve safety and efficiency of harvesting Açai berries for farmers in Colombia.
- Consulted local farmers on their unique needs, and developed efficient, safe, and mechanically advantageous prototypes fit for practical transportation in two-person teams that travel in boats along rivers, walk relatively long distances, and wade through marsh and wetlands to access the Açai palms.

2.760 GLOBAL ENGINEERING

CAMBRIDGE, MA

Financial Officer, Team Innovasea

Sep 2022 – Jan 2023

- Managed funds while working alongside a team of 4 to design a modular device to convert off the shelf leaf blowers to affordable fish feed distribution systems to be used in Aquaculture Farms in Ghana, which would lead to a lower feed to fish output conversion ratio saving up to \$360,000 in feed costs in the first year of use.
- Conducted interviews with local partners to identify key needs, and provide updates in the design process; studying the unique technical and socioeconomic constraints in designing products for developing and emerging markets.
- Co-authored a paper delineating the design and validation process that was submitted to the ASME 2023 International Design Engineering Technical Conferences & Computers and Information in Engineering Conference (IDETC/CIE2023).

SKILLS

- *Software:* Solid Works, Fusion 360, MasterCAM for CNC, MATLAB, Python, MS Office.
- *Machining And Prototyping:* Mill, Lathe, CNC Router, Laser Cutter, 3D Printer, Water jet.
- *Lab Work:* Gas chromatography, Solvent based carbon capture, Pipette work, Alkalinity analysis, SEM, Chemical hood operations.
- *Languages:* Native English and Swahili. Advanced German. Beginner Japanese and Korean.
- *Activities:* Choreographer and Treasurer– Sakata, MIT's premier Afro-Caribbean Dance Troupe
- *Soft Skills:* Good presentation, written and oral communication skills. Thorough, curious, and excited to learn.