Rose Kitz

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EDUCATION

Tufts University, Medford, MA
Candidate for Bachelor of Science in Mechanical Engineering with a minor in Music Engineering May 2024
GPA 3.87, Dean's List all semesters
Activities: Varsity XC/T&F (Captain '23-24, Green Dot and SAAC Rep, NESCAC All-Sportsmanship '23 & '21); Tufts ME ABET Constituency Review Committee; Soc. Women Eng. (Exec. Board 3 years); American Soc. Mech. Eng., Tufts Bike Shop
Relevant Courses: Robotics, Controls, Elec. Musical Ins. Design, Ortho-Biomechanics, Simple Robotics; Comp. Sci.; Human Factors Eng.; Mechanics; Materials & Mfg.; Eng. Design; Design Thinking Social Change; Arch. Acoustics; Public Speaking

University of Pavia; Pavia, Lombardy, Italy; *Tufts-In-Pavia Data Science & Italian Program* July 2022

TECHNICAL EXPERIENCE

Systems Test Engineering Intern **May - Aug. 2023**
iRobot (Bedford, MA)

- Designed, built, developed and verified new product test fixtures utilizing inter-competency system level thinking (Mechanical/Electrical Design, Controls, Data Collection & Analysis)
- Supported the development of advanced technologies, from their infancy to production
- Tested and debugged prototype robotic systems composed of wireless communication systems, sensors, computation modules, mobility, and power/energy storage subsystems
- Assisted in prototype integration, verification, and validation, inc. system functional, performance & environmental testing

Fabrication Specialist **Sep. 2022 – Present**
Nolop FAST Facility (Makerspace) at Tufts University

- Welcome and train community members to use tools safely & effectively; provide advice in the iterative design process
- Maintain & repair tools, take initiative to clean & organize the space, track inventory and facilitate store purchases
- Plan & run two workshops per semester (stained glass, soldering) to invite new students/faculty/staff into the community

RESEARCH EXPERIENCE

Future Educational Technologies Lab Intern **Jul. – Aug. 2022**
Tufts Center for Engineering Education and Outreach, supervised by Chris Rogers

- Researched, programmed, tested, and documented methods for playing MIDI sounds over BLE & USB on the SPIKE Prime hub with MicroPython, enabling students to build wireless, sensor-driven musical instruments with GarageBand
- Designed, built, and programmed a SPIKE trombone (with 'real' partials & slide positions), as well as other instruments

STEM Education Research Assistant **Feb. – May 2022**
Tufts Center for Engineering Education and Outreach

- Tested new VR software, MindRender; designed a mini-golf lesson with MR's physics engine
- Integrated environmental sensors with Arduino/micro:bit to design garden maintenance activities for HS program

STEM TEACHING EXPERIENCE

Learning Assistant, Electronics & Controls, *Tufts University Department of Mech. Eng.* **Sep. – Dec. 2023**
Teaching Assistant, Robotics, *Tufts University Department of Mech. Eng.* **Sep. – Dec. 2023**
Teaching Assistant, Intro to Computing for Engineers, *Tufts University School of Engineering* **Jan. – May 2022**
Teaching Assistant, Intro to Engineering: Simple Robotics, *Tufts University Department of Computer Science* **Sep. – Dec. 2021**
Engineering Instructor (Elevating Agriculture Tech.), *Boston Design Academy (Timothy Smith Network)* **May – Sep. 2021**

- Designed curriculum integrating micro:bit/Arduino, design thinking, and sustainable agriculture/indoor gardens
- Led electronics and food justice lessons, supporting 20 students and fellow instructors in virtual classroom 4 days/week

SKILLS

Fabrication: LEGO SPIKE Prime; bike repair; laser cutting, 3D printing, metalworking, water jet, woodworking, design thinking
Programming: Python (PyGame, NumPy, Matplotlib, Pandas), MicroPython, MATLAB, R, HTML/CSS, JavaScript, Arduino, Java
SW: Creo, SOLIDWORKS (FEA), OnShape; KiCad; Comsol (CFD); Adobe; OpenSim, Max, Reason, CATT Acoustic, GarageBand
Electronics: MIDI BLE, Raspberry Pi, image processing, soldering, micro:bit, Arduino, soft circuits, garden maintenance systems
Communication: Jira, Confluence, Proficient Spanish, Conversational Italian; Graphic Design, Jazz Music (big band, improv.)