SAMUEL "SAM" FREITAS

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OVERVIEW

Multidisciplinary Engineer with a passion for innovative research, knowledge, and exploring the unknown

EDUCATION

Undergraduate: The University of Arizona • 2015 - 2019 – GPA: 3.1 – Dean's list with distinction
Major: Biomedical Engineering --- Minor: Mechanical Engineering
Capstone: Dynamic Bioreactor for engineering Cartilage tissue cells

Graduate: The University of Arizona • 2019 - 2021 – GPA: 3.9
Masters: Master of Science in Biomedical Engineering
Thesis: Worm paparazzi – a high throughput lifespan and healthspan analysis platform for individual *C. elegans*

RELEVANT EXPERIENCE

Engineering Lead: University of Arizona, Sutphin Lab • 2019 – 2021

- Led an engineering team of students to complete a novel high reliability/throughput biological sample measurement robot
- Developed a highly parallelized data analysis program that gives a novel look into the phenotypical health of *C. elegans*
- 40+hours/week [graduate stipend]

R&D Mechanical Engineer I: University of Arizona, Sutphin Lab • 2021 – 2025
R&D Mechanical Engineer II: University of Arizona, Sutphin Lab • 2025 – present

- Led an engineering team to complete a variety of mechanical/software/AI/biological engineering projects
- Optomechanical Engineering of systems with high precision, different modalities, and space constraints
- Developed a novel high throughput large format fluorescent/lifespan/healthspan robot for *C. elegans* measurements
- 5 papers, 3 abstracts, 3 patents (pending), 1 copyright
- 40hrs/week [salaried position]

SKILLS

TECHNOLOGICAL

- Advanced Data processing, High-Performance-Computing (HPC), and Machine Learning (ML/AI)
  - Python/MATLAB/Github – 5+ Image acquisition, Image processing, Image recognition, Pattern recognition
  - 6+ years in redhat/CentOS, GPU clusters – Nvidia, raspberry pi, AMD
  - 5+ years TensorFlow, PyTorch (python), 1+ year ChatGPT and associated LLMs
- Mechanical design for custom solutions
  - 4+ years Stepper, servo, or encoded motors in custom designs for N dimension movements
  - 6+ years Solidworks, 6+ years 3D printing, 2+ years machinist, 3+ years Adobe suite
- Electronical design for custom solutions
  - 2+ years RaspberryPI, Arduino, custom SBC – circuit-python, bash
  - 1+ year digital and analog circuit design, ½ year EagleCAD

WET LABORATORY

- 5+ years studying C. elegans, mice, and human lifespan/healthspan
- 4+ years fluorescent biological samples: Confocal, Fluorescent, Macro, and standard benchtop microscopes
- Skills in – microscopy, western blot, tissue samples, animal handling, sample prep

LEADERSHIP

- 5+ years in leading multidisciplinary teams – Biology, Optical engineering, Mechanical engineering, custom data acquisition, integrated neural networks, and sensor fusion
- Extremely practiced in travel (US and international). Able to understand and work with a wide variety of individuals.

Google Scholar - https://scholar.google.com/citations?user=_vYUUR4AAAAJ&hl=en
ORCID - https://orcid.org/0000-0002-9129-4715