Cyrus Karimy

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Education

Tufts University, Somerville/Medford, MA — Anticipated May 2024
Master of Science, **Biomedical Engineering,** GPA 3.93
Activities: Tufts Taekwondo Club Team (Athlete/Social Chair), Cell Agriculture Club, Graduate Student Blogger

University of Massachusetts Amherst, Amherst, MA — May 2022
Bachelor of Science, **Biomedical Engineering,** Major GPA: 3.74
Activities: Biomedical Engineering Society, UMass Persian Student Association, Intramural Soccer

Experience

Tufts University, Boston, MA
Nicole Tichenor Blackstone Lab, Research Assistant — September 2023 – Present

- Leading AI-driven optimization of serum-free media for bovine cells, significantly enhancing proliferation
- Applying Response Surface Methodology to efficiently design experiments, focusing on optimizing growth factors and proteins
- Developing a high-accuracy artificial neural network model from ongoing proliferation data
- Advancing media formulation optimization through the use of evolutionary algorithms, including particle swarm and genetic algorithms
- Sharing the algorithm for media formulation discovery with the TUCCA consortium

Tufts University, Medford/Somerville, MA
Kaplan Lab, Graduate Research Assistant — September 2022 – Present

- Leading the development of an innovative, serum-reduced media for tuna fish cell culture
- Analyzing supplemental media components' effects on cell proliferation using assays and statistical validation via ANOVA in MATLAB and JMP
- Designing and optimizing a new serum-reduced media by integrating effective supplements at optimal concentrations, verified through advanced GraphPad statistical analysis
- Presenting and defending thesis research to the Tufts Biomedical Engineering (BME) committee, showcasing significant research findings and communication skills

Graduate Teaching Assistant — September 2023 - December 2023

- Lectured, graded assignments, and held office hours for a graduate-level course in the BME department, consisting of 40 PhD, Master's, and Undergraduate students

University of Massachusetts Amherst, Amherst, MA
Donahue Research Lab, Undergraduate Research Assistant — January 2021 - May 2022

- Extracted and prepared over 100 bone samples from big horned sheep for mechanical testing, employing precision techniques with a Dremel hand saw.
- Designed and managed custom fixtures for the efficient preparation of 50 bone testing coupons,
- Executed mechanical durability tests on coupons using 3-point bending and Dynamic Mechanical Analysis, analyzing failure points to assess bone strength
- Determined Bone Mineral Content for all samples through precise ash and dry mass measurements
- Conducted histological analysis on tested samples, including staining, mounting, and microscopy with a ZEISS Microscope, followed by porosity assessment in BIOQUANT Osteo, reflecting advanced technical proficiency
- Contributed to the publication and implementation of collected data and images in the primary investigator's dissertation and presentations, highlighting the significance and applicability of the research findings.

Skills

Lab Equipment/Processes: Mammalian & Seafood Cell Culture, CyQuant Proliferation Assay, Aseptic Technique, Protein Extraction, Bio-Safety Cabinet, Staining, Microscope Slide Production, Celligo & ZEISS Microscope
Software: Genetic Algorithm, Particle Swarm, Neural Network, MATLAB, GraphPad, JMP, MS Office

Publications

Luca H. Fuller, **Kourosh F. Karimy**, Paige L. Ruschke, Meredith M. Taghon, Alfred J. Crosby, Seth W. Donahue, Structure-property relationships of velar bone tissue from the energy absorbing horncore of bighorn sheep rams, Acta Biomaterialia, 2023, ISSN 1742-7061, https://doi.org/10.1016/j.actbio.2023.05.013.