

Joseph P. Licata

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EDUCATION

Temple University, College of Engineering
PhD in Bioengineering

Philadelphia, PA
Expected Graduation: 2022

University of Pennsylvania, School of Engineering and Applied Science
M.S. in Engineering, Bioengineering Class of 2017

Philadelphia, PA

Major: **Bioengineering**

Bachelor of Science in Engineering Class of 2016, Cum Laude

Major: **Bioengineering** Minor: **Mathematics**

RESEARCH EXPERIENCE

Temple University Department of Bioengineering

2018-Present

Graduate student under Peter Lelkes, PhD. Developing novel microgravity simulating bioreactors for use in stem cell differentiation and organoid development.

- Designed and fabricated devices from the ground up, including electrical and mechanical components.
- Cultured various cell types in both 2D and simulated microgravity conditions.

Center for Neurodegenerative Disease Research – Penn Medicine

2016-2018

Full-time Research Specialist working under Rizwan Akhtar MD, PhD. Developed ELISA based assays for the detection of protein biomarkers for Parkinson's Disease in patient biofluids.

- Performed high-throughput screening of patient biofluid samples using novel immunoassays.
- Synthesized and purified recombinant protein
- Created specific protein conformations for use in assay development.
- Presented poster of work and participated in a weekly journal club.

University of Pennsylvania School of Engineering and Applied Sciences

2015-2016

Research Assistant under Paul Ducheyne, PhD. in the Dept. of Bioengineering. Fabricated and tested biomaterials for bone repair and wound healing.

- Developed new method of fabricating scaffolds for use in bone repair using 3D printing technology.
- Optimized sol-gel biomaterials for use in time-release delivery of local anesthetic.

Children's Hospital of Philadelphia Department of Genetics

2014-2016

Research Assistant under Marni Falk, MD. Studied mitochondrial disease and researched treatments for rescuing mitochondrial dysfunction.

- Cultured human cells and C. Elegans expressing mitochondrial mutations
- Analyzed gene expression of samples using Western Blot and qPCR.

University of Pennsylvania Bioengineering Senior Design Project

2015-2016

Senior Design group under Andrew Maidment, PhD. Worked to design a digital breast tomosynthesis machine implementing the concept of super-resolution for better early cancer detection.

- Designed and implemented circuitry coordinating movement of x-ray source and detector in 3D.
- Won top 3 projects in Bioengineering and 5th overall for the entire engineering school.

TEACHING EXPERIENCE

Adjunct Professor 2020-Present
Temple University Department of Bioengineering. Taught a bioengineering general-education class – “The Bionic Human”. Redesigned course for online instruction.

Graduate Student Teaching Assistant 2019-Present
Temple University Department of Bioengineering. Acted as a teaching assistant for multiple laboratory courses. Developed and testing protocols, prepared materials for students, assisted in teaching techniques to students, and graded assignments.

SKILLS and TECHNIQUES

- Novel bioreactor design and fabrication
- Mammalian cell culture
- Isolation of DNA/RNA and analysis by PCR, RT-PCR
- Protein isolation and analysis by western blot, ELISA
- *C. elegans* culture and maintenance
- Histology and Immunohistochemistry
- Fluorescence microscopy, SEM
- Electronic circuit design and prototyping
- CAD, 3D printing, and machining of parts and devices
- MATLAB, Java, and Arduino programming

AWARDS

- Temple University Presidential Fellowship
- 2016 University of Pennsylvania Bioengineering Senior Design Award

PUBLICATIONS and PRESENTATIONS

Akhtar, RS et al. Measurements of auto-antibodies to α -synuclein in the serum and cerebral spinal fluids of patients with Parkinson's disease. *J Neurochem.* 2018 Mar 3. doi: 10.1111/jnc.14330

Peng et al. Inhibiting cytosolic translation and autophagy improves health in mitochondrial disease. *Hum. Mol. Genetics.* (2015) 24 (17): 4829-4847 first published online June 3, 2015.

Licata, JP et al. Preliminary epitope mapping of α -synuclein auto-antibodies. *Center for Neurodegenerative Disease Research 2016 Poster Competition* (2016). Philadelphia, PA.

Licata, JP et al. Improved PEDOT:PSS as a transparent conducting surface for use in electrically stimulating bioreactors. *Temple University Graduate Research Competition 2020.*