Ryan E. Tetro

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Northeastern University Department of Electrical and Computer Engineering
Northeastern Sensors & Nano Systems Laboratory

EDUCATION

Northeastern University, Boston, MA — *2022 - Present*
Predoctoral Student, Electrical Engineering

University of Pennsylvania, Philadelphia, PA — *2018 - 2020*
Master of Science in Engineering, Nanotechnology — GPA: 3.71/4.0

Haverford College, Haverford, PA — *2015 - 2019*
Bachelor of Science in Physics — GPA: 3.52/4.0

EXPERIENCE

PhD Research: Piezoelectric MEMS Resonators — June 2022 - Present
Design and fabrication of Lithium Niobate Laterally Vibrating Resonators operating at very- and ultra-high frequencies, showcasing high figure of merit for use in radio frequency front-end receivers.

Nanofabrication and Manufacturing Engineer, Cogwear — August 2021 - May 2022
Improved the design and fabrication of a novel dry EEG electrode to provide clinical grade cognitive feedback for everyday activities. Patent submitted for 16 unique dry EEG electrode designs.

Lead Nanofabrication Engineer, Ultimara Inc. — January 2021 - August 2021
Developed and executed a nanofabrication process for a novel flexible optical electronic device. Fabrication recipes were created for each process to ensure material and tool compatibility.

Graduate Student Fellow, The Singh Center for Nanotechnology — June 2019 - May 2020
Fabricated and characterized MEMS comb drive actuators and cantilever beam arrays. Worked independently to improve the process flow and produce a higher output of working devices.

Nanofabrication and Nanocharacterization Lab Course TA — Spring 2020
Taught hands on experience fabricating and characterizing micro- and nano-scale devices including MEMS actuators, CdSe quantum dots, graphene transistors, and PDMS microfluidic devices.

Undergraduate Thesis: Research in Soft Matter Physics — Fall 2018 - Spring 2019
Analyzed the sedimentation of micrometer-sized particles at low Reynolds numbers. Used Speckle-Visibility Spectroscopy and Particle Image Velocimetry to measure the relative interactions between Brownian and advective motion.

PUBLICATIONS

Optimized Wire Bonding Process — October 2019
Published on Scholarly Commons, details the optimized process for bonding aluminum wire onto gold and chromium surfaces for use in microelectronics packaging and testing.
Link: `https://repository.upenn.edu/scn_tooldata/47/`

SKILLS

Technical	Micro and Nano Fabrication, Microfluidic Fabrication, Photolithography, Electron Beam Lithography, Spin Coating, PVD, CVD, ALD, RIE, Wet Etching, SEM, AFM, Profilometry, Wire Bonding
Software & Tools	Matlab, Python, COMSOL Multiphysics, Layout CAD, LaTeX