

Education	University of Maryland, Baltimore County (UMBC) BS in Mechanical Engineering, BS in Applied Mathematics Minor in Financial Economics Anticipated Graduation Date: May 2019	Baltimore, MD Major GPA: 3.7/4.0
Work Experience	<p><u>Assistant Software Engineer (InstantLabs)</u> August 2018 – Present</p> <ul style="list-style-type: none"> Assisted in the development of assays to reduce the quantity of primer-dimers and increase the efficiency of wet testing in a start-up environment Implemented C++ and Python and utilized the High-Performance Computing Facility at UMBC to computationally derive the optimal solutions of primer development This work tackles problems in water sanitation, structural damage, and food quality assurance <p><u>Software Engineer (National Renewable Energy Laboratory)</u> June 2018 – August 2018</p> <ul style="list-style-type: none"> Assisted in developing software for a website displaying live data extracted from wind turbines Implemented Python, JavaScript, HTML, and CSS for data visualization and website development Utilized Anaconda, Sphinx, GitHub, Read the Docs, and reStructuredText to provide accurate and precise levels of documentation <p><u>Computational Neuroscientist (University of Maryland – School of Dentistry)</u> December 2017 – Present</p> <ul style="list-style-type: none"> Developed code in Matlab to assist in a computational neuroscience research project with the goal of determining the signals and responses of neurons Applied and analyzed various levels of stimuli and the neuro-mathematical response and behavior This research was submitted as an NIH grant and is pending acceptance <p><u>Research Project Assistant (University of Maryland, Baltimore County)</u> December 2016 – Present</p> <ul style="list-style-type: none"> Developed code in Matlab to analyze the effectiveness of a transducing device utilizing lead zirconate titanate (PZT) plates and the piezoelectric effect to detect tumors under simulated conditions Applied PZT plates to harvest electrical energy for biomedical health monitoring in a knee transplant This project was presented at the SMASIS 2018 conference and is currently in publication 	
Memberships	Project Manager, UMBC SOLARetrievers Engineering Consultant, UMBC Kinetic Sculpture Design/Art Integration Team Member, 2017 UMBC Business Global Brigades trip to Panama 2016 UMBC Human Rights/Microfinance Global Brigades trip to Panama Member, SIAM, OCNS, UMBC Pi Mu Epsilon, UMBC ASME, UMBC Astronomy Club, UMBC Garden Club	
Publications	<ol style="list-style-type: none"> McCullum, Lucas (2017) "Tracking Air Pollution in the City of Baltimore, Maryland Utilizing Light Detection and Ranging (LIDAR)" International Journal of Environmental Science and Development (IJESD) McCullum, Lucas, Dr. Nicholas Hamilton, Rafael Mudafort (2018) "Development of an Interactive Web Portal to Visualize Instrument Data from Meteorological Towers" NREL Technical Report McCullum, Lucas, Dr. Soobum Lee, Dr. Liang Zhu (2019), "Use of Piezoelectric Material for Advanced and Cost-Effective Tumor Screening" UMBC Review 	
Skills	Matlab, Python, JavaScript, C++, SolidWorks, FORTRAN, LaTeX, reStructured Text, Autodesk Inventor, HTML, CSS, Anaconda, Arduino, Microsoft Office (Excel, Word, PowerPoint), LabVIEW, LTSpice, SAS, R	
Honors	Shattuck Family Internship Program for Entrepreneurship Innovation Grand Challenge Scholars Program UMBC S-STEM Scholars Program Undergraduate Research Award (URA) Scholar Economics Department Civic Engagement Award	Fall 2018 – Present Spring 2017 – Present Spring 2017 – Present Spring 2017 Spring 2016