

Anthony J. Pugliese

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Summary: Assiduous MS Physics graduate with Physics, Computer Science, Mathematics, Statistics, and Energy Engineering background seeking to utilize obtained interdisciplinary knowledge in a software engineering role

Education

- Lehigh University, College of Arts and Sciences**, Bethlehem, PA Jan 2018 – Jan 2019
- M.S. in Physics (3.83 GPA)
- Lehigh University, College of Engineering and College of Arts and Sciences**, Bethlehem, PA Aug 2014 – Jan 2018
- B.S. in Integrated Degree in Engineering, Arts & Sciences (IDEAS Honors Program)
 - Degree allows for high variability of coursework catered to student's interests
 - Magna Cum Laude (3.82 Major GPA)

Publications

- *Absence of Evidence for Fixed Charge in Metal-Aluminum Oxide-Silicon Tunnel Diodes* – Physica Status Solidi B

Experience

- Lehigh University, Department of Materials Science and Engineering, Research Assistant** Jan 2018 – Dec 2018
- Head research assistant on project studying structure of amorphous alumina and other ALD processed films using experimental scattering data and Reverse Monte Carlo Molecular Dynamics simulations
 - Beamtime Experience (10 days) at SSRL at SLAC (C# for apparatus control)
- Lehigh University, Department of Physics, Teaching Assistant** Aug 2017 – Dec 2018
- Advanced Physics Lab I (2 Semesters) + II (1 Semester): Guided teams in making experiments that used a wide array of technologies and scientific principles in an open lab environment (Python, LabVIEW, Arduino, GPIB)
- Lehigh University, Department of Materials Science and Engineering, REU** May 2017 – Aug 2017
- Conducted simulations to gain understanding of interfacial electronics via usage of Sentaurus TCAD
 - *Liquid Back Redox Couples and Methylation* – currently under review
 - Created interactive GUIs based on MIS semiconductor interfaces simulations to assist in visual learning of semiconductor physics for semiconductor courses at both Lehigh and other institutions.
- Industrial Assessment Center (IAC) DOE Program with Certification**, Bethlehem, PA. Jan 2017 – Sep 2017
- Provided 6 on-site industrial assessments for energy savings at facilities in tri-state area
 - Compiled and sent reports that evaluated potential short- and long-term saving opportunities, which were monitored by DOE for recommendation implementation rates (90% average) 6 months after initial assessments

Projects

Grocery Pathfinder

- Created a database of grocery items and locations at a local supermarket then performed A* and JPS-A* algorithms on the resulting graph to obtain optimal paths between items
- Solved Traveling Salesmen Problem on resulting matrix to display optimal shopping path to user

Computer Vision

- Image stitching utilizing scikit-image, OpenCV, and g2o that is currently being expanded into SLAM project

Data Science and Data Mining

- Used supervised classifier and regression algorithms, PCA, and clustering to better understand the NBA and predict the outcome of games – Achieved 67% game prediction accuracy via Multilayer Perceptron Method
- Kaggle projects such as Titanic Survival, Kickstarter, Insurance Risk, and Financial Time Series

Skills

Programming	Python, Java, C++, JavaScript, HTML, CSS, MATLAB
Machine Learning	Keras, PyTorch, scikit-learn, scikit-image, OpenCV
Technologies	Git, Flask, React, Django, Bash, Linux, LaTeX, Arduino, LabVIEW
Data Science	PySpark ML, MapReduce, SQL, pandas, numpy, matplotlib