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