James Eckstein

Engineering Physics Major

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Education

University of Illinois at Champaign Urbana August 2021 - Now

Studying Engineering Physics - 4.0 GPA

University of Utah August 2018 - December 2020

Studied Applied Math and Physics - 3.73 GPA

Experience

Research Assistant January 2021 - Now

Analyzed and developed various algorithms to trace grain boundaries in images of polycrystalline grain structures

Adapted and optimized existing convolutional neural networks for this application

Under the guidance of Prof. Yekaterina Epshteyn (University of Utah, Applied Math), Prof. Katayun Barmak (Columbia, Applied Physics and Applied Math), and Prof. Stacey Levine (Duquesne, Math)

Funded Applied Math REU Spring 2020

Developed a numerical algorithm for processing data from images of polycrystalline grain structures

Under the mentorship of Prof. Yekaterina Epstheyn (University of Utah, Math)

University of Illinois Materials Research Lab July 2019

Collaborated with others to assemble and optimize a sub-Kelvin refrigerator with a cryogenic cooling unit

Updated and maintained existing data-gathering software written in Labview

Skills

Proficient with Python, C++, MATLAB, UNIX shell, Vim, and Labview 2019

Experienced with Autodesk Fusion360 CAD, 3d printing, laser cutting, and soldering

Classes

Quantum Mechanics 1 (Physics 486) Received A

Electromagnetic Fields 1 (Physics 435) Received A+

Relativity and Math Applications (Physics 225) Received A+

Patents

Modular armor, Patent 11,112,218 2021