Joseph T Iosue

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Education

Massachusetts Institute of Technology *Massachusetts – Class of 2019*

- Intended B.S. in Physics and Mathematics with Computer Science.
- *Relevant Courseware:* Quantum Mechanics I, Statistical Physics I, Relativity, Introduction to Numerical Analysis, Fundamentals of Programming, Waves and Harmonics, Advanced Linear Algebra, Mathematics for Computer Science, Electricity and Magnetism, Classical Mechanics I & II, Introduction to Computer Science and Programming in Python, Introduction to Computational Thinking and Data Science.

Research

MIT Plasma Science and Fusion Center *Massachusetts – Spring 2016*

- Worked alongside a professor to model particle acceleration and transport in turbulent media using C.
- We focused particularly on an electron's E cross B drift about its guiding center in spatial and time varying fields.

MIT Department of Nuclear Science and Engineering *Massachusetts – Fall 2015*

- Worked alongside a graduate student to model thermal and mechanical responses of nuclear waste storage canisters to Traveling Wave Reactor (TerraPower) fission waste using finite element software ADINA.
- Tested a proposed pin and filler structure against the model we generated.

Internship Experience

Department of Energy, Office of Nuclear Energy *Maryland – January 2016*

- Shadowed the Director of Space and Defense Power Systems, learning about the DOE's task of ensuring complete containment of nuclear material during NASA launches with Radioisotope Power Systems onboard.
- Used HTML/CSS to design a website that presents information on the department to the public.

Projects and Skills

Android Development (Java)

- I have an application on the Google Play Store called "Distance to Green" under developer name "Eigenjoe". The application is free, but I included monetized banner advertisements using AdMob.

Julia

- As part of a class final project, I wrote Julia code implementing dozens of different methods for numerically solving systems with an arbitrary number of degrees of freedom. I applied these methods to various systems, including geodesic paths around a black hole in a Kerr-Newman spacetime geometry to show the existence of frame dragging.

Other

- *Comfortable in* Python, Mathematica, Latex. *Experience in* C, JavaScript, HTML/CSS.

Teaching and Work

Teaching Assistant and Grader *Massachusetts – Fall 2016*

- TA for freshman level physics II, electricity and magnetism. I was responsible for tutoring and helping twenty students through problems and concepts and grading their assignments. Approximately 13 hours a week during the semester.
- Referred to as "best TA ever" by several students in anonymous subject evaluations.

Intramural Ice Hockey Referee and Skate Guard *Massachusetts – 2016, 2017*

Honors

Rensselaer Medal *Maryland - 2014*

- Scholarship awarded by Rensselaer Polytechnic Institute to the top science/math junior in their high school.