

Michael Kolacki

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Education:

State University of New York (SUNY) College at Oswego, Oswego, NY

02/2014 – Present

Projected date of Graduation: Fall 2018

Bachelor of Science in Physics

Bachelor of Science in Software Engineering

Bachelor of Science in Applied Mathematics

GPA: 3.82

President's List: Spring 2015, Fall 2015, Fall 2016, Spring 2017, Fall 2017

Dean's List: Spring 2014, Fall 2014, Spring 2016

Recipient of Academic Excellence Scholarship

Recipient of Dean's Writing Award

Programming Background:

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|----------|--------------------------|--------------|-------------------------|
| • Java | ~4.5 years of experience | • Javascript | ~8 months of experience |
| • C | ~3 years of experience | • HTML | ~8 months of experience |
| • C++ | 8 months of experience | • CSS | ~8 months of experience |
| • Python | ~1 year of experience | • WebGL | ~6 months of experience |
| • Lisp | 7 months of experience | • Bash | ~6 months of experience |

Operating Systems Used --- Ubuntu, Linux, Fedora, Windows, and Unix

Relevant Experience:

- Familiar with Assembly code
- Proficient in working with Maple, Excel, PowerPoint, Word, and Extrema
- Comfortable working with GDB, MATLAB and CST Studio Suite (CAD)

Professional Experience:

State University of New York College at Oswego,

Independent Researcher for the Biomedical Imaging Department, Oswego, NY

6/2018 – 8/2018

- Created a 3D convolutional neural network in the style of Google's Imagenet/Inception network to process MRI data, classifying patients for ADHD
- Ensured that the network be capable of dealing with large individual "image" sizes of ~128x96x81 pixels
- Implemented Spatial Pyramidal Pooling in an attempt to better handle the small dataset size of just over 1,100 patients

State University of New York College at Oswego,

Independent Researcher at ADWISR Center, Oswego, NY

8/2017 – 8/2018

- Worked on designing spiral phase plates of constant thickness and variable permittivity to generate Orbital Angular Momentum in photons, focusing on high frequency waves (~30GHz) for potential use in High Data Rate, Secure Communications
- Created a Java program to generate optimal phase plate designs, subsequently loaded into MATLAB which acted as an interface for CST Studio Suite, allowing for exponentially more efficient design, creation, and testing of potential phase plates than with CST Studio Suite alone

State University of New York College at Oswego,

Independent Researcher for QUEST, Oswego, NY

12/2017 – 1/2018

- Investigated the 3D Navier-Stokes/Euler Equations and computational methodologies to perform higher order accuracy simulations as an expansion on previous work.
- In addition to previously implemented spatial and temporal integration methods, both a Riemann integration method and HLLC Riemann integration method were implemented for better handling potential shocks

- Implemented an absorbing and reflecting boundary condition for the computational domain

Rochester Institute of Technology, Intern/Summer Researcher, Rochester, NY

05/2017 – 07/2017

- Conducted research into the processes involving neutrino physics in the environment of a binary neutron star merger, and of merging supermassive black holes
- Implemented a method to do post-analysis of existing simulation data using a ray tracing algorithm to observe the neutrino luminosity at individual time slices during a binary supermassive black hole merger event

State University of New York College at Oswego,

Independent Researcher for QUEST, Oswego, NY

12/2016 – 1/2017

- Investigated the Shallow Water Equations; a particular scenario of the more general Navier-Stokes/Euler Equations and computational methodologies to perform higher order accuracy simulations
- Created a scalable program to perform pseudo-3D simulations via the 2D Shallow Water Equations using the Finite Volume method, with temporal integration using any of Runge-Kutta 1, 2, 3 (with Total Variation Diminishing formulation), or 4 techniques

NASA Jet Propulsion Laboratory, Intern, Pasadena, CA

06/2016 – 08/2016

- Provided documentation to describe the mathematics and algorithms implemented in existing code written in C for a thermal model of the Composite Infrared Spectrometer on Cassini
- Discovered and took action to handle three bugs/errors within the existing code

State University of New York College at Oswego,

Independent Researcher at ADWISR Center, Oswego, NY

2/2016 – 5/2016

- Obtained valuable experience in antenna and waveguide design, learning both theoretical aspects that dictate the nature of generated/guided waves, and experience in using software to create and test proposed designs
- Used CST Studio Suite to design each coaxial and microstrip waveguides, and microstrip and patch antennas

Prista Technologies, Software Engineer, Oswego, NY

01/2016 – 5/2016

- Operated as lead on a multicomponent project responsible for designing and documenting testing procedures, executing tests, and checking for proper functionality on developed C++ code for an important client
- Assisted fellow associates in developing Java code and performing JUnit testing, handling issues, and writing documentation on up to three other large projects

State University of New York College at Oswego,

Independent Researcher, Oswego, NY

07/2015 – 08/2015

- Worked on installing and running existing AstroBEAR code, simulating magnetohydrodynamic flow with an advanced mesh refinement algorithm
- Gained an in-depth understanding of advanced physics and programming techniques to ensure proper functionality and implementation of aforementioned code

Extracurricular Involvement:

Vice President, Physics Club

11/2014 – 05/2015

Treasurer, Physics Club

05/2015 – 01/2016

Member, IEEE

02/2016 – Present

ΦΚΦ, Phi Kappa Phi, Member

02/2016 – Present

ΣΞ, Sigma Xi, Member

03/2018 – Present

SPS, Society of Physics Students, Member