Kenneth R. Roffo Jr.

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Education

M.S., Computer Science (in progress) — Expected Fall 2020
Johns Hopkins University

B.S., Physics, Mathematics, Computer Science, Honors Program, Magna Cum Laude — May 2017
SUNY Oswego - GPA 3.66

New York State Advanced Regents Diploma with Honors — 2012
John C. Birdlebough High School - GPA 91/100

Professional Experience

Software Engineer - NASA Jet Propulsion Laboratory — June 2017 - Present
My first role at JPL was to develop tools for InSight, a Mars Lander. I joined the team in June 2017 to build modeling software for surface operations. I witnessed the launch from Vandenberg on May 5, 2018, and was in the surface operations room for landing on November 26, 2018, and I know work with my team to determine what the lander will do each day on Mars, using the tools I developed over the year and a half before landing. I am also currently developing flight software for Europa Clipper, a mission that is set to launch in the 2020s. See here for an article about my role on InSight.

Internships

See this interview about my internships and tutoring SUNY Oswego.

Software Engineer - NASA Jet Propulsion Laboratory
The Deep Space Network consists of multiple antennae on Earth which communicate with space craft beyond the moon. In order to improve this process, NASA software engineers are developing a new software to generate files read by the antennae, however they must check that the new software does not generate files with errors. My project at JPL was to develop a diff tool using node.js which would compare these files, and display differences, which the users could flag as unimportant differences, or more imporantly find defects in the products of their software.
Mentor: **Mark Johnston** — Summer 2015

Research Experience

An Asteroseismic Analysis of the Red Giant Branch Bump
As an intern in SAGE at Max-Planck Institute for Solar System Research in Göttingen, Germany I studied how asterosesmic parameters were effected during the RGB bump. I used the MESA stellar evolution code to generate tracks of models of stars with varying masses, then used ADIPLS to calculate the frequencies they would output as the stars passed through the bump.
Advisors: **Saskia Hekker, Earl Bellinger, George Angelou** — June 2016 - Present

The Application of Abstract Algebra to Twisty Puzzles
Rubik's Cubes have fascinated mathematicians ever since they made their debut in the 1970s. Since then, many differently shaped and sized variants of the Rubik's Cube (called twisty puzzles) have become available. In this research I applied concepts I learned in Abstract Algebra to describe these fascinating puzzles. I also worked on a design for a puzzle which I have created, and 3D-printed thanks to SUNY Oswego's SCAC grant.
Advisors: **Bonita Graham, David Vampola** Fall 2014 - Fall 2016

Fourier Decomposition Analysis of CSTAR RR Lyrae Variable Stars
I began this research through a 6 week visit to India in summer 2014. My original, and now completed, goal was to determine the metallicities of several RR Lyrae variable stars.
Advisor: **Shashi Kanbur** Summer 2014 - Spring 2015

Teaching

Math Club Tutoring 2015-2016
Organized and participated in free Math Club tutoring sessions for Calculus students.

Math and Sciences Tutor at SUNY Oswego 2014-2017
Courses Tutored: Calculus 1, 2 and 3, Discrete Math, Physics 1 and 2, CS intro level

HON 150 Seminar Leader at SUNY Oswego Fall 2014
Prepared and presented weekly lectures for an introduction-to-college course. Created and Graded weekly writing assignments.

Talks

InSight: The Next Mars Lander.
SUNY Oswego 2018

A New Cube.
MAA Seaway Section Meeting, SUNY Geneseeo 2016

The Invention of a Cube.
Quest, SUNY Oswego 2016

A Necessary Set of Turns to Solve a Rubik's Cube.
MAA Seaway Section Meeting, Colgate University 2015

The Necessity and Sufficiency of 5 Face Turns to Solve a Rubik's Cube.
Quest, SUNY Oswego 2015

RR Lyrae Metallicities from CSTAR data.
Quest, SUNY Oswego 2015

Fourier Analysis of CSTAR RR Lyrae Variable Stars.
Rochestor Symposium for Physics Students, SUNY Oswego 2015

Metallicity determination for RR Lyraes observed from CSTAR telescopes in Antarctica.
SUNY Undergraduate Research Conference, SUNY Brockport 2015

The Line Trick to Multiplying Numbers and Polynomials.
Math Club, SUNY Oswego 2015

Honors & Awards

Successful completion of the Link Complexity and Maintenance Tool - NASA JPL	June 13, 2018
Development and Delivery of the Link Complexity Scheduling Tool - NASA JPL	Sept. 22, 2018
Honors Program - SUNY Oswego	2012-2017
Presidential Scholarship for Academic Achievement - SUNY Oswego	2012-2016
Sigma Xi Award for Excellence in Research Presentation - SUNY Oswego	Spring 2015
Dean's List - SUNY Oswego	Fall 2014 - Spring 2015
President's List - SUNY Oswego	Fall 2012 - Fall 2013, Spring 2016
Youth of the Year - John C. Birdlebough High School	2012
Presidential Community Service Award - Corporation for National and Community Service	2012
Senior Key in Mathematics - John C. Birdlebough High School	2012
Eagle Scout - Boy Scouts of America	2011

Membership

Omicron Delta Kappa National Leadership Honor Society	Inducted 2015
Phi Kappa Phi National Honor Society	Inducted 2014
National Honor Society	Inducted 2010
Tri-M Music National Honor Society	Inducted 2010
John C. Birdlebough HS Student Council - *President*	2010-2012
Boy Scouts of America *Quartermaster, Assistant Senior Patrol Leader, Eagle Scout, Unit Commissioner*	1999-Present

Skills

Mac and Linux Proficient

Proficient in Bash, Python, Java, Fortran, LaTeX, C/C++, Javascript, and HTML/CSS

Rubik's Cube Speed Solver

Tae Kwon Do - Yellow Belt

Last updated: December 27, 2018