

Kenneth R. Roffo Jr.

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Education

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

Backend Software Engineer - Percent Technologies April 2022 - November 2022

Percent is a Fintech startup with the goal of creating a standard marketplace for private credit transactions. During my time there I worked closely with product managers and other engineers to determine and execute appropriate solutions to problems. My work was primarily done by working with SQL and Java (Spring-boot), with a heavy emphasis on keeping as much business logic in SQL, as opposed to in the Java code, per the company's engineering decisions.

Software Engineer - NASA Jet Propulsion Laboratory June 2017 - April 2022

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. I worked with my team to determine what the lander would do each day on Mars, using the tools I developed over the year and a half before landing. After working on InSight, I worked on several projects including Flight Software for the FSWCore project, early-staged mission modeling and simulation of the Europa Lander mission (publication in progress), and the development of a multimission suite of tools for developing, simulating and packaging mission plans. This [open-sourced](#) effort is pushing forward our capabilities for operating our space craft, bringing our technology in this area into the modern era. 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 importantly 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 asteroseismic 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**

Summer 2016

[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**

2014 - 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**

2014 - 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

<i>Fourier Analysis of CSTAR RR Lyrae Variable Stars.</i> Rochester Symposium for Physics Students, SUNY Oswego	2015
<i>Metallicity determination for RR Lyraes observed from CSTAR telescopes in Antarctica.</i> SUNY Undergraduate Research Conference, SUNY Brockport	2015
<i>The Line Trick to Multiplying Numbers and Polynomials.</i> Math Club, SUNY Oswego	2015

Honors & Awards

Europa Lander Team Award Kenny is awarded Europa Lander's 2022 Team Award for esign Sim support and successful execution.	April 1, 2022
NASA Honors Award To the InSight Mission Planning and Sequencing Team for developing maintaining and operating a robust Planning and Sequencing System in support of deployment HP3 recovery and science monitoring operations.	September 28, 2020
NASA Group Achievement Award To the InSight Surface Activity Planning Development Team for design and implementation of the new Science Plan Integrator tool suite enabling tactical surface operations.	August 28, 2019
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 - <i>President</i>	2010 -2 012
Boy Scouts of America	1999 - 2020
<i>Quartermaster, Assistant Senior Patrol Leader, Eagle Scout, Unit Commissioner</i>	

Skills

Mac and Linux Proficient

Proficient in Java, Python, C/C++, Javascript, HTML/CSS, PostgreSQL, Bash, L^AT_EX

[Intermediate Metal Guitarist](#)

[Rubik's Cube Speed Solver](#)

Last updated: November 28, 2022