

Nils-Erik B. Rundquist

Software • Data • Physics

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Professional Experience

UCSD Center for Astrophysics and Space Sciences

Optical Infrared Laboratory

La Jolla, CA

Software Engineer

January 2022 - Present

Develops and manages software packages for instrumental performance modeling and instrument data reduction pipelines. Writes simulation software to inform scientific inquiry. Creates and manages automated scripts for the generation and analysis of large scientific datasets. Works in collaboration with an international adaptive optics and instrument design team. Authors published scientific result papers, analyzes and presents data results to inform instrumental performance and design.

Research Associate

April 2018 - January 2022

Astrophysics researcher for the development of physics simulation software for various first-light optical and infrared astronomy instruments. Designed and implemented simulations for photometric error analysis and end-to-end science cases, managed software development and documentation, and designed and deployed public online exposure time simulation software package. Performed perfunctory laboratory management tasks.

Lab Assistant

April 2017 - March 2018

Lab assistant and student researcher for the development of physics simulation software.

Outback Adventures

La Jolla, CA

Wilderness Guide

January 2014 – March 2018

Lead guide for a large variety of wilderness trips including but not limited to backpacking, kayaking, canoeing, and rock climbing expeditions. Managed logistical preparation of expeditions and the well-being and safety of course participants.

Administrative Assistant

January 2015 – September 2017

Managed office responsibilities associated with Outback Adventure's outings program, including coordinating participant information, trip emergency protocols, and payroll responsibilities.

Challenge Course Facilitator

June 2015 – October 2017

Facilitated and supervised large numbers of participants on UCSD's high-ropes challenge course and conducted team-building exercises.

Climbing Gym Coordinator

September 2016–June 2017

Managed safety of climbing gym members and instructed patrons on rock climbing and belaying techniques.

Other work experience includes case-by-case technical support, volunteer work, and other clerical occupations.

Education

B.S. in Physics with Specialization Astrophysics

Graduated 2017

University of California, San Diego

Software Proficiencies

- Python, Matlab, IDL, C, C++, Mathematica, HTML
- Linux, Windows, Apple systems
- Bash Shell, C Shell
- Microsoft Office Expertise
- Git
- CAD - AutoDesk, Fusion

Skills and Certifications

- Data analysis and presentation
- Web API design: streamlit, flask
- Communications and leadership skills
- Technical and scientific writing
- Independent research and problem solving
- Class B Commercial Driver, Fluent German