Nils-Erik B. Rundquist

Astrophysics • Data • Software

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Professional Experience

UCSD Center for Astrophysics and Space Sciences
Optical Infrared Laboratory   La Jolla, CA

Research Associate II   August 2020 - Present

- Develops astrophysics simulation software for various first-light optical and near-infrared astronomy instruments, including imagers and integral field spectrographs; creates APIs for instrument simulations and data reduction.
- Designs and implements simulations for error analysis and science cases, manages software development and documentation, and designs and deploys public online exposure time simulation software packages.
- Works with an international adaptive optics and instrument design team to develop data reduction systems.
- Creates and manages automated scripts for the generation and analysis of large scientific datasets.
- Authors scientific result papers, analyzes and presents data results to inform instrumental performance and design.
- Performs perfunctory laboratory management tasks, communicates research to both technical and general audiences.

Research Associate I   April 2018 - August 2020

- Researcher developing physics simulation software, executing simulations, and performing laboratory management tasks. Published paper on error analysis simulations and aided in design of IRIS instrument data reduction system.

Lab Assistant   April 2017 - March 2018

- Student researcher for the development of physics simulation software for the IRIS/TMT instrument.

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 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.

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, IDL, HTML Expertise
- Matlab, C, C++, Mathematica Experience
- Bash Shell, C Shell
- Git
- Linux, Windows, Apple systems
- Microsoft Office, LaTeX, Google Suite
- Web-based GUI design and deployment

Skills and Certifications

- Data analysis and presentation
- Published technical writer
- Communications and leadership skills
- Project management and independent research
- Class B Commercial Driver
- Wilderness First Responder (WFR) certified
- Fluent German