

Nils-Erik B. Rundquist

Software • Data • Physics

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Professional Experience

EDF Renewables North America

La Jolla, CA

Data Solutions Engineer

August 2024 - Present

Led development and optimization of proprietary software solutions and data infrastructure for utility-scale renewable energy projects at EDF Renewables. Architected end-to-end data systems and predictive models for cost estimation, risk assessment, and financial forecasting across Solar PV, Energy Storage, and Wind EPC projects. Designed advanced data visualization frameworks and analytics solutions to support cross-functional decision-making, utilizing Python, SQL, and modern cloud technologies. Streamlined data integration processes between Development, Engineering, Strategic Procurement, and Project Management teams to enhance operational efficiency and market competitiveness.

Senior Data Analyst

March 2023 - August 2024

Conducts data analysis for the estimation of cost values for grid-scale solar power plant engineering, procurement, and construction. Maintains and improves internal software packages, data structure, and analytics in estimation process.

UCSD Center for Astrophysics and Space Sciences

Optical Infrared Laboratory

La Jolla, CA

Software Engineer

January 2022 - March 2023

Developed and managed software packages for instrumental performance modeling and instrument data reduction pipelines. Designed and programmed web hosted GUIs with simulation software for several astronomy instruments to inform scientific inquiry and estimate optical performance. Created and managed automated scripts for the generation and analysis of large scientific datasets. Worked in collaboration with an international adaptive optics and instrument design team, generated figures to illustrate system sensitivities and scientific viability. Authored scientific result papers, analyzed and presented 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 variety of wilderness trips including backpacking, kayaking, canoeing, and climbing expeditions.

Administrative Assistant

January 2015 – September 2017

Managed office responsibilities associated with Outback Adventure's outings program.

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 (pandas, numpy, pydantic, fastapi, streamlit), SQL, C++, C, HTML
- Database: Google BigQuery, SQL Server, SQLAlchemy, Alembic, SQLAlchemy
- Data Visualization: Tableau, Power BI
- Cloud & DevOps: Docker, Kubernetes, GitHub Actions, CI/CD
- Operating Systems: Linux, Windows, macOS
- Version Control: Git
- Statistical Analysis: Monte Carlo simulation, predictive modeling
- API Development: FastAPI, Streamlit, Flask
- Microsoft Office Suite

Skills and Certifications

- Data architecture and system design
- Cross-functional team leadership
- Technical and scientific writing
- Agile development methodologies
- Independent research and problem solving
- Project risk assessment
- Data integration and workflow optimization