

Charles Hagen

An eager, fast learning student with a passion for space exploration.

PROFESSIONAL EXPERIENCE

Fieldline Industries - Software Engineer

February 2024 - September 2024

- Develop and maintain APIs to connect to and access time series databases, enabling real-time data analysis and visualization.
- Implement strategies to optimize database performance, including indexing, partitioning, and query optimization, for efficient data retrieval and storage.
- Develop data analysis pipelines to extract insights from time series data, utilizing tools like Scottplot and Matplotlib for visualization.
- Design and implement APIs using Python and C# to provide access to time series data.

Altius Space Machines - Software Engineer

May 2023 - October 2023

- Work on single and dual mode Electro-Permanent Magnet (EPM) technology for satellite docking and UAV deployment
- Develop novel algorithm for submillimeter precision proximity and ranging detection with EPMs, leveraging scripted interface and advanced data analysis techniques
- Maintain and update embedded firmware for EPMs, enabling critical features in C
- Design & implement front end graphical interface (GUI) for EPMs to enable customers to plug-and-play development kits in C#
- Develop scripted interface for automated EPM system testing and optimization in C#
- Design testing procedures for residual magnetism, holding force, and telemetry metrics

Freelance Consulting - Astronomy Image Processing

March 2021 - PRESENT

- Private one-on-one sessions for astrophotography processing and acquisition software such as Pixinsight, NINA, and PHD2
- Advise clients on astrophotography equipment selection

EDUCATION

Colorado School of Mines - Golden, CO

August 2022 - PRESENT (Expected May 2025)

- B.S. Computer Science
- President of Mines Astronomy Club

EXTRACURRICULAR ACTIVITIES

Denver Astronomical Society

September 2020 - PRESENT

- Volunteer at the Denver Astronomical Society for dark sky weekends
- Provide orientation for new astronomers
- Dark Sky Site preservation and restoration

School of Mines Astronomy Club - President

September 2022 - September 2024

- President of the School of Mines Astronomy Club for 2023-24 year
- Organize club events, support outreach, and fundraising

INTERESTS AND HOBBIES

Astrophotography

August 2020 - PRESENT

- Use specialized automated photographic equipment and software to photograph faint galaxies, nebulae, and other deep sky objects from remote locations.
- Develop novel data processing techniques and software tools to share with the community

CONTACT

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github.com/charleshagen

SKILLS

- Python
- C# / C++ / C
- Experience with Git
- Proficient in CAD
- Additive manufacturing
- GD&T
- Advanced Data Analysis
- Image Processing
- Computer Vision Principles
- Database management

PROJECTS

- Predictive exposure compensation for time lapse
- Mosaic coordinate transformation program
- Remote Observatory in SouthEast Arizona
- Contributor to Lumidex data management software