Carly Snell

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Professional Summary

Analytical and impact-driven Software Engineer and Data Scientist with hands-on experience in scientific research, data analysis, and software engineering. Proven track record in building end-to-end data pipelines, developing simulation tools, and applying machine learning to real-world challenges. Skilled in Python, C++, SQL, and geospatial platforms with a strong foundation in physics and astronomy. Adept at translating complex data into actionable insights and passionate about advancing data-driven innovation across scientific and technical domains.

Technical Skills

Programming: Python, C++, C, Java, SQL, Fortran, IDL
Data Science & ML: Scikit-learn, Pandas, SciPy, NumPy, Matplotlib
GIS & Geospatial: QGIS, ArcGIS, OpenCV, Remote Sensing, Image Analysis
Software & Tools: Jupyter Notebooks, Anaconda, Git, MATLAB, Unity, Microsoft XNA, Linux, LaTeX
Other: Statistical Modeling, Simulation, Data Visualization, Feature Engineering, Proposal Writing

Professional Experience

NASA FINESST Graduate Researcher Cornell University, Ithaca, NY
2021 – 2024

- Led NASA-funded project on atmospheric science of Titan and Mars using remote sensing and simulation models.
- Developed robust Python-based pipelines to process and analyze 400+ planetary images.
- Applied statistical and machine learning techniques to detect atmospheric variability trends.
- Secured $135,000 NASA research grant through competitive proposal process.
- Presented research at national conferences; published findings in peer-reviewed journals.

Graduate Research Assistant Cornell University, Ithaca, NY
2018 – 2021

- Designed and fabricated experimental setup for simulating Martian surface ice grains.
- Conducted time-series analysis and automated image processing using Python and ImageJ.
- Transitioned to simulation work during COVID-19, modeling data for future Mars orbiter instrumentation.

Graduate Teaching Assistant Cornell University, Ithaca, NY
2019 – 2021

- Taught and developed materials for astronomy and scientific writing courses.
- Led recitations and lab instruction; introduced undergraduates to Python for scientific computing.
- Provided hands-on instruction with lab tools including oscilloscopes and multimeters.

Selected Projects

Titan Atmosphere Tilt Analysis
- Conducted time-series analysis of 13 years of Cassini spacecraft imagery.
- Applied edge-detection algorithms to quantify seasonal changes on Titan.
Tools: Python, Pandas, SciPy, Matplotlib

Mars Orbiter Simulated Atmospheric Data
- Simulated atmospheric data to inform sensor design for a proposed Mars orbiter.
Tools: Python, IDL

Mars Ice Grain Image Analysis
- Developed Python workflows to extract features and bond strength data from microscope images.
Tools: Python, ImageJ

Icy Terrain Image Processing
- Mapped and analyzed Arctic terrain features using satellite imagery.
Tools: QGIS, Python

Education

Cornell University
Master of Science, Astronomy & Space Sciences – PhD Candidate
2018 – 2024

North Dakota State University
Bachelor of Science, Physics – GPA: 3.97
2014 – 2018