
Joel Silverman

Data Scientist

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Adaptable and dependable data practitioner with an interest in using machine learning to solve real-world problems in a collaborative environment. Domain knowledge in natural resources, image processing, and geographic information systems.

TECHNICAL SKILLS

- Python for data visualization, pipelines, prediction, and inference.
 - Packages: SciKitLearn, Pandas, NumPy, TensorFlow, Keras, and Beautiful Soup.
- Software: SQL, Git, R Statistical Software, SAS, ArcGIS, Access, and Excel.
- Platforms: Google Colab, PySpark, AWS EC2, and Google BigQuery.
- Interdisciplinary teams, problem solving, and project management.

PROFESSIONAL EXPERIENCE

Data Scientist Fellow - *General Assembly, Remote, November 2021 - March 2022*

- Completed 12-week 500-hours of training and 6 projects using Python to explore and analyze data. Utilized a wide variety of machine learning and statistical methods including regressions, classifications, neural networks, PCA, cluster analysis, Bayesian statistics, and time series analysis.
- Trained a convolutional neural net to classify food photos on Yelp to improve automated photo sorting and filtering options. Used both from-scratch and transfer-learning methods.
- Used Natural Language Processing to differentiate human forum-based discussion from GPT2 chatbots that were trained to mimic forum-based discussion. Achieved 90% accuracy.
- As a small group project, developed a time-series model that predicted near-term energy demand for Texas energy customers looking for cost savings or to shift more use to renewables.
- As an intro Kaggle hackathon, trained a convolutional neural net to classify 100 species of flowers from images. Used TensorFlow and TPUs on Google Colab for improved performance.

Resource Specialist - *US Forest Service, Pinecrest, CA, September 2014 - November 2021*

- Established an online permit system for visitors, saving approx. 1000+ staff hours annually.
- Maintained, analyzed, and reported visitor information from a database of 30,000+ records.
- Supervised 4 to 8 staff each year, plus provided oversight to volunteer groups.
- Wrote successful requests for funds and completed all grant projects on time and within budget.
- Helped coordinate management actions across 1/4 million acres of public land.
- Presented to various public, partner, and stakeholder audiences.

Resource Specialist - *MROSD, Los Altos, CA, July 2010 - July 2014*

- Developed study designs: articulating objectives, selecting statistical methods, adapting sampling methods, collecting data, analyzing data, and reporting findings

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- Designed and piloted a grassland monitoring program to measure treatment effects on native vegetation.
 - Led agency Science and Conservation Permit Program working with universities and agencies conducting research on MROSD lands.
 - Reviewed 150+ research proposals, assessed potential impacts, wrote conditions, and reviewed technical reports for management implications.
 - Created & maintained tabular and geographic records for numerous projects.
 - Agency representative in several stakeholder groups and advisory committees to facilitate cooperative land management.

Fire Ecologist / Lead Monitor - *National Park Service, Springdale, UT, May 2008 - July 2010*

- Led a long-term monitoring program for Zion National Park measuring the effectiveness of vegetation treatments in reaching quantified objectives. Led data collection, statistical analysis, and reporting to program manager.
- Conducted GIS analysis for the program: calibrated time series thermal band satellite images using zonal statistics, applied normalization equations, generated random stratified samples, and processed GPS data.
- Coordinated with universities and other agencies on several large-scale research projects.
- Presented results, communicated technical advice, and discussed program goals with various public and professional audiences.

EDUCATION

Data Science Immersive Certificate - *General Assembly, Washington D.C (Remote)*

Master's of Science - *Colorado State University, Fort Collins, CO*

- Thesis: modeled species distributions using remote-sensing data.
- Research Assistantship funded through NASA. Part of an inter-agency team utilizing satellite image products to improve National Park Service land management.
- Spatial Statistics, Statistics (Data Design and Analysis), GIS Analysis.

Bachelor's of Arts - *The Evergreen State College, Olympia, WA*

- Human & Cultural Geography, Study Abroad (Central America).
- Plant Biology, Natural Resource Management.

SELECTED AWARDS

- USFS & NPS Certificates of Appreciation
- NASA Graduate Fellowship Award (Graduate Research Assistantship with Full Tuition)
- Colorado State University Student Organization Educational Event Award

PERSONAL INTERESTS

- Digital Photography | Trail Running ([Muir Woods](#) and [Stinson Beach](#) Marathons) | Backpacking