Keith F. Ma

keithfma@gmail.com | *610-389-1406* | *Cambridge MA* | *github.com/keithfma* | *linkedin.com/in/keithfma*

Skills

Languages Python, MATLAB, C, C++, Fortran, Javascript, SQL, Bash

Tools scipy, sklearn, flask, OpenMP/MPI, Elasticsearch, PostgreSQL, MongoDB, GDAL, Sun Grid Engine

Experience

TellusLabs *Somerville, MA*

Data Engineer *August 2018 - Present*

- Core developer for global satellite analytics platform focused on monitoring and predicting agricultural yields

Insight Data Science *Boston, MA*

Data Science Fellow *June 2018 - Present*

- Built a navigation app that optimizes for comfortable outdoor travel by simulating sunlight along potential routes from dense LiDAR points and the OpenStreetMap graph (*Parasol*, http://parasol.allnans.com).
- Implemented scalable data processing pipeline to fit surfaces to billions of LiDAR observations and integrate solar input along thousands of road segments for any date/time.

Boston Fusion Corp *Lexington, MA*

Research Scientist *June 2016 - May 2018*

- Designed and implemented practical analytical tools that leverage machine learning to address a wide range of Department of Defense needs for DARPA, ONR, etc. Projects included adaptive decision support systems, data exploration via multi-level graphs, gaming environment artificial intelligence, and statistical models for missile detection.
- Modernized internal software engineering practices, including wrapping new capabilities as services with REST APIs, standardized packaging, sensible unit testing, and automatic documentation generation.
- Presented scientific results and software demonstrations to diverse commercial and military stakeholders.

Boston University Research Computing Services *Boston, MA*

Scientific Programmer / Analyst *Sept. 2014 - June 2016*

- Consulted with BU faculty and students to design, optimize, and parallelize research software for HPC clusters. For example, improved throughput for a large-scale satellite imagery analysis (~70 TB) by reducing I/O bottlenecks and distributing independent tasks to many nodes.
- Promoted best practices in scientific computing by organizing and teaching tutorials and workshops.

Yale University Department of Geology & Geophysics *New Haven, CT*

Doctoral Candidate *Sept. 2007 - Present*

- Designed and built a distributed numerical model to simulate erosion by rivers and glaciers that significantly improved the accuracy, stability, functionality, and speed of earlier models.
- Created a method for reconstructing past topography by decomposing and scaling features created by tectonics and erosion and applied to infer topographic history of the Patagonian Andes.
- Built an analog "sandbox" model of mountain formation and developed custom software for instrument control and automated image processing to measure experimental velocity fields.

Education

Yale University *New Haven, CT*

PhD in Geology & Geophysics *Expected Fall 2018*

Brown University *Providence RI*

BA in Geology - Biology *May, 2005*