

# Sean Shahkarami

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I've been an avid programmer since about 2004 with a formal education in pure and applied math and a strong emphasis on computing.

## Skills

Python, Go, Bash, PyTorch, Scikit-learn, Pandas, Numpy, Scipy, Linux, Docker, C/C++, SQL, Git

## Experience

### **Waggle / Sage / Array of Things Developer | Argonne National Lab | Since January 2016**

I'm helping fuel future science by building scientific cyberinfrastructure for AI/ML applications at the edge. Here are some pieces I've worked on:

- Developed near real-time and bulk data pipeline which compiles ~300GBs of data nightly used by clients.
- Developed our primary client libraries in Python and C++.
- Containerized most of our node software stack.
- Designed and developed Virtual Waggle development toolchain used by clients.
- Developed Docker-based OS build process which significantly reduced build requirements, complexity and times (hours to minutes).
- Developed firmware for our system critical embedded WagMan board.
- Developed interactive QA process used by our manufacturing partners and technicians.
- Performed lots of data wrangling and analysis of our management data and sensor data.
- Guided summer interns through the design, implementation and integration of software tools.

### **Math and Computer Science Intern | Argonne National Lab | Summer 2015**

- Implemented code and tools for large scale watershed simulation in C using PETSc.
- Provided background knowledge of hyperbolic PDEs and fluid mechanics.

### **Computational Bootcamp Instructor | UIUC - Summer 2015.**

- Developed curriculum for and taught two week intensive crash course in scientific computing.
- Material is available here: <https://faculty.math.illinois.edu/~shahkar2/cbmrg/>

## Education

- Progress towards Ph.D in Mathematics, 2011-2016, UIUC
- M.S. in Mathematics, 2011-2013, UIUC
- B.A. in Mathematics with Minor in Computer Science, 2007-2011, UIUC