# Matthew D. Rocklin

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| **CONTACT INFORMATION** | *E-mail:* mrocklin@gmail.com    *webpage:* http://matthewrocklin.com |

**RESEARCH INTERESTS**

I build and maintain parallel computing infrastructure for Python's open source ecosystem. This is part of a broader effort to increase accessibility of numerical methods to science and policy practitioners.

**EDUCATION**

**University of Chicago**, Chicago, IL

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| Ph.D, Computer Science | **2013** |
| M.S. Computer Science | **2011** |

**University of California, Berkeley**, Berkeley, CA

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| B.A., Physics, Mathematics, and Astronomy | **May 2007** |

**PROFESSIONAL EXPERIENCE**

**Anaconda Inc**
*Computational Scientist* — **2014 - Present**
Build software and communities to scale Python's data analytics ecosystem

**Sandia National Laboratory**  - Livermore, CA
*Postdoctoral Researcher* — **2013 - 2014**
Computation and analysis of large time evolving networks

**Sandia National Laboratory**  - Livermore, CA
*Summer researcher* — **Summer 2010**
Graph analytics

**Argonne National Laboratory** - Chicago, IL
*Givens Fellow* — **Summer 2009**
Uncertainty quantification and sensitivity analysis of numerical weather prediction

**UC Berkeley Physics Department** - Berkeley, CA
*Staff Research Assistant* — **2007 - 2008**
Wrote software to track movement of biological materials in cells. Also developed biophysics educational tools.

**Berkeley Engineering and Research/4D Imaging** - Berkeley, CA
*Developer* — **2003 - 2005**
Designed and constructed 3d-scanner based on structured light techniques. Founding developer of a startup engineering company.

**SOFTWARE**

I coordinate and maintain several libraries within Python's numeric computing ecosystem, particularly around efficient and scalable computing.

I am primarily known for my work on Dask, a library for scalable computing with dynamic task scheduling. Dask combines a high-speed task scheduler with parallel algorithms to scale exisitng Python libraries like Numpy, Pandas, and Scikit-Learn.

More generally though I work with other core developers within the ecosystem to promote the general health and efficiency. I contribute to and maintain dozens of libraries. A more complete record of my contribution is available on GitHub: github.com/mrocklin.

Today I mostly publish on technical topics online at matthewrocklin.com/blog. Previously I engaged in traditional academic publishing. This page contains references to those works.

**Theses**
- M. Rocklin, Modular Generation of Scientific Software, 2013, a PhD dissertation.
- M. Rocklin, Uncertainty Quantification and Sensitivity Analysis in Dynamical Systems, 2011, a masters thesis

**Papers**
- Al-Rfou, Rami, et al Theano: A Python framework for fast computation of mathematical expressions, arXiv preprint arXiv:1605.02688 (2016).
- A. Meurer et al SymPy: symbolic computing in Python, PeerJ Computer Science 3 (2017): e103.
- M. Rocklin, A. Pinar On Clustering on Graphs with Multiple Edge Types, Internet Mathematics, 2012
- E. Constantinescu,V. Zavala, M. Rocklin, S. Lee, and M. Anitescu, A Computational Framework for Uncertainty Quantification and Stochastic Optimization in Unit Commitment with Wind Power Generation. IEEE Transactions on Power Systems, 2010.

**Conference Proceedings**
- M. Rocklin, Dask: Parallel computation with blocked algorithms and task scheduling, Proceedings of the 14th Python in Science Conference. 2015.
- M. Rocklin, Uncertainty Modeling with SymPy Stats SciPy 2012
- M. Rocklin, A. Pinar, Computing an Aggregate Edge-Weight Function for Clustering Graphs with Multiple Edge Types. Algorithms and Models for the Web-Graph, 2010
- M. Rocklin, A. Pinar, Latent Clustering on Graphs with Multiple Edge Types Algorithms and Models for the Web-Graph, 2011

**Other**
- M. Rocklin, A Pinar, Spectral Generation and Latent Community Structure of Multiweighted Networks, 2010
- M. Rocklin, E. Constantinescu , Adjoint Sensitivity Analysis for Wind Power Generation, 2009
- US Patent 7620209: Method and apparatus for dynamic space-time imaging system