T. BEN THOMPSON

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EDUCATION

Harvard University *May 2019*
Ph.D., Earth and Planetary Science

Massachusetts Institute of Technology *June 2013*
B.S., Earth, Atmospheric and Planetary Science

SKILLS

- **Relevant Skills:** Software and data engineering, machine learning, statistics, computational methods
- **Languages/tools:** Python (NumPy, Pandas, etc.), C++, CUDA, SQL, Spark, AWS, Git, Linux

EXPERIENCE

Technical Research Consultant *Oct 2022 - present, Boston, MA*

- **Software and computational methods:** Bayesian estimation tools for FDA drug trial design. Integral equation methods for earthquake and tsunami simulations.
- **Research funding policy:** Working with the Institute for Progress to create career hands-on researcher positions in fields dominated by a faculty-as-manager paradigm.

QuantCo, Machine Learning Engineer *November 2017 - Oct 2022, Boston, MA*

- **E-commerce demand forecasting:** Technical lead for a machine learning system that forecasts sales for 2 million products and $4 billion of revenue. Crafted a novel time-series early-stopping technique to minimize overfitting, simultaneously improving model accuracy and reducing model training time from one week to two hours.
- **Data science tech enablement:** Helped economists analyze big data and build high performance production data and prediction systems.
- **Statistical software development:** Implementing and parallelizing numerical optimization algorithms. Co-creator of glum, a generalized linear modeling package, and tabmat, a library of fast mixed dense/sparse matrix routines to support statistical applications. Applications of these tools to e-commerce and P&C insurance.

Harvard University, Graduate Student *Sept 2013 - May 2019, Cambridge, MA*

- **Numerical software:** Developed and implemented computational methods enabling three-dimensional geometrically accurate GPU-accelerated earthquake simulation. (paper)
- **Earthquake science:** Used geometrically realistic simulations of earthquake activity in the Pacific Northwest to identify common magnitudes and spatial extents of damaging events. (paper)
- **Machine learning:** Trained networks to compute complex viscous and elastic physical behavior 500x faster than prior numerical methods. (paper)
- Creator/maintainer of cppimport, a popular tool to ease interfacing C and C++ with Python.

Oak Ridge National Lab, Researcher *Sept 2015 - Nov 2015, Oak Ridge, TN*

- Developed tools for automatically parallelizing complex calculations over supercomputers.

TherapyCharts, Software Engineer *June 2007 - September 2011, Ann Arbor, MI*

- Designed, built and successfully launched a web-based electronic health record system for therapists using Python, PostgreSQL, and Javascript.