Benjamin Stokes, Ph.D.

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Summary

I am a data-oriented solution architect, product manager, and team leader with extensive experience leveraging data to identify new business opportunities and operationalize big ideas. Through a high degree of creative persistence, I have successfully tackled extremely difficult problems. Specific areas of expertise include:

- Machine learning solutions
- Full stack data validation
- Artificial intelligence quality assurance
- Numerical modeling and simulations
- Algorithm development and implementation
- Performance marketing optimization
- Customer engagement platforms
- Strategic problem solving
- International collaboration
- Public presentation

Skills

Computer Languages: R, Python, Go, C, C++, Bash, LaTeX, Java, FORTRAN, *(whatever else is needed)*

Data Management, Statistical Analysis, and Machine Learning: R, SQL Server, Redshift, Tableau, Excel

Distributed Systems and Virtualization: AWS. VirtualBox, VMware, Hadoop, MapReduce, Spark

Frameworks, Environments, and Operating Systems: Linux, Windows, Atlassian, Google Analytics and Adwords

Natural languages: English *(native proficiency)*, Russian *(elementary proficiency)*, French *(beginner)*

Experience

Sorenson Communications — Taylorsville, Utah

Director of Data Science — *July 2018 – Current*

Sorenson Communications is the premier provider of video relay ASL interpretation services for the deaf and hard of hearing communities in the United States. As the Director of Data Science, I have spearheaded initiatives to introduce machine learning into several key junctures of the company's business logic:

- ***Upgrading the employee scheduling system.*** Providing professional interpreting services with 24/7 on-demand availability and minimal down-time has always been an extraordinary challenge for Sorenson. By replacing specific business knowledge with machine learning algorithms, my team is creating a much more resilient system that significantly improves efficiency today while adapting to whatever new challenges lay ahead.
- ***Using predictive analytics to augment customer outreach.*** In order to retain its dominant market share, Sorenson must anticipate the needs of its customers. By analyzing customer behavior history, my team is utilizing machine learning to successfully map and predict important changes in customer behavior.

Smash(ai) — Salt Lake City, Utah

Managing Data Scientist — *July 2016 – July 2018*

Smash(ai) is an artificial intelligence solutions provider. Working on behalf of corporate clients, I have overseen and participated in the creation and implementation of impactful machine learning-driven solutions. These projects have included:

- ***Overseeing the development and implementation of an AI-driven customer engagement platform.*** In preliminary tests, this platform was able to increase message read rates by 27% which brought about a substantial increase in customer engagement.
- ***Devising a full-stack validation for a performance marketing optimization platform.*** Through our efforts, the platform went from having a negative impact to achieving increases of up to 300% in ROI for individual Adwords campaigns.
- ***Architecting, building, and operationalizing an AI-driven customer behavior detection framework.*** By harnessing AI and innovating a method of boot-strapping ever-larger training sets, I designed and oversaw the implementation of a framework that could spot complex behavioral changes with a 99% accuracy and no documented cases of false-positives.

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Experience (cont.)

Finicity Data Services — Murray, Utah

Data Science Consultant — *April 2016 – July 2016*

Finicity is a rapidly expanding fintech company whose core competency is financial account aggregation. During my consulting stint, I spearheaded some important initiatives:

- ***Defined and automated key performance indicators for prioritizing support engineering efforts.*** I engineered KPIs, displayed through an automated dashboard, that allowed the support team to reduce consumer aggregation errors by 40%
- ***Built an AI-powered application for categorizing financial transactions.*** I used NLP machine learning to categorize financial transactions which achieved an incremental 20% gain in accuracy.

University of Utah — Salt Lake City, Utah

Research Faculty — *May 2010 – March 2016*

I was a research collaborator with the Telescope Array (TA) cosmic ray observatory. The TA collaboration developed extensive computational resources resulting in groundbreaking discoveries about the origin and composition of cosmic rays. My principal achievements included:

- ***Engaging in international collaboration.*** The TA collaboration is 85% international with member institutions in Japan, Korea, Belgium, and Russia. Working in this diverse setting taught me to value, above all else, clear communication while respecting the cultural differences and sensitivities of those around me.
- ***Designing the primary framework for the Monte Carlo simulation of the TA observatory.*** In addition to supervising the integration of simulations provided by three independent research groups, my personal effort entailed integrating 40 years worth of legacy code, writing 20,000 lines of new code, and innovating an entirely novel algorithmic approach. The resulting simulations were unprecedented in detail and accuracy.
- ***Developing a technique for mapping and reducing parallel computations.*** I pursued this effort with the aim of open-ended scalability and robust fault protection. The resulting software could be described as a highly specialized reinvention of MapReduce implemented on Linux clusters with Bash scripting employing a high degree of concurrency.
- ***Engaging in big data management.*** I built and managed a 50 TB Linux data server and managed a 10 TB remote data space. In order to effectively utilize this data, I developed a keen sense of foresight towards data logistics.

Rutgers, The State University of New Jersey — Piscataway, New Jersey

Postdoctoral Associate — *July 2008 – April 2010*

I first joined the TA collaboration as a researcher with the affiliated group at Rutgers University. Relevant experience included:

- ***Learning to work remotely.*** Spending the majority of my time 3000 km from the rest of my research group was an excellent opportunity to develop independence, clear communication, and self-motivation.

Education

University of Utah — Salt Lake City, Utah

Doctor of Philosophy in Physics

Bachelor of Arts in Physics

Awards

- Outstanding Postdoctoral Researcher, *University of Utah Department of Physics and Astronomy*
- U.S. Presidential Scholar, *White House*
- National Science Scholar, *U.S. Department of Education*

Other Interests

Among many passions, I am a four-season mountaineer, a classically-trained double bassist, and an internationally published amateur photographer.