Benjamin Stokes, Ph.D.

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Summary

I am a data-oriented product architect and manager and a 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 prior expertise include:

- Machine learning solutions
- Minimum viable product specification
- Artificial intelligence quality assurance
- Numerical modeling and simulations
- Algorithm development and implementation
- Product evangelism
- 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, Azure, 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

nThrive — Layton, Utah

Director of Data Science *December 2019 – Current*

nThrive provides end-to-end revenue cycle management for the full spectum of healthcare providers. As the Director of Data Science, I lead a team of data scientists, data engineers, and product analysts devoted to introducing machine learning into our product lines both through product enhancements and new product offerings. Key initiatives have included:

- ***Introducing ML-asssisted prioritization into work item queues.*** Revenue cycle management often encounters instances where workload exceeds the available resources. By introducing machine learning into the prioritization process we have been able to reduce worker effort by up to 40%
- ***Utilizing machine learning to improve cash-flow projections.*** During the Covid pandemic, our clients have often struggled to make accurate projections of expected insurance payments. By introducing predictive analytics into the payment projection process, we have been able to create an adaptive solution that achieves a 10x reduction in aggregate error.
- ***Engaging in AI evangelism both within the company and our client base.*** Machine Learning and Artificial Intelligence is still regarded as mysterious within the larger business community. Through speaking engagements and roundtables, I have endeavored to render this exciting topic more approachable.

Sorenson Communications — Taylorsville, Utah

Director of Data Science *July 2018 – December 2019*

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 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 created a much more resilient system that significantly improved efficiency while adapting to whatever new challenges presented themselves.
- ***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 utilized machine learning to successfully map and predict important changes in customer behavior.

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Experience (cont.)

Smash(ai) — Salt Lake City, Utah

Managing Data Scientist — *July 2016 – July 2018*

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

- ***Overseeing the development and implementation of an AI-driven customer engagement platform.*** 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.

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 spawned some exciting innovations that included:

- ***Building 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. In addition to supervising gradutate and undergraduate researchers, my personal achievements included:

- ***Designing the primary framework for the Monte Carlo simulation of the TA observatory.*** I oversaw the integration of simulations provided by three independent research groups, and personally integrated 40 years worth of legacy code, wrote 20,000 lines of new code, and innovated 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 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.

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.