

Chris Stucchio

Profile

I'm a product-focused data science and engineering leader. I focus on turning business problems into engineering problems and using data to inform strategy. My ideal role will be hands-on leadership, focused more on mentoring and strategy than day to day management.

See also my github (<https://github.com/stucchio>) and blog (<https://chrisstucchio.com>).

Experience

2017-2020 **GetSimpl Technologies**, *Director of Data Science*, Bangalore, India.

Simpl is a mobile-first lending startup for thin file/no file customers. I led the data science and engineering team, primarily focused on credit risk, fraud prevention, as well as all the engineering details of owning a data science platform.

- Built alternative-data ML-based underwriting system currently responsible for 80% of new user growth. This system reduced delinquency from unsustainable levels to cohort level profitability.
- Reduced fraud from existential threat to a tertiary concern. Built automated fraud prevention systems and created policies to improve merchant underwriting.
- Designed and implemented data platform which enables rapid experimentation and analysis. More than half of our A/B tests go from conception to production in under a week.
- Tech stack: Python/Pandas/Spark/Dask for offline analysis. Scala/Akka for high performance services.

2014-2015 **Wingify/VWO**, *Consultant*, USA, India.

2015-2017 **Wingify (VWO/Pushcrew)**, *Director of Data Science*, NY, USA and Pune, India.

Led a team of data scientists and engineers focused on data science and highly performance infrastructure. Communicated and evangelized the importance of statistics to customers and prospects.

- I designed and architected SmartStats, VWO's new Bayesian A/B testing engine. Prior to SmartStats, A/B testing on the web was broken. The statistics were often calculated incorrectly and virtually always misinterpreted. SmartStats adjusts the statistics to match the way humans use them and fixes these problems.
- Built a behavioral targeting system for push notifications and site modifications.
- Worked as temporary engineering manager of PushCrew (Wingify's push notification product), focusing on engineering best practices. Used statistical techniques to improve delivery and click through rates of push notifications, giving PushCrew the highest delivery rates in the industry.
- Led backend engineering team focused on high performance systems. I sped up our push notifications by a factor of 1000, built high performance data collectors, etc. (Most of this work done with Scala/Akka.)

2013-2015 **Independent Consultant**, USA, UK, India.

Consultant for a variety of clients in the legal, financial and e-commerce spaces. More significant projects include:

- Forensic accounting, analyzing equity and options trades in search of criminal and tortious activity. Modeling price impact and analyzing regulatory compliance.
- Consumer credit underwriting. I did analysis and implementation of microfoundation-based macroeconomic models in order to perform macroeconomic modelling beyond the regime of historical data, as well as exploratory work building data systems in Scala.
- Design and analysis of Bayesian algorithms for improving product discovery on e-commerce sites.

2012-2013 **Patch**, *Senior Software Engineer*, NY, NY.

I taught Patch about data driven decisions. I introduced A/B testing and brought it to the forefront of Patch engineering culture. I was also the primary architect on the realtime monitoring and recommendation system that powered Patch's content selection. Primary technologies used were Scala, Akka and Hadoop.

- Designed realtime Bayesian recommendation system, generating an 120% increase in Click Through Rate. (Biggest lift to site traffic of all major initiatives at that time.)
- Built behavioral spam filtering system which blocked spammers based on site behavior.
- Built funnel tracking system, discovering numerous bottlenecks in the creation of User Generated Content.
- Major contributions to backend infrastructure. Made the site hundreds of milliseconds faster and drove major data migration while deleting more code than I added. Received "Green Monster" (best individual contributor) award for this.

2011-2012 **Styloot**, *CTO/Principal*, NY, NY and Pune, India.

Designed and built Styloot, a visual search engine for women's fashion. Users can take a photograph of a fashion item with the iPhone app and Styloot will find similar items for them to purchase. This was done using an expert systems style ontology, together with a custom semantic search engine.

- Performed experiments on women's perception to determine what features are important in fashion search. E.g., although visually different, a "sweetheart neckline" and a "deep V-neck" are perceived as similar by women.
- Designed/managed workflows for human taggers/ontologists.
- Managed a technology team of 3 people as well as a staff of human oracles.

2010-2011 **Mesh Capital**, *Quantitative Trader*, Jersey City, NJ.

Devised and implemented strategies for high frequency trading. Designed a global predictive strategy using activity in high volume stocks to predict price movements of low volume stocks. Micro-optimized various system components to reduce latency during high volume periods. Devised dynamic portfolio rebalancing strategy to reduce risk and increase profits. All work done in Java.

Skills

Analytical Skills, Credit underwriting (alternative data), conversion rate optimization, time series analysis, Bayesian decision theory.

Technical, Python, Scala, Java, Emacs Lisp. I haven't used C++, Haskell or Julia in a long time but I'd love to use them again.

Topics for conversation, why I love Dask and hate Spark, the importance of a utility function, why ethical decisionmaking is "impossible", why I want data scientists to be good engineers..

Education

- 2007–2010 **New York University**, *Postdoctoral Scholar, Mathematics*, NY, NY.
Studied applications of computational harmonic analysis in image reconstruction (specifically Magnetic Resonance Imaging). Developed new numerical algorithms for solving wave equations, focused primarily on non-rectangular computational grids in phase space.
- 2002–2008 **Rutgers University**, *Ph.D., Mathematics*, Piscataway, NJ.
Thesis work in computational harmonic analysis of partial differential equations, nonlinear optics, and foundations of quantum mechanics.
- 2000–2002 **Stevens Institute of Technology**, *B.S. Mathematics and Physics*, Hoboken, NJ.

Talks (Selected)

- 2019 **Fifth Elephant**, *The Final Stage of Grief (about bad data) is Acceptance*, Bangalore, India.
- 2018 **Crunch Conf**, *AI Ethics, Impossibility Theorems and Tradeoffs*, Budapest, Hungary.
- 2018 **Fifth Elephant**, *Bayesian Linear Regression and Generalized Linear Models*, Bangalore, India.
- 2018 **50p Fintech Conf.**, *Low Rate Loans for Ladies, Stags Pay Extra: The Role of Ethics in AI/ML*, Bangalore, India.
- 2015 **Crunch Conf**, *Multiple Comparisons: Make Your Boss Happy with False Positives*, Budapest, Hungary.
- 2014 **Pune Scala Symposium**, *Number Crunching in Scala*, Pune, India.
- 2008 **Wolfgang Pauli Institute**, Vienna, Austria.
- 2007 **University of Chicago Applied Mathematics Seminar**, Chicago, IL.
- 2007 **SIAM Conference on Dynamical Systems**, Snowbird, UT.
- 2007 **Princeton Mathematical Physics Seminar**, Princeton, NJ.

Publications

- A. Barak, O. Peleg, C. Stucchio, A. Soffer, and M. Segev. Observation of soliton tunneling phenomena and soliton ejection. *Physical Review Letters*, 100(15):153901, 2008.
- O. Costin, J. L. Lebowitz, and C. Stucchio. Ionization in a 1-dimensional dipole model. *Reviews in Mathematical Physics*, 20(7):835–872, 2008.
- O. Costin, J. L. Lebowitz, C. Stucchio, and S. Tanveer. Exact results for ionization of model atomic systems. submitted.
- G. Dekel, V. Fleurov, A. Soffer, and C. Stucchio. Temporal dynamics of tunneling: Hydrodynamic approach. *Phys. Rev. A.*, 75(4):1050, 2007.
- J. Frohlich, A. Soffer, and C. Stucchio. Wave collapse doesn't matter. *In Preparation*, 2007.
- L. Greengard and C. Stucchio. Reconstructing curves from points and tangents. 2009.
- L. Greengard and C. Stucchio. Spectral edge detection in two dimensions using wavefronts. *Applied and Computational Harmonic Analysis*, In Press, Corrected Proof:–, 2010.
- C. Siegel, A. Soffer, and C. Stucchio. Improved error bounds for a higdon open boundary condition. *preprint*.

A. Soffer and C. Stucchio. Time dependent phase space filters: Nonreflecting boundaries for semilinear schrodinger equations. 2006. in preparation.

A. Soffer and C. Stucchio. Open boundaries for the nonlinear schrodinger equation. *Journal of Computational Physics*, 225(2):1218–1232, 2007.

A. Soffer and C. Stucchio. A stable absorbing boundary layer for anisotropic waves. (*Submitted*), 2008.

A. Soffer and C. Stucchio. Multiscale resolution of shortwave-longwave interactions in time dependent dispersive waves. *Communications in Pure and Applied Mathematics*, 62(1):82–124, 2009.

C. Stucchio and L. Mahapatra. A.i. ‘bias’ doesn’t mean what journalists say it means. *Jacobite (non-academic)*, August 2017.

Author of www.chrisstucchio.com, a widely read blog..

Referenced by the Huffington Post, National Review, Reuters, Business Insider, and Marginal-Revolution.com (among others).