# Chris Stucchio

## Profile

I'm a hands on data science leader. I focus on building robust decision systems that drive strategic goals. On the management side this means I build teams of people and grow their skills until they are capable of doing the same. For details see my github (https://github.com/stucchio) or blog (https://chrisstucchio.com).

## Experience

2017-Present  **GetSimpl Technologies**, *Director of Data Science*, Bangalore, India.
Simpl is a mobile-first lending startup, built on underwriting loans based on alternative data sources for thin file/no file customers (the vast majority of India). My main responsibilities here are building the underwriting and fraud prevention systems.
- Reduced company-wide delinquency delinquency from unsustainable levels to cohort level profitability. I accomplished this by moving the company from rule-based underwriting to a modern machine learning system (based on proprietary alternative data sources) as well as automating most of our (previously manual) fraud blocking.
- Shifted focus of company from minimizing delinquency to maximizing LTV, resulting in a 50% increase in growth of long term users. Major ingredients include a companywide shift in focus from acquisition to retention and taking extra risk to acquire high LTV customers.
- Scaled data team up from 3 to 10 people. Changed focus from ad-hoc analysis driven by product/business teams to building machine learning systems which make much of this work unnecessary.
- Built a data platform that enables rapid experimentation, analysis and targeting. More than half of our A/B tests go from conception to production in under a week.

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.
- Grew team from 0 to 6.
- Used statistical techniques to improve delivery and click through rates of push notifications, giving PushCrew the highest delivery rates in the industry.
- Built a behavioral targeting system for push notifications and site modifications.

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

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 activity. Modeling price impact and regulatory compliance.
- Analysis and implementation of microfoundation-based macroeconomic models in order to perform macroeconomic modelling beyond the regime of historical data.
- Design and analysis of Bayesian algorithms for improving product discovery on certain fashion sites.

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

I taught Patch how to use data to make decisions. I introduced A/B testing and brought it to the forefront of Patch engineering culture - all major decisions driven by A/B tests. 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 page view improvement 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*, 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 (mainly high frequency equities), Bayesian decision theory..

**Technical**, Python, Scala, Java, (older) C++, Haskell, Javascript, Emacs Lisp..

**Things to ask me about**, 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.**, *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).