

Sven Kreiss, PhD

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SUMMARY

- Data Scientist with a focus on Machine Learning and Computer Vision
- Statistical modeling expert; was on the core team that discovered the Higgs Boson at CERN
- Founder of the *NYC Data Breakfast*
- Creator of *pysparkling* and *Databench*, see GitHub: <https://github.com/svenkreiss>
- Preferred programming environments: Python, C++, TypeScript/ES6/JavaScript, Spark, React
- Languages: English (fluent), German (native), French (basic)
- Grew up in Germany, studied and lived in the UK, Switzerland and the US

EXPERIENCE

- Sidewalk Labs, an Alphabet company**, New York April 2016 – present
Senior Data Scientist April 2017 – present, Data Scientist April 2016 – April 2017
Machine Learning and Computer Vision expert
Predictive modeling for the transportation coordination platform Flow
Geospatial tools and analyses for Sidewalk's Policy team
- Wildcard**, New York Sept 2014 – March 2016
Lead Data Scientist
Developed a machine learning tool for text and media extraction from HTML documents
Created a content recommendation engine with Collaborative Filtering on Spark
Supervised dataset generation by in-house analysts
- ElectronX**, Germany July 2007 – Aug 2009
Founder
Designed circuit boards and manufactured electronic devices

EDUCATION

- New York University**, New York Sept 2009 – May 2014
Doctor of Philosophy
Thesis: Higgs Boson Discovery and First Property Measurements using the ATLAS Detector
Award: NSF LHC Student Support Award for a one-year-stay at CERN in Geneva, Switzerland
- University of Edinburgh**, UK Sept 2005 – Sept 2009
Master of Physics with Honors in Mathematical Physics, Bachelor of Science
Thesis: New Physics at the LHC: Distinguishability of Supersymmetry and Little Higgs models

SOFTWARE

- s2sphere**, Python implementation of the S2 geometry library. April 2016
Github: <https://github.com/sidewalklabs/s2sphere>
- pysparkling**, a native Python implementation of Spark's RDD interface. May 2015
Github: <https://github.com/svenkreiss/pysparkling>
- Databench**, an interactive realtime data analysis tool. June 2014
Github: <https://github.com/svenkreiss/databench>

CONFERENCES

- Data for Good Exchange**, New York City Sept 2017
Program committee member.
- MLconf**, Atlanta Sept 2015
Conference talk on *Deep ML Architecture at Wildcard*.
- Betaworks Studio and Radius Intelligence**, New York and San Francisco May 2015, March 2016
Talk on *Data and the Higgs Boson Discovery*.
- University of Cambridge**, UK Jan 2014
Seminar on *Factorizing Theoretical Uncertainties from LHC Higgs Coupling Measurements*.
- Statistical and Applied Mathematical Sciences Institute (SAMSI)**, Durham, NC July 2013
Talk on *Modeling and Statistical Analysis for Higgs Physics at the Large Hadron Collider* at the workshop on *Knowledge Extraction via Comparison of Complex Computational Models to Massive Data Sets*.
- CERN**, Switzerland Jan 2013
Talk on the *$H \rightarrow ZZ^* \rightarrow 4l$ Likelihood in ATLAS* at the workshop on *Likelihoods for the LHC Searches*.
- LHC Days 2012**, Split, Croatia Oct 2012
Talk on *Standard Model Higgs Combination and Properties*.
- Computing in High Energy and Nuclear Physics (CHEP)**, New York, NY May 2012
Talk on *RooStats: Statistical Tools for the LHC*.

MEDIA

- The New Yorker** Oct 2013
A Nobel Prize Party: Cheese, Bubbles, and a Boson by Betsy Morais
- Momentum Campaign, New York University** Oct 2013
 A one billion dollar fund-raising campaign where I am featured as one of three students.
- The New York Times** March 2013
Chasing the Higgs by Dennis Overbye.
 “On the night of June 24, the graduate students and postdocs in Atlas were tiptoeing toward the 5-sigma finish line. Among them was Sven Kreiss, a New York University graduate student who got a preliminary glimpse of the answer alone in his office late that night when, as part of a crosscheck, he combined the data from two signatures of the Higgs decay and found the result breached 5-sigma. The next day he sent a plot to his adviser Kyle Cranmer, whose birthday it was, saying he had a present for him.”
- Science** Dec 2012
A Particle Consistent with the Higgs Boson Observed with the ATLAS Detector at the Large Hadron Collider by The ATLAS Collaboration.
 I contributed the analysis of signal strength and mass shown in Fig. 12.

SELECTED PUBLICATIONS

- As a former member of the ATLAS collaboration, I am a co-author of over 340 published papers which are listed on my author page on inspirehep.net. Below is a list of publications where I made a significant contribution to the paper itself.*
- K. Cranmer, S. Kreiss, D. Lopez-Val, T. Plehn, Jan 2014, **Decoupling Theoretical Uncertainties from Measurements of the Higgs Boson**, *Phys Rev D*91, [arXiv:1401.0080 \[hep-ph\]](https://arxiv.org/abs/1401.0080), [code on Github at svenkreiss/decouple](https://github.com/svenkreiss/decouple), supplemental material at <http://dx.doi.org/10.6084/m9.figshare.888607>.
- ATLAS Collaboration, Sept 2013, *Likelihoods for the $H \rightarrow \gamma\gamma$, $H \rightarrow ZZ^* \rightarrow 4l$ and $H \rightarrow WW^* \rightarrow 4l$ channel in the $(\mu_{ggF+ttH} * B/B_{SM}, \mu_{VBF+VH} * B/B_{SM})$ plane for a Higgs boson mass $m_H = 125.5$ GeV*, Datasets on HepData: <https://inspirehep.net/record/1241574/data>.
- ATLAS collaboration, July 2013, *Measurements of Higgs boson production and couplings in diboson final states with the ATLAS detector at the LHC*, **ATLAS writer**, *Phys.Lett. B*726 (2013) 88-119.
- ATLAS collaboration, July 2013, *Evidence for the spin-0 nature of the Higgs boson using ATLAS data*, *Phys.Lett. B*726 (2013) 120-144.
- ATLAS collaboration, March 2013, *Combined coupling measurements of the Higgs-like boson with the ATLAS detector using up to 25 fb^{-1} of proton-proton collision data*, **ATLAS writer**, ATLAS-COM-CONF-2013-035.
- ATLAS collaboration, July 2012, **Observation of a new particle in the search for the Standard Model Higgs boson with the ATLAS detector at the LHC**, **Responsible for Bayesian cross checks**, *Phys.Lett. B*716 (2012) 1-29.
- ATLAS collaboration, July 2012, *Combined search for the Standard Model Higgs boson in pp collisions at $\sqrt{s} = 7$ TeV with the ATLAS detector*, *Phys.Rev. D*86 (2012) 032003.
- ATLAS collaboration, Feb 2012, *Combined search for the Standard Model Higgs boson using up to 4.9 fb^{-1} of pp collision data at $\sqrt{s} = 7$ TeV with the ATLAS detector at the LHC*, *Phys.Lett. B*710 (2012) 49-66.
- ATLAS collaboration, December 2010, *Measurement of the top quark pair production cross-section with ATLAS in pp collisions at $\sqrt{s} = 7$ TeV*, *Eur.Phys.J.C*71:1577 (2011).
- L. Moneta, K. Belasco, K.S. Cranmer, S. Kreiss, A. Lazzaro, et al, Oct 2012, **The RooStats Project**, PoS (ACAT2010) 057.
- B.C. Allanach et al, Jan 2008, *SUSY Les Houches Accord 2*, CPC 180 (2009) 1.