

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](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

Columbia University, New York City Dec 2017
Guest lecture in the Master of Data Science program on *Geospatial Data Science*.

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 <i>Standard Model Higgs Combination and Properties</i> .	
Computing in High Energy and Nuclear Physics (CHEP), New York, NY	May 2012
Talk on <i>RooStats: Statistical Tools for the LHC</i> .	

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 pages on inspirehep.net and [Google Scholar](http://scholar.google.com). 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, Dec 2012, *A Particle Consistent with the Higgs Boson Observed with the ATLAS Detector at the Large Hadron Collider*, **Science** Vol. 338, Issue 6114, pp. 1576-1582. I contributed the analysis of signal strength and mass shown in Fig. 12.
- 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.