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

EPFL, Visual Intelligence for Transportation, Lausanne — starting April 2018
Post-doc

Sidewalk Labs, an Alphabet company, New York City — April 2016 – March 2018
Senior Data Scientist April 2017 – March 2018, Data Scientist April 2016 – April 2017
2nd engineer. Conducted a lot of technical recruiting interviews.
Machine Learning and Computer Vision expert.
Predictive modeling for our spin-out company that focuses on transportation coordination, now called Coord.
Geospatial tools and analyses for Sidewalk's Policy team.
Wrote the first Sidewalk Talk technical blog post on better digital map tools for cities.

Wildcard, New York City — 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 with a particular focus on the cold start problem.
Supervised three in-house analysts who generated training datasets.

ElectronX, Germany — July 2007 – Aug 2009
Founder
Designed circuit boards and manufactured electronic devices.

EDUCATION

New York University, New York City — 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, Bloomberg, New York City — Sept 2017
Program committee member.

Strata+Hadoop World, New York City — Oct 2015
Databench for interactive data analyses.

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→ZZ*→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 City May 2012
Talk on *RooStats: Statistical Tools for the LHC*.

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. 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 D91, arXiv:1401.0080 [hep-ph], code on Github at svenkreiss/decouple, supplemental material at http://dx.doi.org/10.6084/m9.figshare.888607.

ATLAS Collaboration, Sept 2013, *Likelihoods for the $H \to \gamma\gamma$, $H \to ZZ^* \to 4l$ and $H \to WW^* \to 4l$ 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. B726 (2013) 88-119.

ATLAS collaboration, July 2013, *Evidence for the spin-0 nature of the Higgs boson using ATLAS data*, Phys.Lett. B726 (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. B716 (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. D86 (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. B710 (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.C71:1577 (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.