Sven Kreiss

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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
- Organizer of the *NYC Data Breakfast*
- Creator of *pysparkling* and *Databench*, see GitHub: https://github.com/svenkreiss
- Preferred programming languages: Python, C++ and JavaScript
- Languages: English (fluent), German (native), French (basic)

EXPERIENCE

Sidewalk Labs, New York — April 2016 — present

Data Scientist

Predictive modeling for the transportation coordination platform Flow
Geospatial analyses for Policy team

Wildcard, New York — Sept 2014 — March 2016

Lead Data Scientist

Text and media extraction from HTML with an end-to-end structured learning approach
Created content recommedation engine with Collaborative Filtering on Spark
Supervised dataset generation by in-house analysts

ElectronX, Germany — July 2007 — Aug 2009

Founder, Design and Manufacturing of Electronic Equipment

EDUCATION

New York University, New York — Sept 2009 — Mai 2014

Doctor of Philosophy

Thesis: Higgs Boson Discovery and First Property Measurements using the ATLAS Detector
Advisor: Kyle Cranmer
MacCracken Fellowship Program
Award: NSF LHC Student Support Award for a one-year-stay at CERN in Geneva, Switzerland
Teaching: Lecture series for physics majors about the Higgs discovery (Feb 2014), Lab Instructor for General Physics II (Fall 2011), Teaching Assistant for Thermodynamics and Statistical Physics (Spring 2010, 2011), Lab Instructor for General Physics I (Fall 2009)

University of Edinburgh, UK — Sept 2005 — Sept 2009

Master of Physics with Honors in Mathematical Physics

Thesis: New Physics at the LHC: Distinguishability of Supersymmetry and Little Higgs models
Advisors: Tilman Plehn and Thomas Grégoire
Teaching: Teaching Assistant for Foundations of Mathematical Physics (Spring 2007)

SOFTWARE

Data

S. Kreiss, May 2015, *pysparkling: A native Python implementation of Spark's RDD interface*, Github: https://github.com/svenkreiss/pysparkling.

S. Kreiss, Jun 2014, *Databench: An interactive realtime data analysis tool*, Github: https://github.com/svenkreiss/databench.

Physics

K. Cranmer, S. Kreiss, D. Lopez-Val, T. Plehn, Jan 2014, *Code to reproduce results for "Decoupling theoretical uncertainties from measurements of the Higgs boson", Phys Rev D91, arXiv:1401.0080 [hep-ph]*, Github: https://github.com/svenkreiss/decouple.

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}, μ_{VBF+VH} * B/B_{SM}) plane for a Higgs boson mass m_H = 125.5 GeV*, HepData [1, 2, 3].

TALKS

MLconf, Atlanta Sept 2015

Conference talk on *Deep ML Architecture at Wildcard*.

Betaworks, New York May 2015

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, NY May 2012

Talk on *RooStats: Statistical Tools for the LHC*.

SELECTED PUBLICATIONS

As a member of the ATLAS collaboration, I am a co-author of over 230 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 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}, μ_{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, 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.

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 for scholarships at NYU 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.