

STEVEN KAPLAN  
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## EDUCATION

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**Ph.D.** Physics *October 2017*  
Area of Concentration: Experimental Particle Physics  
Rutgers, The State University of New Jersey, New Brunswick, New Jersey

**B.S.** *cum laude* Physics *May 2009*  
Loyola University Chicago, Chicago, Illinois

## EXPERIENCE

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**CMS Experiment at CERN**, Geneva, CH *2012-2017*  
*Graduate Researcher*

**Data analysis** Designed and implemented a search for new physics using particle collider data. Work was performed both individually and as part of an international team. Evaluated criteria to distinguish between signal and background. Extracted statistical measures of how well the data matches theory

**Machine learning** Designed an algorithm to distinguish the decays of b-quarks from those of other lighter particles. Evaluated variables that best classify the two groups and created ROC curves to compare the results of algorithm versions.

**Hardware** Tested diamond sensors to evaluate their readiness for deployment. Evaluated their response to various forms of radiation.

**Rutgers, The State University of New Jersey**, New Brunswick, NJ *2010-2017*  
*Graduate Student*

**Research** Performed research with the CMS experiment

**Teaching** Led recitations in physics for both majors and non-majors to classes of 20-30 students. Held office hours to help students one-on-one.

## TECHNICAL KNOWLEDGE

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**Computing languages and skills** C++, Python (SciPy, NumPy, Pandas, Scikit-learn, Matplotlib), SQL, Java, ROOT, shell scripting, batch processing, L<sup>A</sup>T<sub>E</sub>X, git, svn, also familiar with HTML and Fortran

**Statistical techniques** Machine learning, hypothesis testing, regressions and fitting, evaluating goodness of fit, optimization, confidence intervals, Monte Carlo simulation

**Software** Mathematica, Maple, Excel, Linux, macOS