



Justin Williams

Particle Physicist

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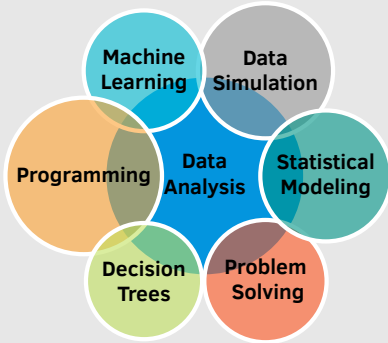
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Skills

Overview



Programming

0 LOC —————> 5000 LOC

Python • C++ • CMSSW

Unix • ROOT

Fortran • R

Projects

PDE Solver - A numerical approach to solve higher order partial differential equations

Electric Field Mapping - Python code to map the electric field of discrete particles. can be implemented for galilean gravity as well.

Baseball Trajectories - Python code that numerically calculates the trajectory of a baseball for various different pitches by solving differential equations.

Education

2016 - 2020 **Ph.D, High Energy Physics**

University of Kansas

2012 - 2016 **B.S., Physics and Mathematics**

University of West Florida

Research

2016 - 2020 **Ph.D. Candidate, Graduate Research Assistant** University of Kansas

Utilized 100 fb⁻¹ of data from the Large Hadron Collider to study Beyond Standard Model physics in photon interactions

- Analyzed and modeled large amounts of data to search for events with new physics
- Presented updates at biweekly collaboration meetings and many international conferences
- **Tools:** C++, Python, Root, Unix, Bash, Mathematica

2011-2012 **UWF Research Scholar**

University of West Florida

Utilized exact diagonalization in fortran to simulate long-range interactions in 36 site geometrically frustrated spin systems with Dr. C. N. varney for over 200 hours

Leadership Experience

2015-2016 **Captain, University of West Florida Basketball** University of West Florida

Orchestrated team meetings and maintained control of the team as the captain of my NCAA division II basketball team

2018 **LHC User**

USLUA

Collaborated with 30 other physicist to advocate for particle physics funding with members of congress for three days in Washington D.C.

2014-2016 **President, Student Athlete Advisory Committee**

University of West Florida

Organized and executed 4 charity events to raise money for Make-A-Wish foundation resulting in the most profit in UWF SAAC history

2012-2016 **Volunteer, Loaves and Fishes Soup Kitchen**

Pensacola, FL

served food and presented motivational messages to 120 members of the homeless community on a weekly basis

Selected International Presentations

October 2018 **Diphoton Analysis With Intact Protons**

CMS Exotica Workshop
Athens, Greece

August 2017 **search For Anomalous Quartic Photon Couplings at the LHC**

International Conference For New Frontiers In Physics
Crete, Greece

June 2017 **Exclusive Diphoton Analysis With CT-PPS**

TOTEM Collaboration Meeting
Malauene, France

September 2016 **Anomalous 4-Photon Studies With Intact Protons**

LHC Forward Physics Working Group
Trento, Italy

Publications

A list of publications can be found at www.researchgate.net/profile/Justin_Williams59