Josiah Couch

josiah.couch@utexas.edu • josiahcouch.com

Summary

- Ph.D. in Theoretical physics (expected spring/summer 2020)
- Advanced skills in mathematics and quantitative problem-solving
- Data analysis experience using Python and C/C++
- Experience doing original research in a collaborative environment

Education

University of Texas at Austin, Austin, TX

Ph.D in Physics (3.6 GPA) *August 2013 - May 2021 (expected)*

- Adviser: Willy Fischler
- Field: Quantum gravity and AdS/CFT

Oklahoma State University, Stillwater, Oklahoma

B.S in Physics and B.S. in Mathematics *August 2009 - August 2013*

Experience

University of Texas at Austin, Austin, TX

Ph.D. Candidate *August 2013 - Present*

- Solve complex problems related to quantum gravity using mathematics, including differential geometry, linear algebra, and differential equations, along with the Mathematica software package
- Apply concepts from quantum information theory and quantum computing in a gravitational context
- Collaborate effectively with other researchers, including those from other universities and other subfields of physics
- Communicate research findings both to subject matter experts and more general audiences through publications as well as formal and informal talks

Teaching Assistant *August 2013 - Present*

- Evaluate student work and provide critical feedback
- Model analytic problem solving to students through official solutions to problem sets and in live review sessions
- Coach students in quantitative problem solving as well as understanding of course subject matters
- Subjects include engineering physics, forensic science, electricity, and magnetism at the undergraduate level, as well as quantum mechanics at both the undergraduate and graduate level

Graduate Research Assistant with Center for Particles and Fields under Prof. Peter Onyisi *June - July 2014*

- Optimized feature selection for a particle physics analysis using simulated data, python, and the TMVA boosted decision tree implementation (used throug pyROOT)
- Developed a python script to pass configuration file from database to fast tracker system

Oklahoma State University, Stillwater, OK

Undergraduate Researcher in Experimental Particle Physics Group under Prof. Flera Rizatdinova *January 2010 - May 2012*

- Analyzed particle physics data using C/C++ and the ROOT package

Skills

Quantitative Problem Solving, Research, Collaboration, Advanced Mathematics, Python, Java, Git, Mathematica, LaTex

Interests

Quantum Gravity, Quantum Computing, Programming, Machine Learning, Photography, Video Games, Mathematics, Languages