

Justin Offutt

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EDUCATION

Indiana University Bloomington

Expected May 2027

B.S. Mathematics and B.S. Physics (Computational Physics)

Minor: Computer Science

GPA: 3.6/4.0

Dean's List: Fall 2024

RELEVANT COURSEWORK: Multivariable Calculus, Linear Algebra, Differential Equations, Systems Programming, Discrete Structures

UPCOMING: Modern Physics, Probability Theory, Modern Algebra, Computing Applications in Physics, Modern Physics Lab, Algorithm Design and Analysis

RESEARCH EXPERIENCE

Undergraduate Research Assistant – Physics Department

Dec 2024 – Present

Indiana University Bloomington, ATLAS Group (CERN)

- Porting legacy **C++** programs for compatibility with modern data formats; maintaining code on GitHub.
- Applied statistical tools such as **2x2D sideband** and **Gaussian Processes** to background modeling for Higgs production using **ssh** to UChicago clusters.
- Contributing to the **Photon subgroup of HIGP**; aiming for publication in Winter 2026.

Undergraduate Research Assistant – Mathematics Department

Jan 2025 – Present

Indiana University Bloomington, Experimental Mathematics Lab

- Built computational tools in **Python + SageMath** within **Jupyter** for analyzing constant term sequences of Laurent polynomials modulo primes.
- Disproved an open conjecture on first-zero bounds through randomized counterexample search algorithms.
- Co-authoring a forthcoming paper on exceptional structure in modular sequences.

TECHNICAL SKILLS

Languages: Python, C++, LaTeX, Bash

Tools/Frameworks: Git, SageMath, Jupyter, ROOT, SSH, Linux

Domains: Experimental Math, High-Energy Physics, Statistical Modeling, Automata Theory

LEADERSHIP & ACTIVITIES

VP Quantitative Development, FinTech @ IU

Aug 2024 – Present

Lead technical and analytical education efforts within FinTech. Including lecturing and creating materials in order to connect upper level math concepts as they relate to finance in such a way non-STEM members understand. Spearheading modeling, simulation, and research efforts.

Full portfolio available at joffutt.com