DR. RYAN HANNIGAN

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Software engineer, postdoctoral fellow, and lecturer with over 7 years of experience in the tech industry and academia, specializing in innovative software development and leadership. Proficient in Python and C++, with a proven track record of leading cross-functional teams and pioneering advanced technological solutions at renowned institutions like UT Austin and CERN. Passionate about technology, physics, and teaching.

Experience

Principal Software Engineer **Oct 2023 – Jul 2025**
VenHub *Pasadena, CA*

- Developed early software infrastructure, including microcrontroller firmware (C++), hub control servers and application backends (Python/FastAPI), computer vision server (Python/pytorch/torchvision), and the customer application frontend (TypeScript/React/React Native)
- Mentored and guided a team of 8+ engineers in developing the company's core technology, constantly exceeding project goals
- Architected and implemented a multi-threaded robotic control system in Python, decreasing order processing time by over 50% and increasing SKU capacity by 10x
- Established and enforced version control best practices on GitHub for organizational code management
- Managed stakeholder relationships, including investors and vendors, to ensure technical goals aligned with business objectives

Lecturer + Postdoctoral Fellow **Jan 2023 – Present**
UT Austin *Austin, TX*

- Conducted cutting-edge research on strange and heavy-flavor quark production at the LHC, performing multi-dimensional angular correlation analyses using C++ and Python with execution distributed across supercomputing clusters.
- Taught full semester of PHY302K, an introductory physics course for STEM majors with over 100 students
- Mentored multiple graduate and undergraduate students, providing regular guidance on research goals.
- Authored and published multiple first-author papers in Physical Review C and presented research at key scientific conferences
- Served on multiple review committees for the ALICE collaboration at CERN

Software Engineer **Jan 2018 – Dec 2022**
ALICE at CERN *Meyrin, Switzerland*

- Developed a C++ software suite to test and characterize hardware components for the ALICE detector upgrade, focusing on picosecond timing resolution and high-throughput data transfers
- Conducted initial prototyping in Python and identified regressions using unit tests (unittest)
- Integrated hardware testing into the GitLab pipeline to ensure accuracy and consistency

Education

University of Texas at Austin **Austin, TX**
Doctorate Degree, Particle Physics Jan 2017 – Dec 2023

- GPA: 4.0
- Recipient of Graduate Provost's Excellence Fellowship, valued over $250,000

University of Houston **Houston, TX**
Bachelor of Science, Physics and Mathematics Sep 2012 – May 2017

- GPA: 3.9
- Graduated Magna Cum Laude, ranked #1 in the Physics Department

Skills

Python (Expert) • Problem Solving (Expert) • Leadership (Expert)
C++ (Experienced) • Data Science (Experienced) • Bash (Experienced) • Teaching (Experienced)
Rust (Skilled) • Machine Learning (Skilled) • C (Skilled) • TypeScript (Skilled)