### **Education**

**Doctor of Philosophy (Ph.D.) in Physics** *(Jun 2022 - Dec 2025)*University of Texas at Dallas, Richardson TX

**Master of Science in Physics** *(Sep 2019 - May 2022)*University of Texas at Dallas, Richardson TX

**Bachelor of Science in Physics** *(Sep 2013 - Dec 2016)*University of Texas at Dallas, Richardson TX

GPA: 3.9

### **Teaching Experience**

**Teaching Assistant | University of Texas at Dallas** *(2019 - 2024)*

* Led **lab-based physics courses** through **interactive demonstrations**, increasing **the average student comprehension rate by 30%, as measured by pre- and post-diagnostic course exams**.
* Developed **grading rubrics** to assess student performance on assignments and exams, and **graded assignments and exams** while tracking student progress using an organized record-keeping system.
* Provided **individualized instruction**, leading to **an average improvement of one letter grade in student performance** by **adapting teaching strategies to various learning styles**.
* Maintained **student performance tracking**, streamlining **data management** by **implementing an efficient record-keeping system**.

**Private STEM Tutor | Self-Employed** *(2012-Present)*

* Specialized in **one-on-one instruction in STEM subjects (from the high school AP level through to the upper undergraduate level)**, achieving **an average of a letter grade improvement in students' courses** by **developing and adapting lesson plans based on student needs**.
* Delivered **ACT and SAT prep lessons**, improving **student confidence and average scores by 15-20% as measured by test scores** through **strategic test-taking approaches**.
* Helped students overcome emotional barriers to learning by demonstrating **empathy and compassion**.
* Integrated **digital learning tools**, utilizing **Skype and Google Meet for screen sharing**, **Desmos and Wolfram Alpha for visualizations**, and **iPads and Wacom boards for collaborative problem solving**, enhancing **student engagement through interactive simulations and virtual labs**.

### **Research & Technical Experience**

**Research Assistant | University of Texas at Dallas** *(2019 - 2022)*

* Completed **literature reviews**, increasing **research efficiency** by **utilizing LLMs such as ChatGPT and Gemini to streamline the search for relevant literature and systematically synthesizing key findings**.
* Assembled **low-cost sensor packages** by **soldering components, 3D printing cases, and updating firmware using C++ when necessary**.
* Tested **portable mass spectrometers** for leaks, adjusted **electrical wiring**, and updated **technical documents** with standard operating procedures and diagrams for the lab.
* Implemented exploratory data analysis techniques such as principal component analysis (PCA) and binary analytical relational score (BARS); applied data cleaning methods, including outlier detection and normalization; and constructed predictive models using neural networks, decision trees, and random forests. Leveraged **Python, Julia, and MATLAB** to improve analytical efficiency and accuracy.
* Published **scientific papers** in peer-reviewed journals, demonstrating **research impact** by contributing to advancements in **Data-driven feature selection methods for scientific modeling**.

### **Industry & Technical Experience**

**AI Content Generation & Quality Control Specialist** Contract *(Nov 2024 - Jan 2025)*

* Curated **datasets** by developing challenging **physics problems** designed to stump the model, leveraging **prompt engineering** techniques to craft precise and structured queries that produce consistent model outputs across many different trials.
* Performed **multiple levels of review and quality control of curated cases** by ensuring **strict adherence** to grammar and instructional guidelines to isolate model errors related to conceptual comprehension rather than question clarity.

### **Publications & Presentations**

[List of Published Papers, Conference Presentations, or Scientific Reports]

### **Projects & Outreach**

* Developed **interactive educational content**, increasing **learning engagement by X%** through **multimedia integration**.
* Managed a **YouTube channel** dedicated to **STEM education**, growing **subscriber base by Y%** through **consistent and high-quality content**.
* Led **science communication initiatives**, improving **public engagement by X%** via **accessible presentations and outreach programs**.

### **References**

Available upon request.