Christopher Jacobs

Fort Wayne, Indiana 46808 | 260-334-2586 | jacobsc050@gmail.com

Summary

Ambitious student pursuing PhD. in physics and eager to contribute developed knowledge in a professorship or a research role. Skilled in physics and mathematics in academic settings. Adaptable and driven with strong work ethic and motivation to thrive in team-based or individually motivated settings.

Experience

Graduate Teaching Assistant | 08/2020 - Current
Purdue Fort Wayne - Fort Wayne, IN

- Attended weekly conversations on how to run a lab
- Taught physics labs and graded work in a timely fashion
- Took course work in mathematics, statistics, and physics
- Conducted multiple research projects
- Mentored undergraduate physics majors
- Covid-19 contingencies
- Attempted to earn grants

Physics Lab Assistant| 08/2019 - 05/2020
Purdue Fort Wayne - Fort Wayne, IN

- Communicated physics to students
- Collaborated weekly with professors to improve assignments and performance as an instructor

Physics Tutor | 10/2019 - 05/2020
Purdue Fort Wayne - Fort Wayne, IN

- Strengthened ability to communicate physics
- supported students to become more independent learners, persist in college, and reach their goals.
- clarified and reviewed concepts taught in class, explain processes and helped students solve specific problems.

CMMS Intern – Computerized Maintenance Management System | 06/2019 - 01/2021
Water Pollution Control - Fort Wayne, IN

- App development using Swift (built on XCode)
  - Augmented Reality APP
  - Fuel Logging APP
  - Pump logging APP
- UX development (built on top of Infor EAM site using extensibility framework)
- Updated asset locations from GIS data
- Helped to create an organizational system for assets
- Picked up experience in SQL, Photoshop, organizing assets, GIS
- Wrote python scripts which queried a MSSQL database and transferred the data to Smartsheet using their API

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Physics Assistant | 02/2018 - 05/2019
Manchester University - North Manchester, IN
- Organized student work
- Examined and graded student's work and gave meaningful feedback
- Worked with students if they had a disagreement grading

Physics Tutor | 08/2017 - 05/2019
Manchester University - North Manchester, IN
- Began interacting with ideas of how to teach
- Explained physics ideas of recently learn concepts to struggling students

Other Jobs | 08/2014 - 08/2019
Misc. - Fort Wayne, IN
- Sears – backroom associate
- Big Eyed Fish Express - cook/frontline organizer
- Fort Wayne Plastics – line worker
- Pizza Hut – delivery
- Meijer – Deli stocker
- Meijer - 3rd shift shelf stocker

Education and Training

Purdue Fort Wayne - Fort Wayne, IN | Master of Science
Degree: Mathematics with concentration in physics, Earned: 12/2021
- 3.83 GPA

Purdue Fort Wayne - Fort Wayne | Bachelor of Science
Degree: Physics with minor in mathematics, Earned: 05/2020
- 3.34 GPA

University North Manchester - North Manchester | 3 Years of Courses (No Degree)
Physics with a minor in mathematics
- 3.73 GPA

Trine University - Angola, IN | Some College (No Degree)
Dual Credit
- 3.75 GPA

Activities and Honors

Academic
- Outstanding Researcher of the Year, Physics | 2020
- Dean's List 7 times | 2016 - 2020
- Member of Sigma Pi Sigma (Physics Honor Society) | 2018
- Member of Kappa Mu Epsilon (Mathematics Honor Society) | 2018
- Losey, A & T Scholarship | 2017
- Fred and Lena Meijer Scholarship Recipient | 2017
- Academic Honors Diploma | 2016
- National We the People Competition Participant | 2016
- Ormerod Social Studies Honor Award | 2016
- Warren E. Burger Class | 2016

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Athletic
- Tom Bohlsen Academic All-Conference - college football | 2017
- 2 Varsity Letter Awards - high school football | 2015, 2016
- Tyler Byall Mental Attitude Award - wrestling | 2014
- Mental Attitude Award - high school football | 2014

Student-Athlete
- Sertoma Award | 2016
  - Award qualification includes excelling in these areas: scholastic, character, good morals, personality, cooperation, sportsmanship, citizenship, leadership, extra-curricular, and athletic participation.

Chess
- 80th percentile in USCF ranking | 2021

Websites, Portfolios, Profiles

- Projects: https://github.com/jacobsc050/projects
- Portfolio:

Certifications

JavaScript Foundations Gold Badge Coder – 1150 Academy | 05/2018 - 06/2018
- Built a website using HTML, CSS, and JavaScript
- Built a recipe generator with use of an API
- Built a portfolio using Bootstrap
- Experience with Git Hub, IDEs, and collaboration using Stack Overflow

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Research

Quantum entanglement – Single Photon Experiments | 08/2019 – Current
Goal: To learn about the quantum nature of photons and explore models of light
- Self-taught material in optics and quantum mechanics
- Set up of experiments to explore ideas in quantum optics including use of spectrometers and interferometers
- Mentored 4 students in conducting research, writing presentations, writing papers, and summarizing pertinent research papers

Senior Thesis – Reverse Biased Diodes as Photon Detectors | 12/2019 – 05/2020
Goal: Find the relationship between frequency of light and magnitude of avalanche currents
- Conducted an experiment, gathered results, and wrote a scientific article
- Integrated, built, and troubleshot an integrating sphere, circuit board, PSoC, Serial inputs, python, and excel to collect and analyze data
- Mentored a high School student in the scientific method and a rigorous scientific experiment

SPAD – Single Photon Avalanche Detection | 08/2019 – 12/2019
Goal: To make a cost-effective measurement device that can be used to count photons
- Experience in electronics and quantum mechanics
- Designed and fabricated circuit boards
- Worked with an alumni

Projects

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Building a Muon Detector | 09/2019 – 12/2020

Goal: Build a sensor to detect muons, part of the larger HAB club

- Building a circuit to get 500V across a Geiger tube
- Bread boarding complex circuits and reading schematics
- Designing a circuit and fabricating that circuit (KiCad and Banshee mill)
- PSoC for counting, using python to transfer data to excel
- Designing and fabricating a housing for the PSoC, circuit, and Geiger tubes
- special relativity, cosmic rays, avalanche currents
- Worked with an undergraduate

Building a sensor to detect pressure | 09/2019 – 12/2020

Goal: Build a sensor to detect pressure in the atmosphere, part of the larger HAB club

- Building a circuit to power a pressure sensing IC
- Designing a circuit and fabricating that circuit (KiCad and Banshee mill)
- PSoC for counting, using python to transfer data to excel
- Worked with an undergraduate

Construction of a low-cost interferometer | 08/2017 – 05/2018

Goal: Measure the diameter of the sun by using path length difference of sunlight from the radio frequencies (10-13 GHz)

Temperature Controller | 01/2018

Goal: Maintain the temperature of water at a boiling point

Clubs

Summer of Covid Club | 05/2020 - 8/2020

Goal: To use our time positively during a pandemic, various 1-week courses by professors

- Basic physics topics such as fluid dynamics, kinematics of rotational objects, center of mass
- Human vision
- Chaos
- Forming a hypothesis, testing a hypothesis, and how to solve problems
- Reading short books about various topics
- 30 demos in 30 minutes

HAB – High Altitude Balloon Launch| 08/2019 – 12/2019

Goal: To launch a packet into the atmosphere

- Group collaboration and bringing individual projects together
- Integrated physical package with electronics
- Produced a working pressure sensor

SPAM - Students Pondering About Math (Vice President) | 08/2018 – 05/2019

Goal: To do interesting math focused events and increase interest others interest in mathematics

- Planned events
- Produced and followed to a budget

SPS – Society of Physics Student | 08/2016 – 05/2019

Goal: To be around physics lovers

- Helped set up and organize events

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Weekly Chess Club with Fort Chess | 2019 – 2021

Goal: To meet chess enthusiasts and become better at chess

- Spent time improving at a logical based game
- Picked up complex patterns, time under pressure
- Taught classmates at PFW the basics of chess

Community Involvement

Assisting Boys and Girls Club with "Take a Stand" though Chess | Current

- Organized ad hoc a chess event
- Gave ideas and time to help individuals help kids learn chess

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