# Ryan Leigh

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## EDUCATION

**B.S. Computer Science (Cybersecurity), Physics Minor** Expected May 2025
Arizona State University, Tempe, AZ 3.83 GPA
Barrett, The Honors College

## TECHNICAL SKILLS

**Programming Languages**: Java, C/C++, JavaScript/Typescript, Python, Scheme, Assembly, Rust
**Front-End**: HTML, CSS
**Tools, Databases, and OS:** Git, Bash, Windows, Linux/Unix, ArcGIS, PyTorch, PuTTy, VS Code, Eclipse, Dev C++, Docker, SQL

## PROFESSIONAL EXPERIENCE

**Physics-Informed Neural Network Researcher - ASU SURI Program** May 2024 - August 2024

- Created physics-informed neural networks which employ the Navier-Stokes equations to model 2D Convection.
- Produced modifications to the network architecture expanded capabilities of the neural network particularly in different aspect ratios, dynamically adapting to different experiment geometries.
- Developed using PyTorch library in Python using data from Ansys CFD. Ingrained physics in loss function to guide the model to represent the physics of the experiment.
- Required knowledge in machine learning and fluid mechanics to produce models.

**U.S. Geological Survey (USGS): Data Science Research Intern** September 2022 - April 2023

- Utilized Python notebooks, TensorFlow, and Google's Inception-v3 convolutional neural network to enhance our understanding of wildfire risk assessment.
- Analyzed various flora and brush types to assess their flammability levels. This analysis enabled us to model and predict the likelihood of wildfires in specific areas. The team successfully secured substantial funding after Open Geo-Consortium's approval of our project proposal.

## RELEVANT PROJECTS

**Data Dashboard**, ***ASU Motorsports - Formula SAE*** September 2023 - Present

- Developed a robust modular data analyzer for the FSAE team in Python, enhancing the efficiency of data processing and analysis for performance optimization.
- Collaborated closely with team members to understand specific analytical needs, tailoring modules to address unique requirements for various subsystems through live data streaming, playback, and analysis.
- Recognized for the project's impact on streamlining the development process and improving the team's competitive edge.

**Radio Telemetry System, *ASU Motorsports - Formula SAE*** September 2023 - Present

- Designed the telemetry subsystem on a formula-style car using LoRa radios in C++.
- Created communication protocols between radios and CAN bus to optimize transmission performance, requiring detailed analysis of both protocols on a bit by bit basis.
- Leveraged telemetry system to curate data for live viewing to assist engineers on multiple clients running our custom dashboard software.

**JavaFX Chess, *Personal Project*** April 2023 - July 2023

- Devised a sophisticated chess application using JavaFX, showcasing a deep understanding of object-oriented programming principles. Leveraged key concepts including inheritance, polymorphism, abstraction, encapsulation, and data structures such as LinkedList to create an intuitive and engaging user experience.
- The JavaFX component of the application brilliantly employs a GridPane layout lined with a 2D array, designed to provide an aesthetically pleasing and highly functional chessboard interface.

**Lead Programmer, *Chaparral Firebird Robotics*** August 2021 - May 2022

- Programmed an autonomous and tele-operable robot in Java to compete in the 2022 FIRST Robotics Competition.
- Intertwined proficiency in Java with graduate level robotics control theory such as PID and trajectory control.
- Learned to work in a team-building atmosphere.

## VOLUNTEER EXPERIENCE

**FIRST Robotics Competition Mentor/Alumni - *Chaparral High School*** January 2023 - Present

- Former student within the FIRST robotics program who now coaches and mentors high school students concerning programming. Leads students to make quality team decisions and lead in high-stress situations.

## WORK EXPERIENCE

**Residential Assistant - *ASU Barrett Complex*** August 2024 - Present

- Manage a floor of 68 residents, facilitating engagement and building interpersonal relationships.
- Collaborate with other staff to host events for upwards of 30-40 residents at a time.
- Respond professionally to incidents and provide resources to ensure a secure living environment.