Christian B. Hughes

US Citizen | christian.b.hughes@gmail.com | christianbhughes.com | LinkedIn: christianbhughes | GitHub: cbhughes29

EDUCATION

Czech Technical University (ČVUT)   **Prague, Czechia**
B.S. in Informatics   *Aug 2023 - Present*
- o **Specialization:** Theoretical Computer Science
- o **Related Coursework:** Data Structures & Algorithms, Statistics & Applications, Combinatorics, Graph Theory, Complexity Analysis of Algorithms, Mathematical Analysis, Object-Oriented & Functional Programming

University of Central Florida   **Orlando, Florida**
Studies in Mechanical Engineering   *Aug 2022 – May 2023*

Allen D. Nease High School   **Ponte Vedra, Florida**
                                                                                       Aug 2017 - May 2022

EXPERIENCE

IEAP + CERN ATLAS   **Prague, Czechia**
Machine Learning Research Assistant   *Feb 2025 – Present*
- Developing novel approaches to Higgs boson mass reconstruction using ML models
- Collaboratively applying cutting-edge techniques in machine learning, including genetic algorithms and physics-informed neural networks
- Sharing results weekly in team meetings with the research lead and teammates

Northrop Grumman   **St. Augustine, Florida**
Engineering Intern   *Oct 2020 – May 2022*
- Engaged in the group development of pneumatic exoskeleton legs for use in industrial settings
- Programmed an ARM-based microcontroller in C to control solenoid systems for pneumatic actuation
- Modeled exoskeleton components in Fusion 360 to create specifications for submission to the facility fabrication shop
- Presented project progress to an audience of facility engineers and managed the budget for exoskeleton development

PROJECTS

Research in Symbolic Dynamics   **Prague, Czechia**
Co-Author   *Ongoing*
- Investigating problems concerning special types of dynamical systems with a professor of mathematics
- Published peer-reviewed and original work advancing knowledge of open questions in the field
- Advanced highly-specialized mathematical understanding

Linear Algebra and Machine Learning Library   **Prague, Czechia**
Co-Author   *Jun 2024 – Sep 2024*
- Employed the Agile workflow to collaboratively develop a linear algebra library in C++ without external libraries and published publicly on GitHub
- Implemented complex algorithms like singular value decomposition and facial recognition using eigenfaces
- Successfully deployed and tested machine learning algorithms, including logistic regression and OLS regression

ACTIVITIES AND LEADERSHIP

Czech Technical University Faculty of Information Technology   **Prague, Czechia**
Teaching Assistant for Linear Algebra and Analysis   *Aug 2024 – Present*
Florida State Science and Engineering Fair   ***Lakeland, Florida***
Placed Third in Engineering Category   *Mar 2019*
- Designed, programmed, and fabricated an upper-body exoskeleton chassis as a second-year high school student

SKILLS

Mathematics: Symbolic Dynamics, Dynamical Systems, Real & Functional Analysis, Linear Algebra, Group & Ring Theory, Semigroup Theory, Topology, C* Algebras
Programming Languages: C++, C, Python, Racket, Prolog, Matlab
Tools & Frameworks: LaTeX, NumPy, Pandas, Tensorflow, Jupyter Notebooks, Git, Google Colab, Agile
Languages: English (Native), Czech (B1), Spanish (A2)