CHRISTIAN B. HUGHES

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EDUCATION

Czech Technical University in Prague — **Prague, Czech Republic**
B.S. in Informatics — Aug 2023 - Present

- **Specialization**: Theoretical Computer Science
- **Related Coursework**: Data Structures & Algorithms, Statistics & Applications, Graph Theory, Complexity Analysis of Algorithms, 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**

EXPERIENCE

IEAP Prague + CERN ATLAS — **Prague, Czech Republic**
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

Northrop Grumman — **St. Augustine, Florida**
Engineering Intern — Oct 2020 - May 2022

- Modeled a 2-DOF system considering sprung and unsprung mass of the vehicle
- Performed sensitivity analysis to minimize the displacement of sprung and unsprung mass caused by vehicle hitting a bump using a transfer function approach
- Decreased settling time and displacement of the system using a hydro-pneumatic suspension system

ACADEMIC WORKS

Francesco Dolce, Christian B. Hughes. *Clustering of Return Words in Languages of Interval Exchanges. Lecture Notes in Computer Science*, vol. 15729, Springer. 2025

Francesco Dolce, Christian B. Hughes. *Extended Branching Rauzy Induction.* Preprint. 2025

TEACHING

Teaching Assistant, Czech Technical University in Prague — **Prague, Czech Republic**
Core mathematics courses (Linear Algebra I/II, Mathematical Analysis I/II) — Fall 2024 - Present

- Led weekly problem and theory sessions, including board proofs, worked examples, and exam reviews.
- Courses: Linear Algebra I (Fall 2025, Fall 2024), Linear Algebra II (Spring 2025), Mathematical Analysis I (Spring 2025), Mathematical Analysis II (Fall 2025).

SKILLS

Mathematics:	Symbolic dynamics, dynamical systems, real & functional analysis, linear algebra, group & ring theory, semigroup theory, topology, C*-algebras
Programming:	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)