

CHRISTIAN B. HUGHES

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EDUCATION

Czech Technical University in Prague

B.S. in Informatics

Prague, Czech Republic

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

Studies in Mechanical Engineering

Orlando, Florida

Aug 2022 - May 2023

Allen D. Nease High School

Ponte Vedra, Florida

EXPERIENCE

IEAP Prague + CERN ATLAS

Machine Learning Research Assistant

Prague, Czech Republic

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

Engineering Intern

St. Augustine, Florida

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

Core mathematics courses (Linear Algebra I/II, Mathematical Analysis I/II)

Prague, Czech Republic

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: L^AT_EX, NumPy, Pandas, TensorFlow, Jupyter Notebooks, Git, Google Colab, Agile

Languages: English (Native), Czech (B1), Spanish (A2)