

Samuel Oliveira

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Education

- University of Central Florida** - BS in Computer Science July 2026
- **GPA:** 3.89/4.0
 - **Coursework:** Algorithmic & Mathematical Problem Solving, Bio-informatics, Artificial Intelligence, Optimization

Experience

- Varsity Programming Team** - UCF Sept 2025 – Sept 2026
- Competed in ICPC competitions nationally for the UCF programming team
 - Practiced **25-30** hrs/week in advanced algorithm design and problem solving in C++
 - Collaborated in **10+** hours of structured team practices focused on optimization strategies, and strengthening team communication, collaboration, and competition performance
 - Participated in weekly lectures on advanced methods and algorithms for optimization, creative problem solving
 - Placed top **5%** at ICPC North American Qualifiers 2024
 - Created data for the problems at UCF's annual High School Programming Contest
- Undergraduate Teaching Assistant** - UCF Jan 2025 – Present
- Guided **700+** students in foundational programming and concepts in C/C++
 - Assisted faculty in developing personalized grading technology and providing those grades to students

Projects

- Cow-Basic** - (C++, React, Matrix Exponentiation) samueloliveira.xyz/cowBasic
- The Cow-BASIC compiler is a high-performance C++ interpreter that uses matrix exponentiation to efficiently simulate variable updates in multiple nested loops
 - Improved time complexity from $O(nm)$ to $O(\log n * \log m)$ for arbitrary sized loops
- Piece It Together** - (C++, React, 2-SAT) samueloliveira.xyz/pieces
- Implemented an interactive grid tool for placing tiles with a 2-SAT validator that checks whether the same configuration is constructible using only L-shaped trominoes
 - Grids of size 500x500 can be validated in less than 1s
- Personal Portfolio** - (React) samueloliveira.xyz
- Created a competitive programming gallery with interactive visualizations of complex algorithms
 - Showcases advanced problem-solving projects such as *Cow-BASIC* and *Piece It Together* using C++ and React

Academic Projects

- Artificial Intelligence:** Digit classifier with Neural Networks, Face Recognition with PCA & CRC, regression models
- Bio-Informatics:** Distance-Based Phylogeny Problem, Pattern Finding with KMP, Finding Motifs with Gibbs Sampler, Genome reconstruction using De Bruin graphs, Local+Global Alignment Problems
- Social Network Analysis:** Analysis of the American Food Ingredient Network using Web Scrapers and Gephi

Skills & Technologies

Languages: C++, C, Java, Python, React, HTML, SQL, JavaScript, LaTeX, HTML/CSS, XML

Tools & Infrastructure: Git/GitHub, Bash, Linux, VS Code, GDB/Valgrind, Jupyter Notebook, scikit-learn, Excel

Proficiencies: Graph Theory, Computational Geometry, Network Flow, String Algorithms, DP/other Optimizations