

# Anas Aly

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## EDUCATION

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**Stetson University**, DeLand, FL

*Bachelor of Science in Computer Science*

August 2022-May 2026

GPA: 3.57/4.0

Relevant Coursework: Algorithm Analysis, Operating Systems, Computer Organization

## RESEARCH INTERESTS

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- LLM Inference Optimization
- Algorithm Design and Analysis

## RESEARCH EXPERIENCE

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**Algorithm Optimization Research**

November 2024-Present

Stetson University

Advisor: Dr. Hala ElAarag

- Implemented and evaluated 11 different sorting network configurations for optimizing Merge Sort and Quick Sort
- Conducted comprehensive benchmarking across array sizes from 10,000 to 1 million elements using Google Benchmark
- Achieved 2.4x speedup for Merge Sort on sorted arrays and 1.5x consistent improvement on random arrays
- Developed testing framework integrating AlphaDev's assembly-optimized sorting networks with C++
- Analyzed algorithm performance across random, sorted, and nearly-sorted input distributions

## PUBLICATIONS

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- **Aly, A. G.**, Jensen, A. E., & ElAarag, H. (2025). Improving Merge Sort and Quick Sort Performance by Utilizing Alphadev's Sorting Networks as Base Cases. In *Proceedings of the 2025 ACM Southeast Conference (ACMSE '25)*, 6 pages. [Accepted]  
[Preprint](#)

## COURSEWORK PROJECTS

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**Parallel Computing Performance Study**

February 2024-April 2024

Operating Systems

- Analyzed matrix operation performance on UF HiperGator supercomputer
- Implemented parallel solutions using OpenMP and evaluated scaling efficiency
- Conducted systematic analysis of thread count and core count impact

**Distributed Systems Implementation**

February 2024-April 2024

Operating Systems

- Built and configured Raspberry Pi cluster for distributed computing
- Implemented data processing pipeline using Apache Spark
- Created comprehensive technical documentation detailing cluster setup, configuration, and maintenance procedures

## TEACHING EXPERIENCE

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**Teaching Assistant**

January 2025 - Present

Stetson University, DeLand, FL

- Support instruction of CSCI 141: Introduction to Computer Science with Java
- Hold weekly office hours to assist undergraduate students
- Help with assignments grading and provide detailed feedback to improve student learning

### **Computer Science Tutor**

August 2024 - Present

Stetson University Academic Success, DeLand, FL

- Provide drop-in tutoring support through the university tutoring center for computer science coursework
- Guide undergraduate students through fundamental programming concepts, debugging strategies, and algorithm development

### **Data Science Instructor**

May 2024 - August 2024

Hack The Hood, Oakland, CA (Remote)

- Co-led Python programming instruction for 50+ students, focusing on data analysis and practical applications
- Enhanced curriculum through integration of LLM APIs (OpenAI, HuggingFace), introducing students to modern ML/AI tools
- Led weekly pair programming sessions, fostering collaborative development and version control practices

## **LEADERSHIP**

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### **President**

August 2024 - Present

Computer Science Club

- Revived inactive organization through renewed charter and membership recruitment
- Coordinate student participation in regional hackathons and tech conferences
- Secured \$700 in funding to support student technical projects and events

**Data Analyst**, Black Homeschoolers of Central Florida, DeLand, FL

August 2024-Present

- Analyze program data using Excel and Python to track participation trends and measure community impact, providing actionable insights to improve BHCFL's services.
- Create dynamic dashboards and reports using Tableau, translating complex data into easy-to-understand visualizations for executive decision-making.

## **TECHNICAL SKILLS**

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- Core Languages: C/C++, Python, Java
- Scientific Computing: NumPy, Pandas, Jupyter Notebooks
- High-Performance Computing: OpenMP, SLURM, Apache Spark
- Web Development: JavaScript, React, Node.js
- Development Tools: Git, LaTeX

## **PROFESSIONAL ASSOCIATIONS**

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**Member**, Association for Computing Machinery (ACM)

November 2023-Present

## **AWARDS AND HONORS**

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Bonner Scholarship

August 2022-Present

International Scholarship

August 2022-Present

Dean's List

Spring 2023, Spring 2024, Fall 2024

Honor Roll

Fall 2022, Fall 2023