Santiago Segovia

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Education

University of Houston Aug 2022 - Dec 2025
Bachelor of Science in Computer Science, Bachelor of Science in Mathematics *GPA: 3.732*

Experience

Teacher Assistant Jan. 2025 – Dec. 2025
University of Houston, Computer Science Department *Houston, TX*

- Led instruction and academic support for **100+ students** in Introduction to Automata and Computability, covering DFA/NFA, regular expressions, and context-free grammars
- Held weekly office hours and review sessions to reinforce theoretical concepts and problem-solving strategies
- Graded homework, quizzes, and exams with detailed feedback to support student improvement and course learning objectives

Computer Science Tutor (CougarCS) Aug. 2024 – Dec. 2024
University of Houston *Houston, TX*

- Tutored students in **data structures and algorithms**, strengthening understanding of core concepts and problem-solving techniques
- Designed and developed instructional materials for workshops on data structures and algorithmic problem solving
- Presented structured workshops to audiences of **40+ attendees**, communicating technical concepts clearly and effectively

Projects

LU Dense Solver | *CUDA, C++* Jan. 2025 – May 2025

- Developed a GPU-accelerated LU decomposition solver for large-scale dense linear systems using CUDA and C++
- Achieved a **41× speedup over a CPU baseline** through shared-memory tiling and optimized memory access patterns
- Reduced performance bottlenecks by improving kernel throughput and analyzing matrix-size scaling behavior

Sparse Matrix Optimization for Homomorphic Inference | *MATLAB* Aug. 2025 – Dec. 2025

- Conducted research on optimizing sparse matrix operations for efficient homomorphic inference
- Designed sparsity patterns including random, banded, and block structures to study trade-offs between computational cost and accuracy
- Implemented custom encrypted arithmetic operations to simulate privacy-preserving computation
- Evaluated performance across datasets, improving efficiency while maintaining accuracy close to dense baselines

Amazon Review Opinion Search Engine | *Python* Jun. 2025 – Aug. 2025

- Developed an opinion-based search engine for product reviews using multiple retrieval models including Baseline, M1, and M2
- Implemented and compared ranking strategies using manual Precision@k analysis on top retrieved results
- Improved retrieval relevance through query refinement and model comparison

SCS - Volunteer Management Web Application | *PHP, HTML/CSS, JavaScript, MySQL* Jun. 2025 - Aug. 2025

- Built a full-stack volunteer management platform with role-based authentication, event coordination, and assignment workflows
- Developed admin dashboards, volunteer management features, and reporting tools backed by SQL database operations

Technical Skills

Languages: Python, C++, SQL, JavaScript, PHP, MATLAB, R
Machine Learning/Data: PyTorch, torchvision, NumPy, pandas, scikit-learn
Systems: CUDA C/C++, cuBLAS
Databases: MySQL/MariaDB, PostgreSQL
Developer Tools: Git, VS Code, PyCharm, Azure, Vim