Antonio Aodong Chen Gu

855 Peachtree St NE #1002, GA 30308 | 4708125699 |chentony2011@hotmail.com| F1 / TN (Mexico)

Objective

Actively seeking roles in hardware and data-centric fields. A versatile Data Science and Computer Engineering dual-degree candidate with hands-on experience in deep learning, FPGA hardware design, and data analysis. Demonstrates strong self-learning capabilities and excels in team environments, with a keen interest in digital design, computer hardware and software, and data analysis.

Education

Georgia Institute of Technology | Atlanta, GA *January 2023 – Present*
B.S in Computer Engineering (Dual Degree), GPA 4.00 Expected Graduation, May 2025
Awards: 2024 Tower Awards Gold Recipient, Dean's List

Emory University | Atlanta, GA *August 2020 – May 2023*
B.S in Data Science (QSS), Concentration: Informatics, GPA 4.00
Awards: Dean's List

Skills

Programming Languages: Python, System Verilog, Verilog, C/C++, Java, MATLAB, JavaScript, SQL, R, Dart
Software: ModelSim, R Studio, Visual Studio Code, Navicat, Intel Quartus Prime, GitHub, Vivado
Libraries: cocotb (verify design with Python), NumPy, PyTorch, Pandas

Experience

Amazon.com | Seattle, Washington *June 2024 – Present*
Software Dev Engineer Intern

- Building visualization tool for data dependencies for checkout to enable engineers to better understand the relationship between service calls and accelerate process for identifying and improving critical path latency.

Georgia Tech BioWiNS Lab | Atlanta, Georgia *June 2023 – Present*
Undergraduate Research Assistant
Leveraged FPGA technology to accelerate computational tasks.

- Developed Sequential Unfolding SVD Algorithm on **FPGA** with fixed-point Jacobi Iterations for fast and power efficient calculations of tasks such as **high dimensional data denoising**.
- Implemented Tucker Decomposition Algorithm on FPGA which consists of fixed-point matrix-tensor multiplication, tensor unfolding and CORDIC modules for high dimensional **tensor unfolding** task.
- Applied Least Significant Bit algorithm in **MATLAB** to encrypt messages into images, enhancing data security.
- Researching image colorization algorithms for efficient image processing and collection in healthcare related situations.

Ningbo CloudRED Network CO., Ltd. | Shanghai, China *June 2022 – August 2022*
Full Stack Developer Intern
A low-code, network-based SaaS platform for enterprise data management and automation.

- Developed customized **Node-RED** database flow storage and HTTP authentication nodes from 0-to-1, enhancing company's enterprise low-code management platform by adding multi-tenant capabilities.
- Optimized platform performance through **Redis**-enabled caching, reducing main server memory usage by 20%, and facilitating service segregation for improved load balancing and data security.
- Refined query conversion logic, enabling **SQL** table's nickname-to-ID and multiple-to-multiple foreign key support.

Emory Graph Mining Lab | Atlanta, Georgia *November 2021 – May 2023*
Undergraduate Research Assistant
Brain network analysis for disease detection and general classification task. Mainly use Transformer as ML Model.

- Established a robust pipeline for generating fMRI and DTI brain networks with **Python**, MATLAB, and Shell; setting a consistent standard for lab data processing, ensuring uniform data treatment, and contributing to publication.
- Conducted research on 4 rs-fMRI deep learning models; designed and fine-tuned a novel **Transformer**-based model that integrates static and dynamic brain networks, ultimately outperforming existing models' accuracy by 10%.

Leadership or Activities

Emory QTM Department | Student Ambassador *May 2022 – May 2023*

- Led a team of 5, collaborating with Sci4GA to develop a robust pipeline in Python for filtering water quality data.
- Visualized and presented the statistical analysis during DataBlitz, attracting 40+ audiences, effectively raising public awareness.

- Coordinated with fellow ambassadors in setting up the layout for QTM events, and played an active role in reception duties, serving as a liaison for external partners and professors.

Project Tutorial | CS 370 @ Emory *May 2023*

Built an all-platform compatible peer-to-peer tutor app with 4 Emory students, using Flutter, Dart, and Firebase.

- Collaborated with a team of 4 Emory students to develop a tutoring app, facilitating peer-to-peer academic support.
- Leveraged Firebase and Flutter to manage user information, online appointments, and customize search functionality.
- Designed user-friendly UI in Flutter with 5+ customized widgets for text editing, image display, and buttons, ensuring aesthetic consistency and enhanced user experience.

Relevant Coursework

Circuit Analysis: Analyze circuits with op amp and RLC circuits; nodal and mesh current analysis for large linear circuits; Thevenin and Norton theorems for analysis and max power delivery.
Other Courses: Regression Analysis, Data Structure & Algorithm, Mach. Learning & Causal Inference, Database System, Digital System Design, Signal Processing

Publications

- Kan, X., **Chen Gu, A. A**., Cui, H., Guo, Y., & Yang, C. (2023). *Dynamic brain transformer with multi-level attention for functional brain network analysis*. arXiv. https://doi.org/10.48550/arXiv.2309.01941
- Cui, H., Dai, W., Zhu, Y., Kan, X., **Chen Gu, A. A.**, Lukemire, J., Zhan, L., He, L., Guo, Y., & Yang, C. (2023). Braingb: A benchmark for brain network analysis with graph neural networks. *IEEE Transactions on Medical Imaging*, 42(2), 493–506. https://doi.org/10.1109/TMI.2022.3218745