

Ghali Omar Boutaib

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Education

- University of South Florida**, BS in Computer Engineering, Tampa FL Aug 2022 – May 2026
- **GPA:** Cumulative: 3.94/4.0, Major: 3.96/4.0
 - **Advanced Coursework:** Computer Architecture, CMOS/VLSI Design, Electrical Systems, Electronic Materials, Operating Systems, Hardware Accelerators for ML, Cryptographic Hardware and Embedded Systems, etc.
 - **Research:** SEES Lab, Bellini College of Artificial Intelligence, Cybersecurity and Computing

Research experience

Past: Veribest Dataset and Pyranet Paper

Gathered and organized millions of samples of Verilog code for the development of an award winning dataset for LLM fine-tuning. Presented findings at ICCAD conference and earned awards from NVIDIA and the NSF. Contributed to writing the paper presenting our findings, showing considerable fine-tuning value. Paper presented at DAC 2025.

Verimind Paper

Created a self checking LLM framework for Verilog RTL code writing, showing considerable success. Developed a novel evaluation metric building on pass@k to fairly and accurately evaluate frameworks that implement a feedback loop.

Current: Novel Verilog code generation benchmark

Developing a novel benchmark dataset and framework for the evaluation of large language models on realistic Verilog RTL design tasks.

Publications and Presentations

PyraNet: A Large Scale Hierarchical Verilog Dataset Jun 2025

Bardia Nadimi, *Ghali Omar Boutaib*, Hao Zheng

Proceedings of the 2025 62nd ACM/IEEE Design Automation Conference (DAC), San Francisco, CA, USA, 2025

DOI: 10.1109/DAC63849.2025.11133406 (Earlier version: 10.48550/arXiv.2412.06947, Dec 2024)

VeriMind: Agentic LLM for Automated Verilog Generation with a Novel Evaluation Metric Mar 2025

Bardia Nadimi, *Ghali Omar Boutaib*, Hao Zheng

DOI: 10.48550/arXiv.2503.16514

Awards and Honors

Veribest Dataset ICCAD 2024

- Developed the first-place winning dataset for the LLM4HWDesign contest at the 2024 International Conference for Computer-Aided Design.
- Our data set was approximately 50x larger than the second place, scoring the highest on the contest benchmark.
- Presented process and results at the conference.
- Awarded a GPU from NVIDIA corp. and a cash prize from the National Science Foundation.

Scholarships Florida Bright Futures, Sanford & Gertrude Hauber Scholarship, Terrell & Neva Sessums Scholarship, Judy Genshaft Honors College Scholarship, CRA UR2PhD FHTC Award

Professional Experience

Student Researcher, SEES Lab – College of Engineering, USF Tampa May 2024 – Current

- Worked under Dr. Hao Zheng, alongside Ph.D. student Bardia Nadimi in research.
- Won 1st place at the LLM4HWDDesign contest, and presented at ICCAD 2024. Earned prizes from NVIDIA and the NSF. Published a paper presented at DAC 2025.

Freelance software engineer, Remote Jan 2023 – Mar 2024

- **AMB Innovations:** Worked with AMB Innovations LLC to develop a Platform as a Service for the food industry. Spearheaded the development of both back and front-end and successfully deployed Beta version using cloud services.
- **USF Biology Department:** Developed an online directory platform for the Phages research program. Allowed students, faculty, guest researches, and prospective students to share contact information and crucial information and news.

Software Engineering Intern, Spacecrate.io – Remote Summer 2020

- **Work under senior engineers:** Was supervised by Senior Engineers at the company and worked on the software behind website builder platform. Reinforced soft skills in corporate communication and technical skills in code collaboration.
- **Assigned solo projects:** Developed a media converter tool for customers under the guidance of senior engineers and in collaboration with other interns.

Humanitarian Work

Contributed extensive humanitarian and social work in Morocco. All done with LCC7 NGO in Casablanca, Morocco.

- **Ftour LCC7 (5 years):** Served meals for around a thousand people every night during the month of Ramadan.
- **Warmth for all (Dec 2019):** Traveled to the remote region of Imindounit with volunteers and NGO leadership to deliver two trucks of warm clothing and school supplies.
- **Operation cataract (Feb 2020):** Assisted in the registration and treatment of dozens of cataract patients, recruited volunteer surgeons and nurses, and solicited donations of medical equipment.

Leadership and personal development

CRA UR2PhD: Participating in the CRA UR2PhD research course. Recipient of FHTC award through USF.

US Universities Arabic Debate Championship: Represented USF at the 5th edition of the competition against 39 national teams. Secured 12th place overall, won two "best speaker" awards for excellence in argumentation. [usf.edu/honors/news/2024/event-recap-arabic-debate-competition.aspx]

Study Abroad: USF Honors Germany Innovation in Engineering: Engaged in a six-week immersive program focused on innovation, sustainability, and engineering advancements in Osnabrueck, Germany. Participated in hands-on lab practicals, site visits to leading engineering facilities, and collaborative international projects.

Director of the Raven: Serve as the Director for the Raven. The USF Honors College's Raven's Guild undergraduate journal. Manages the editorial process. First edition set to publish during Spring 2026.

Professional photographer: Portfolio available online [portfolio.ghaliomar.com]

Other relevant skills

Programming languages: C++ , C, Javascript, Python (Earned Certificate), Rust

Relevant Technologies: Vivado (Verilog and other HDL), Cloud Infrastructures (Earned Certificate), Linux, Systems Administration, Full-stack platform development, $\text{\LaTeX}$

Fluently spoken languages: English, French, Spanish, M.S. Arabic, Moroccan Darija