Matthew DeLorenzo

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Texas A&M University
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Education

- **Texas A&M University** — College Station, TX
  Ph.D. in Computer Engineering (third-year); ***GPA: 4.00*** — *Aug. 2023 – May 2027*
  - **Google Scholar Citations**: **123** (January 2026)
- **Texas A&M University** — College Station, TX
  B.S. in Computer Engineering, Minors in Mathematics and Cybersecurity; ***GPA: 3.98*** — *Aug. 2019 – May 2023*

Experience

- **Synopsys** — Sunnyvale, CA
  Generative-AI Intern — *Aug 2025 - Nov 2025*
  - Implemented an agentic generative-AI (LLM) CLI for Verilog code generation, enabling interfacing with EDA tools through the development of MCP endpoints.
  - Defined and optimized automated hardware design subagents for workflows across hardware design, coverage, validation, and formal verification tasks.
- **Secure and Trustworthy Hardware Lab, Texas A&M University** — College Station, TX
  Graduate Research and Teaching Assistant, advised by Prof. Jeyavijayan Rajendran — *Aug 2023 - Present*
  - Conduct research on the application and optimization of Large Language Models (LLMs) and generative-AI for hardware design and hardware security domains.
  - Guide the Gen-AI research subgroup within the SETH lab, having mentored 2 first-year graduate students and 5+ undergraduates in performing LLM research in hardware design for publication.
  - Taught 20+ undergraduate students as a TA for Security of Embedded Systems (ECEN 426) in Fall 2024 and 2025, assisting and grading students in training neural networks for hardware trojan detection.
- **LyondellBasell** — Houston, TX
  Cybersecurity Architecture Team, Intern — *May 2023 - Aug. 2023*
  - Normalized Azure AD and Secret Server Cloud logs.
  - Validated integrity of data for PAM/IAM (Identity Access Management).
  - Designed guideline to implement Just-In-Time access within current Azure AD practices.
  - Developed documentation to enroll hardware security tokens (YubiKeys) to specific administrative roles.
- **Texas A&M Student Engineering Council (SEC)** — College Station, TX
  Computer Engineer, Intern — *May 2021 - Aug. 2021*
  - Project-based internship experience through a (5 person) multidisciplinary engineering team environment.
  - Developed AI/machine learning based engineering product which aids in documentation and analysis processes in hospitals and physician practices.

Research Publications *(Google Scholar)*

- **M. DeLorenzo**, K. Tieu, and J. Rajendran, *"Tracing the Logic: Evaluating LLM Reasoning Paths in RTL Generation,"* (accepted at **ICCD 2025**, *special session*).
- J. See, **M. DeLorenzo**, K. Tieu, and J. Rajendran, *"PILFER—Piracy of IP via LLM Frameworks for Evasive Reconstruction,"* (September 2025, *under review*).
- **M. DeLorenzo**, K. Tieu, P. Jana, P. Jha, D. Kalathil, V. Ganesh, and J. Rajendran, *"Abstractions-of-Thought: Intermediate Representations for LLM Reasoning in Hardware Design,"* (May 2025, *under review*).
- ***M. DeLorenzo**, *S. Bush, K. Tieu, and J. Rajendran, *"Free and Fair Hardware: A Pathway to Copyright-Infringement Free Verilog Generation using LLMs,"* (accepted at **DAC 2025**).
- **M. DeLorenzo**, K. Tieu, C. Chen, V. Gohil, and J. Rajendran, *"Watermarking LLMs — Challenges and Opportunities in Electronic Design Automation,"* (accepted at **IEEE COINS 2025**, *special session*).

- V. Gohil, **M. DeLorenzo**, V. Nallam, J. See, and J. Rajendran, *"LLMPirate: LLMs for Black-box Hardware IP Piracy,"* (accepted at **NDSS 2025**).
- **M. DeLorenzo**, V. Gohil, and J. Rajendran, *"CreativEval: Evaluating Creativity of LLM-Based Hardware Code Generation,"* (accepted at **LAD 2024**).
- R. Kande, V. Gohil, **M. DeLorenzo**, C. Chen, and J. Rajendran, *"LLMs for Hardware Security: Boon or Bane?"*(IEEE 42nd VLSI Test Symposium (accpeted at **VTS 2024**, *special session*).
- **M. DeLorenzo**, A. S. Chowdhury, V. Gohil, S. Thakur, R. Karri, S. Garg, and J. Rajendran, *"Make Every Move Count: LLM-based High-Quality RTL Code Generation Using MCTS,"* (Feb 2024).

Technical Experience

- **Languages/Libraries**: Python, C/C++, Verilog, Linux, Tensorflow, PyTorch, LLM fine-tuning
- **Tools**: Synopsys VCS, Catapult HLS, Icarus Verilog, Yosys, Cadence (Digital Design)
- **Relevant Graduate Coursework:** Computer Architecture, Machine Learning Engineering, Reinforcement Learning, Natural Language Processing, Deep Learning, Analysis of Algorithms, LLM Programming

Talks/Workshops/Competitions

- **2025 LAD GenAI Hackathon:** Participated in the 2025 LAD GenAI Hackathon in the SLM category, assisting with two TAMU teams. One SETH team placed 1st in two LLM problem categories (Google and ASU).
- **TSS/ETS 2024:** Contributed to the development of a tutorial session on LLMs and their applications in hardware design and security. Presented to 20+ attendees at ETS 2024.
- **ESWEEK 2024:** Presented a workshop session to 20 attendees on LLMs and their applications in hardware.
- **DAC 2024**: Assisted in developing a workshop session in which participants utilize LLMs to generate a complete hardware design from start to end. Aided 100+ attendees in the workshop.

Projects

- **Modeling COVID-19 through Wastewater Data** — College Station, TX
  Senior Capstone Project — LSTM, Flask, Data Analysis — *Aug. 2022 - May 2023*
  - Developed a web application that analyzes COVID-19 wastewater measurements to determine potential trends, and create an AI-based algorithmic projection (LSTM neural network) 1-2 weeks in advance.
  - Worked in team of 4 students with collaboration from Los Alamos Laboratory.
- **Music Recommendation Application, "Music Maestro"** — College Station, TX
  Web Development — React.js, Flask, Vercel, Spotify Web API — *Jan 2023 - May 2023*
  - Developed web application enabling that analyzes a user's Spotify playlist for key attributes, and recommends a playlist with similar characteristics (collaboration with 3 students).

Awards

- **SCALE/CSME Fellowship** — College Station, TX
  Awarded the CSME graduate traineeship to conduct research in hardware design and security. — *Aug. 2023 – Current*
- **Michael Powell Fellowship** — College Station, TX
  Awarded by the Electrical and Computer Engineering department based on graduate research. — *Aug 2025 – Current*
- **DAC Young Fellow (2024, 2025)** — San Franscisco, CA
  Selected for and completed requirements for the DAC Young Fellow program. — *June 2024*
- **Jacobs Cybersecurity Graduate Fellowship** — College Station, TX
  For graduate students pursuing cybersecurity research. — *Aug. 2023 – May 2026*
- **Engineering Dean's List** — College Station, TX
  For academic excellence in TAMU engineering department—15+ hours with 3.5+ GPA. — *Aug. 2019 – May 2023*