Maanik Gogna

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4th Year Computer Engineering | University of Toronto

Education

University of Toronto Sept 2021 - Apr 2026
BASc Computer Engineering: Minor in Artificial Intelligence + PEY Co-op
Relevant Courses: Computer Architecture, Operating Systems, Data Structures and Algorithms, Digital Systems

Work Experiences

Silicon Validation Intern May 2024 - Aug 2025
Alphawave SEMI (acquired by Qualcomm)

- Managed multi-project regression flows and improved bit error rate (BER) by 2-3 orders of magnitude on critically affected projects through iterative research and analysis, ensuring customer and industry compliance
- Collaborated with a team of senior engineers to validate 5 silicon projects, improving transmitter eye jitter and BER performance across multiple data rates and test conditions for PCIe and Ethernet standards
- Redesigned the PCIe Interoperability testing infrastructure, enabling integration into the main Python and C++ software environment for automated, scalable testing
- Increased test coverage by 20% by developing new test cases targeting silicon weak points and edge cases
- Improved manual validation processing time by 25% through the development of automated data processing tools with Python, featuring an integrated back-end MongoDB query service and front-end user interface

Technical Design Experiences

Systems Team Lead May 2025 - Present
MannLab

- Leading team of 4 under Professor Steve Mann to implement augmented reality glasses for visually impaired users, improving navigation through obstacle detection and multimodal feedback (haptic, audio, and visual)
- Developing machine learning model to predict collisions and suggest avoidance actions in less than 200 ms
- Implementing facial recognition system to recall prior conversations and provide real-time conversation assists

Electronics and Electrical Systems Lead May 2023 - Present
University of Toronto Supermileage Team - Prototype, Urban Concept Cars

- Designed printed circuit board (PCB) for successive designs on Prototype and Urban Concept cars to implement 48V electric battery management system and self-designed telemetry system for hydrogen car
- Led the team to 3 successful technical inspections at Shell Eco-Marathon Americas Competitions by driving electrical systems development for the team's electric and hydrogen vehicles
- Improved hydrogen vehicle efficiency by 15% through iterative analysis with embedded telemetry system

Personal Projects

SafeStride - Full Stack Web App | GitHub Dec 2024 - Jan 2025

- Developed wearable device to improve navigational safety of visually impaired users by integrating obstacle detection and directional haptic and audio feedback alerts
- Implemented real-time obstacle detection alerts with OpenCV and YOLOv8 model within 100 ms constraint by establishing Flask communication link between back-end machine learning server and two mobile devices

VacayAway - Full Stack Web App | GitHub Jun 2023 - Nov 2023

- Developed full stack ReactJS trip planner, enabling itinerary generation (flights, hotels, attractions) in <1 minute
- Optimized attraction grouping by implementing Scikit-learn clustering on Flask server, improving trip efficiency

Technical Skills & Interests

Languages: Python | C++ | C | Swift | Java | Javascript | Verilog | ARM Assembly
Other: Git | Linux | Unix | React | NumPy | pandas | scikit-learn | CoreML | Flask | MongoDB | MATLAB
Interests: Formula 1 | Soccer | Chess | Hiking | Outdoor Exploration | Pop Music