

SUMAN GHOSH

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EDUCATION

Georgia Institute of Technology, Atlanta, GA

Aug 2022 - Dec 2023

Master of Science in Electrical and Computer Engineering

(GPA 3.5/4)

Relevant Courses: Semiconductor Process Control, Data Compression and Modeling, Medical Imaging Systems (MRI, X-ray, CT, US), Advanced VLSI Systems, Medical Image Processing, Statistical Machine Learning, Biomedical Instrumentation
Got offered a Ph.D. in Electrical and Computer Engineering under Dr. Linda Milor starting with 1 year funding (extendable).

Vellore Institute of Technology, Tamil Nadu, India

July 2018 - May 2022

Bachelor of Technology in Electrical and Electronics Engineering

(GPA 9.2/10)

Relevant Courses: VLSI Fundamentals, Analog & Digital Circuits, Signals and Systems, Digital Signal Processing, Neural Networks & Fuzzy Control, Microprocessors and Microcontrollers, Biomedical Instrumentation, Statistics for Engineering

PROFESSIONAL EXPERIENCE

Georgia Institute of Technology, ECE Department

Graduate Research Assistantship (GRA)

Jan 2023– Present

- Employed by Georgia Tech as GRA, project funded by Semiconductor Research Corporation (SRC). Project: Detection and Prevention of Aging Attacks Targeting Electromigration (Task ID: 3067.001).
- Working under the guidance of Dr. Linda S Milor to model the effects of electromigration in interconnects to predict the MTTF for efficient calibration and evaluation of given interconnect geometries from experimental simulation data.
- Microelectronics Reliability Journal (special issue of 34th ESREF, 2023): <https://doi.org/10.1016/j.microrel.2023.115163>

Cognizant Technology Solutions

Data Engineering Intern

Mar 2022– June 2022

- Data analytics: Python, SQL, and Spark courses. Completed Data Engineering course from Databricks.
- AWS track for Data service-line. Used EC2, S3, VPC, Lambda, Redshift, and other AWS services. Implemented different services for business analytics for clients from AWS in live projects for Cognizant during hands-on sessions.
- Mini project using VPC, RDS services of AWS to set up private access Database and Database server for a model company.

ACADEMIC PROJECTS

Design of a 512-bit SRAM Array using NCSU Devices FreePDK 45nm Technology Library

- Designed a 512-bit SRAM array with all peripherals (row and column decoders, data registers, write drivers, etc.) using Cadence Virtuoso; Read Margin: 258mV, Write Margin: 271mV, Access Time: 76ps, Nominal Power Dissipation: 270 μ W

Automatic Cobb's Angle Measurements for Scoliosis Patients

- Automated Cobb's Angle Detection from X-ray images using Deep Neural Networks for Image Segmentation using 4-point landmark and Centroids marking methods with modified loss functions. A Graphical User Interface was designed for the entire automated pipeline. Final reported MAE: $\sim 9^\circ$. Attempting to submit in 46th Annual Conference of EMBC 2024.
- Supported by Wallace H. Coulter Distinguished Faculty Fellowship, a Petit Institute Faculty Fellowship, and funding from Amazon and Microsoft Research to Professor May D. Wang. Project was completed under guidance of Dr. May D. Wang.

SKILLS, COURSES, AND CERTIFICATIONS

- **Core Strengths:** Digital VLSI Circuit Design, Manufacturing Reliability Analysis in VLSI, Statistical Modeling, Signals and Systems, Digital Signal Processing, Control Systems, Machine Learning, Image Classification, Image Processing
- **Hardware Description Languages:** Verilog, SystemVerilog
- **Certification:** VHDL / Verilog Programming (Code C) - by IETE. Certification ID: [PANIETE_TTVV20_17]
- **Programming Languages:** Python, Perl, C/C++, R
- **Advanced Tools:** Cadence Virtuoso, LTSpice, MATLAB, SIMULINK, ModelSim, Xilinx Vivado, Keil uVision5
- **Additional Skills:** Database Management System (DBMS), SQL, Data Analytics, Data Engineering, AWS

EXTRACURRICULAR ACTIVITIES

- Sudoku (Got Rank 2nd from All India Sudoku Championship (AISC) - Summer 2021)
- Member of Kurnish (NGO) (2019-Present)