Rishabh S. Pomaje

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Objective

A research-oriented electrical engineer with strong academic foundation and broad skill set. Seeking opportunities in digital hardware design and/or verification for general or specific applications.

Education

2025–2027 **MS in Electrical Engineering**, *Stanford University*
GPA: 4.3/4.0
Focusing and Specializing in Software and Hardware Systems.

2021–2025 **B.Tech in Electrical Engineering**, *Indian Institute of Technology Dharwad*, India
GPA: 9.83/10.00
Department and Institute Rank 1.

Skills

Programming Languages: C/C++, Python, SystemVerilog, Verilog, Matlab.

Tools and Software: Git VCS, AMD Vivado™, Code Composer Studio™, Inkscape©, LaTeX, MS Office (365) Suite.

Research and Publications

1. **Pomaje, Rishabh S.**, Rajshekhar V. Bhat, and Nikolaos Pappas. *"Age of Information Minimization in Goal-Oriented Communication with Processing and Cost of Actuation Error Constraints."* arXiv:2508.07865, 2025. Under review at *IEEE Transactions on Communications*.
2. Arvind, Shreya, **Rishabh Pomaje**, and Rajshekhar V. Bhat. *"Karush-Kuhn-Tucker Condition-Trained Neural Networks (KKT Nets)."* Preprint, arXiv:2410.15973, 2024.
3. **Pomaje, Rishabh Sharad**, and Rajshekhar V. Bhat. *"Learning Short Codes for Fading Channels with No or Receiver-Only Channel State Information."* arXiv:2409.08581, 2024. Under review at *IEEE International Conference on Communications*.

Projects

2025 **SIMD GEMM Accelerator Design**

- Jointly worked on implementing a SIMD general matrix multiplication accelerator using SystemVerilog. Implemented and Optimized Design of Processing Element, Memory Buffer, Controller, and main Accelerator modules.
- Skills: Digital Logic Design, SystemVerilog, Python scripting, and High Level Synthesis (System C/C++).
- Tools/ Hardware: Synopsys Design Compiler, Catapult HLS Tool.

2025 **Prediction of ICU Patient Readmission Using Machine Learning Techniques**

- Evaluated and reasoned the performance of different ML model families including Gradient Boosted Decision Trees (XGBoost) and Neural Networks, and data processing techniques for the task of predicting ICU patient readmission using the MIMIC-III database.
- Skills: Understanding of Machine Learning models, Data-processing techniques, result analysis, pipeline design.
- Tools: Python Programming, {XGBoost, Optuna, PyTorch, Scikit-learn} libraries for implementation, LaTeXfor presentation.
- Link(s): Report, Poster, GitHub Repo.

2023–2024 **DVB-S2x**, *Video Broadcasting standard implementation*

(Indian Space Research Organization RESPOND Project)

- Jointly developed and implemented the transmitter sub-system. Responsible for CRC-8 Encoder, Scrambler, BCH Encoder and other helper modules. Evaluated different encoder architectures to optimize for best performance.
- Skills: Digital Logic Design for Communication systems, Verilog HDL, Python scripting, and MATLAB coding.
- Tools/ Hardware: Vivado™ by AMD, Pynq-Z2 Development board.

2024 **Embedded System Development for Vehicle Parking Assistance**

- Developed a automotive parking sensor system using Ultrasonic sensors. Wrote drivers for the SSD1306-based OLED display from scratch. The system was controlled by TI TM4C123GH6PM microcontroller.
- Skills: Embedded C coding, I2C communication (for the display).
- Tools/ Hardware: Code Composer Studio™, Tiva C series TM4C123G LaunchPad Board, HC-SR04 sensor, 0.96in SSD1306 OLED display.
- Link(s): GitHub Repo.

Course Work

M.S.
- *Ongoing Courses:* EE 180 Digital Systems Architecture, CS 217 Hardware Accelerators for Machine Learning
- EE 271 Introduction to VLSI Systems†, CS 229 Machine Learning†
- EE 283 Markov Decision Processes.

B.Tech
- Digital Systems and Lab, Microprocessors and Microcontrollers, VLSI Design, Electronic Devices, Embedded Systems Design and Lab, Next-Generation Wireless Networks.
- Mathematics for Data Science, Probability Models and Applications†, Pattern Recognition and Machine Learning†, Optimization Theory and Algorithms, Digital Communication and Coding Theory†, Wireless Communications†.

† Received the highest possible grade (A+/AP). Courses categorized based on depth(focus) and breadth courses.

Awards and Honors

- *Jul 2025*, President of India Gold Medal, IIT Dharwad - Awarded for outstanding academic student across all departments.