Divyanshu Jain

(310) 500 9665 • divyanshu.jain@gmail.com
https://www.linkedin.com/in/divyanshu-jain-b539b5a/

Industry Experience

NXP Semiconductors **Irvine**
System Design Engineer *2016–present*

- Designed,simulated, coded, tested and verified parts of NXP's first UWB chip targetting secure indoor localization.
- Tested and verified reader demodulation design of the latest NFC chip using system Verilog.
- Created modem design verification infrastructure using python MATLAB and bash.

Design Process: Algorithm exploration in Simulink/MATLAB ⇒ Auto-generation of RTL and C from Simulink ⇒ Performance Verification in C.

Broadcom Corp. **Irvine**
System Design Engineer *2013–2016*

- Developed part of ultra low power Bluetooth and ZigBee receiver. Algorithmic and systemic approaches were employed to achieve the objective.
- Designed a template for converting C++ algorithms to RTL using HLS tools like FORTE.
- Verified frequency synchronization algorithms for Broadcom's NFC chips. Also, hacked other competitor's NFC chips to compare and understand the performance of their receiver's algorithm
- Wrote template code for converting Simulink designs to C++ using Real Time Workshop.
- Created scalable infrastructure in python, MATLAB to perform functional verification, bitmatching and code coverage to validate the design.

Design Process: Algorithm exploration in Simulink/MATLAB/C; Performance evaluation in hand-written C; RTL auto-generation from Forte/Simulink, Bitmatching between C and RTL.

Mojix Inc. **Los Angeles**
Member of Technical Staff *2008–2013*

- Developed firmware and hardware for Mojix RFID Interrogators (implement real time protocol standardized by EPC to query and manage tag population).
- Wrote microcontroller (ARM Cortex-M3) code in C for Mojix low power signal distributors and regenerators.
- Implemented a conductive testing procedure to characterize performance of RFID Readers via BER curves by generating random tag signal mixed with Gaussian noise at different Eb/No values.
- Member of the team involved in designing and implementing a proprietary protocol to transmit protocol commands and receive sensor data, tag data over a wired link passing through multiple devices in a massive distributed network.
- Coded and developed a part of the python - Tk based GUI to control, test and setup parameters of our RFID system.

Design Process: Algorithm exploration and performance evaluation in handwritten C; Bitmatching between hand-written C and RTL.

Qualcomm Inc. **San Diego**
Interim Engineering Intern *2008–2008*

- Wrote a high level design document for carrier frequency offset estimation.
- Visualized the LTE modem system timeline using GTK wave analyzer.

Technical skills

Languages: C/C++, Assembly, Verilog, Python, Java, Tcl

Platform: Linux, Windows

Concepts: Signal Processing, Filters, Probability, Artificial Intelligence, Algorithms

Dev Tools: MATLAB, Simulink, Verdi, FORTE, IDEs

Software: Office, Version Control Systems

Hardware: Pattern and Waveform Generators, Oscilloscopes, Spectrum Analyzers

Education

University of California **Los Angeles, California**
Masters in Electrical Engineering, GPA 3.7/4.0 *2006–2007*

Masters Thesis: *Optimization techniques for Implementing Real Time MIMO channel estimation on a DSP (TI-C64x)*

- Simulated minimum number of channel coefficient bits required to be within permissible error bounds.
- Optimized hand written assembly code via novel techniques:
  - Leveraged input data properties. (Used simulated number of bits for division algorithm selection)
  - Equalized load across different functional units of the processor. (by using suboptimal instructions)
  - Eliminated cross path stalling by manual scheduling.

Madhav Institute of Technology and Science **Gwalior, India**
Bachelors in Electrical Engineering, Aggregate 80.2/100.0 *2002–2006*

Awards

Academic Distinction **M.I.T.S. Gwalior, India**
Bhojwani scholarship for securing highest marks in junior year. *June 2005*

Patents

- Dong-U Lee, Divyanshu Jain, 2016.*Feedback-based adaptive load modulation (ALM) for a near field communication (NFC) device*, U.S. Patent **US9590701 B2** filed July 27, 2015, and issued Mar 7, 2017.
- Manolis Frantzeskakis, Dong-U Lee, Divyanshu Jain, Jianhua Gan, Shengyang Xu, 2016. *Carrier synchronization appropriate for alm nfc data transmission* U.S. Patent **US20160241384 A1** filed October 20, 2015, and issued August 18, 2016.