Ravdeep Singh Boparai

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Career Objective

Embedded Systems Programmer well-versed in C firmware, object-oriented development, C++ programming, bash commands, 5G Communication, Linux kernel, IOT, Android API, Networking Protocols (TCP/IP & UDP) and processing of signals. Eager to work in my specialization and explore cognate R&D field as Embedded Software Development, Programmer, System Design, Debug, Technical Engineer to advance with rapidly changing technology.

Academics

Masters in Engineering : Electrical Engineering **2017 to April 2018**

- McGill University (CGPA 3.79 /4.0)
- Grad Excellence Award ($7,500.00)

Bachelors of Technology : Electronics & Communication Engineering **2012 to 2016**

- Punjab Technical University (First Division with Distinction with 78.03%)
- Tuition Fee Waiver (Rs. 60,000.00 annually)

Skill set

• **Programming Languages**	➢ **C,C++ , C#,HTML, Basic Java, Python, Android, VHDL, Assembler C**
• EDA Tools	➢ Cadence Orcad CIS, PCB Editor, Layout Plus
• Keysight tool	➢ Advanced Design System (ADS)
• Operating environment	➢ **GNU Bash**, Windows, Unix/Linux
• Programming platforms	➢ **Keil uvision, Git**, **eclipse**, Labview, Matlab, Android Studio, Xilinx ISE
• 3D software	➢ Autodesk 3Ds Max, Solidworks 3D
• Communicate Effectively	➢ Proficient in English (Ilets-7 band), French (Delf A1), Punjabi, Hindi
• Embedded Chips Used	➢ Cortex M4, Cortex M3, ARM7, Microchip, PIC, ATMEL 8051, RISC processors
• Personal Skills	➢ Creative, Collaborator, Disciplined, High Quality, Task Automation, Professionalism, Self-Motivated, Proactive.

Industrial Engineering Pertinent Experiences

Media5 Corporation, Quebec : Research Professional **May 18 - Jul 18**

- Gateway firmware development by solving issues from the driver level to application layer codes.
- Implemented networking based algorithms and protocols TCP/IP, UDP, Ethernet, NAT and VoIP on Embedded Linux platform having high speed interfaces.
- Worked on **Jira**, an Agile methodology and **Git**, a code & project management tool.

McGill University, Montreal : Teaching Assistant **Jan 18 - Apr 18**

- Supervised undergraduate students in Microelectronics Laboratory and troubleshooting their circuits.
- Reviewed analog circuits, project reports and simulations in Spice and provided coaching and feedbacks.

Dynapac Micro Circuits GUS Regd., Ludhiana : Executive Engineer **Jul 16 - Dec 16**

- Designed Commercial PCB's in Cadence CIS Layout tools for clients and verified their specifications.
- Programmed chips and monitored production processes in the fabrication Lab in the industry

National Institute of Technical Teachers Training & Research, **Jul 16 - Jul 16**
Ministry of Human Resources, Government of India : Embedded Engineer Trainer

- Taught Embedded C Programming and provided insight of peripheral interfaces to undergraduate students
- Analysis and Diagnosed their Hardware Implementation of Schematic Designs over PCBs.

Academic Engineering Experiences

Master's Courses

1. **Statistical Detection and Estimation**
2. **RF microelectronics**
3. **Wireless communication**
4. **Printed Electronics**
5. **Numerical methods in electrical engineering**
6. **Topics in Computers and Circuits**
7. **Mathematical foundation**
8. **Biomolecular devices**

Master's Final Project, Integrated Microsystem Laboratory **Prof. Zeljko Zilic** **Aug 17 - Apr 18**

- **Sensor Data transmission to authorised devices having Multiple platform authenticated by secured protocol simultaneously – Research work**
  - Main chip performs authentication by unique Co-processor and also Protocol handling and packet formation
  - Data is formatted in protocol defined packets and sent to lower layers L2CAP, RFCOMM which are Networking Protocols via UART and can be verified over Terminal or Oscilloscope
  - Sensor data sent via Bluetooth(BT) module using SPP protocol is displayed over Android App, IOS Apple App
  - Team Oriented Collaboration of co-processor which implements SHA 256.
  - Fabricated new design over Multilayer PCB with SMDs and RF components
  - Sensor port can be replaced with any desired equipment which implements UART interface, like audio video.
  - Final Product has good reliability that can be enclosed in package and sent to consumer market.

Engineering Course Projects

1. Hybrid Beamforming (BF) Technique in Millimeter Wave (mmWave) Transmissions for 5G Wireless Communications. **Jan 17 - Apr 17**
   ➔ Exploited the Multi-input Multi-output technology along with Hybrid Beamforming to increase data rate.
2. LC Ladder Matching Network for Wideband LNA. **Jan 17 - Apr 17**
   ➔ Designed RF frontend Low Noise Amplifier workable in Wideband range with high gain and low noise.
3. Suppression of CW and Gaussian Interferences in Satellite Spread Modulated Direct Sequence Spread, Spectrum(DSSS) Signals using Adaptive A/D converter. **Jan 17 - Apr 17**
   ➔ Filtered continuous wave noises and performed coherent detection of received GNSS signals
4. Cancerous Tumors Quantification by Multiplexed Quantum Dots and their Assembly, Transporting by Motor Proteins in Microfluidic Devices. **Sept 17 - Dec 17**
   ➔ Treatment of cancer before even development of prostate cancer cells by extracting tumor cells.

Entrepreneur Experiences

Commercial Product - Digital Motor Protection and Control System **Aug 16 - Dec 16**

- Displays Voltage, Current and Controls motor on/off as well as controls start capacitor.
- Protected from adjustable overcurrent level and also from over voltages, jamming or improper start-ups.
- Two modes of operation: Auto mode and Manual mode.

Innovative Research Work - Compressed Air Bike **Aug 13 - Aug 15**

- Eco Friendly and Based on Compressed air as a fueling system to reduce the energy conversion states.
- More efficient than normal fueled motorbike in terms of power delivered.
- Based on solenoid valves injection system with sophisticated algorithm.

References

Prof. Zeljko Zilic — zeljko.zilic@mcgill.ca

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