Prabhpreet Singh Dua

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PROFILE

- Electric Power Systems Engineering Masters student at NC State passionate to work on power system challenges in renewable energy, electricity markets, and power system communication infrastructure.
- Pursuing coursework in Power Systems Protection, Distribution, Renewables, and Data Analytics for Power Systems
- Diverse engineering background with experience in embedded systems algorithm development & projects in wireless communications.

EDUCATION

North Carolina State University, Raleigh, NC *Aug. 2017 – Present*
Master of Science in Electrical Power Systems Engineering **GPA**: 3.778/4.0
Courses: Power System Operation & Control, Grid Communications & SCADA, Power Electronics

NIIT University, Rajasthan, India *Aug. 2012 – July 2016*
Bachelor of Technology in Electronics & Communication Engineering **GPA**: 9.18/10.0
 Secured 100% tuition & accommodation scholarship

SKILLS

Tools: Simulink, PLECS, DTM, Autocad Electrical, Accelerator Quickset, Doxygen, Git, LaTeX
Programming Languages: C++,MATLAB, Python, PLC LD, C, Java, HTML5/CSS3/Javascript, SQL , Ruby, Bash, VHDL
Grid Communication Protocols & tools: Modbus, DNP3, IEC 61850, DTM

PROJECTS

Power System Contingency Analysis & Screening
Developed MATLAB script to analyze impact of branch outages for Power System Operation & Controls Course

One & Half Breaker Auto-changeover Scheme on SEL-451
Implemented One & Half breaker scheme protection logic in SEL 451 and SCADA communications through DNP3 with Distributed Test Mangager tool as SCADA Master.

EV Charger Circuit PLECS Simulation
Developed simulation on PLECS of onboard DC EV Charger power electronics circuit, and control loop to provide regulated DC output voltage of 400V with 90% efficiency. Also, interfaced MATLAB with PLECS for non-ideal converter duty cycle control, and to calculate specification metrics such as efficiency, ripple

Cognitive Spectrum Sharing in Cognitive Radio Networks
Undergraduate project- Reviewed literature & developed MATLAB simulation of a spectrum sharing protocol for R&D project.

WORK EXPERIENCE

Embedded Systems Engineer, Defense Software Group DELOPT PVT. LTD.
Aug 2016 – June 2017 Bangalore, India

- **Software R&D of Advanced Automatic Video Tracker product**
  - Reviewed and implemented computer vision object tracking algorithms for target tracking product
  - Implemented algorithms on product hardware (iMx6) in C++. Code was multithreaded using OpenMP (with specialized data structures created using STL) to process video frames under 40ms
  - Documented code and algorithm in Doxygen and Latex; Created MATLAB simulation to test algorithms first

Project Trainee, Communication Systems Group, ISAC INDIAN SPACE RESEARCH ORGANIZATION
Jan 2016 - July 2016 Bangalore, India

- **Costas Loop for BPSK Demodulation on Microsemi FPGA**
  - Developed demodulator for satellite wireless communication on an Actel Microsemi FPGA in VHDL
  - Conducted time-domain MATLAB and Simulink system simulation to check filter implementation
  - Designed Numerically Controlled Oscillator, PID digital controller, & FIR and IIR digital filters
  - Tested real time system performance using DSO, DDS