

Nafi Osmani

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Electrical Engineering student serving as Electrical Engineering Lead for Illini Solar Car, with technical experience designing and implementing electrical systems for a competitive road legal solar electric vehicle. Available for a role Summer 2023. Experience with High Voltage PCB design & layout, designing Battery Management Systems, and Electronics Design for Automotive Environments. Proven ability to effectively collaborate and communicate with cross-functional teams in a fast-paced, high-pressure environment. Loves to work hands-on whether it be soldering, PCB rework, or troubleshooting.

EXPERIENCE

Lead Electrical Engineer, Illini Solar Car

Oct 2020 – Present

Illini Solar Car is a student-led engineering project team that designs, builds, tests and races road legal solar electric vehicles (sEV) in competitions on public roads & highways in the United States and internationally in Australia.

- Ownership of electrical system: specification, architecture, schematic capture, PCB layout, board bring-up, board validation, system validation, and manufacturing (and test) for next generation (sEV), Calypso.
- Directly manage Calypso build phase (program schedule, build plan, materials coordination, build execution, allocation management, issue tracking)
- Spotwelded and tested 420 18650 cell (28 series, 15 parallel) 100.8V, 5.292 kWh, Li-Ion battery pack for (sEV) Brizo
- Designing Battery Management System (BMS) PCB for 5.794 kWh Li Po battery pack for (sEV) Calypso
- Designing common HV circuits to implement functions such as battery cell/module/pack voltage/current sense/ HV switching, and galvanic isolation
- Familiarity with Li+ battery electronics, battery safety systems, and high voltage power electronics design
- Experience with PCB designer (KiCAD): schematic, layout, component creation and library management
- Knowledge of PCB layout design for high voltage, high power circuits
- Embedded programming of DSPs, microcontrollers, and programmable logic devices in C++
- Experience working hands-on with high voltage, high power systems (PCBs and power electronics hardware)

Manufacturing Electrical Engineer, Collins Aerospace

Jan 2022 – Present

- Led Manufacturing and Test Engineering staff across company in creating new In Circuit Test (ICT) programs for 10000+ qty PCBAs annually using Flying Probe machines (Takaya, Seica, HP)
- Managed ICT test area for 100+ products using Takaya Flying Probe and Teradyne Spectrum Bed-of-Nails test machines.
- Experience with PCBA test creation software Valor and Mentor ECAD suite to create and debug test programs
- Utilized Operations Collaborative Knowledge Management System (OCKMS) and Product Data Management (PDM) tools to identify and troubleshoot product defects
- Developed technical knowledge to debug PCBs using low voltage and high voltage test equipment and EE tools
- Knowledge of PCBA manufacturing technologies and processes

SKILLS

Software/programming: C/C++, Python, MCUXpresso, KiCAD, Jira, Git, Linux, Windows

Concepts: ARM3 microcontroller, High Voltage/High Power System Design, EV powertrain, CAN bus, PCB Design/Layout, PCB rework/soldering, Electronics Circuits Testing/Debugging, EE bench test equipment (Oscilloscopes, DC power supply, DC load, function generator, network analyzer, multimeter)

EDUCATION & CERTIFICATION

BS Electrical Engineering, University of Illinois at Urbana-Champaign (expected 2024) GPA 3.13/4.00

- Coursework: Introduction to Electronics, Introduction to Computing, Computer Systems & Programming, Analog Signal Processing