Aymen Dhaker

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PROFILE

Electrical engineer with 6 years of experience in PCB design, embedded systems, and electrical testing and validation. Strong background in DC-DC converters, EV power systems, firmware debugging, and hardware–software integration.
Skilled in developing test plans, troubleshooting electrical systems, designing wiring harnesses, performing HALT testing, and supporting complex engineering projects from design through full validation.

CERTIFICATION & SELF-LEARNING

Advanced Self-Study – Switch-Mode Power Supplies (2024 – Present)
Independent Training Program

- Studying advanced topics in power electronics: Flyback, Forward, Half-Bridge, Full-Bridge topologies.
- Small- and Large-signal models, RHPZ, current- and voltage-mode control, and Type-II/III compensator design.
- Hands-on simulation with Qspice, LTspice, MATLAB/Simulink, and FEMM
- Deep focus on magnetics design, control loop compensation, Small-Signal modeling, and EMC/PCB layout.

PROJECT

- **36W Isolated Flyback Converter (DCM, Current-Mode Control)**
  • Conducted control loop simulation and Bode plot analysis in Qspice
  • Designed transformer and evaluated core behavior using FEMM
  • Completed 4-layer PCB layout in KiCad with EMI mitigation techniques and snubber optimization
  • Generated comprehensive design documentation, including BOM and loop stability analysis

TECHNICAL SKILLS

- Test equipment proficiency
- Programming languages: C/C++, Python, SPICE, Perl, VHDL
- Tools: Qspice, LTspice, MATLAB/Simulink, INCA, BUSMASTER, KiCad, Altium Designer, PADS, Cadence.
- Wrike, SVN, Jira, Jenkins
- Microsoft Office Suite: Word, Excel, PowerPoint
- Excellent communication and active listening
- Adaptability in dynamic environments
- Methodical and organized mindset
- Analytical thinking to solve complex problems
- Leadership and strong team collaboration

EDUCATION

Bachelor's Degree | Microelectronic Engineering *01/2017*
Université Du Québec À Montréal, Montréal, QC

PROFESSIONAL EXPERIENCE

ELECTRICAL ENGINEER CONSULTING *09/2021 to PRESENT*

MERKUR | Brossard, QC

PCB AND EMBEDDED DESIGNER *09/2025 to PRESENT*

GANOTEC | Brossard

- Developed an automated insulation and continuity test system using 2 custom 4-layer PCBs (Master and Slave) featuring dedicated 1 kV isolation zones, STM32 control architecture, isolated RS-485 communication, and solid-state relay switching.
- Implemented the power subsystem including USB-C power-path management, Li-ion battery-charging circuitry, and 3.3 V regulation, along with the embedded firmware driving automated test sequences.
- Designed the complete hardware stack: detailed schematics, PCB layout, connector selection, high-voltage creepage/clearance spacing, and full system integration.

EV ELECTRICAL TEST ENGINEER *01/2022 to 01/2025*

BRP | Valcourt

- Validated EV power systems including DC-DC converters, traction batteries (8.9 kWh / 25 kWh), and control electronics under extreme thermal and vibration environments.
- Performed system-level electrical measurements: ripple, transient response, power quality, and EMC performance.
- Conducted HALT testing (thermal shock, vibration, and environmental stress), improving field reliability for off-grid and harsh-environment applications.
- Authored engineering documentation: test plans, load-case profiles, fault analysis, and compliance verification reports aligned with IEC/ISO standards.
- Collaborated across electrical, firmware, and mechanical teams to resolve integration issues and validate energy subsystems end-to-end

FIRMWARE VALIDATION DEVELOPER *09/2021 to 12/2021*

VENMAR | Drummondville

- Validated firmware for range hoods with Wifi, Bluetooth, voice control
- Provided design improvement suggestions for new product features

EMBEDDED SOFTWARE DEVELOPER *03/2018 to 11/2019*

ASTUS | Longueuil

- Developed and debugged embedded C code on ARM microcontrollers
- Designed and implemented communication protocols (CAN, UART, SPI, ADC)
- Performed reverse engineering and decoded CAN Bus frames (OBD2/J1939)
- Improved test infrastructure and software robustness
- Integrated firmware into onboard weighing systems and spreaders