Hugo Provencher

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Professional Profile

Young electrical engineer who built a solid technical and hands-on experience in HEVs, EVs and solar cars throughout the past 8 years by realising the conversion of an HEV to EV for the EcoCAR Challenge and by building 2 solar cars.

Qualifications

- High voltage
- Controls
- CAN bus

- Embedded systems
- Matlab/Simulink/Stateflow
- C code, model-based design

- Electric vehicles
- Hybrid electric vehicles
- Lithium batteries

- Test bench
- Wiring harness
- Hands-on experience

Projects and Accomplishments

Matlab Import/Simulation Tool for CREC — 2012-2013

Design and program a graphical user interface to:
- Import logged data from INCA, Control Desk and Vehicle Spy to Matlab
- Simulate imported data in a Simulink model and save the results

Member of the UOIT's EcoCAR team — 2009-2014

Electrical design and implementation of an HEV to EV conversion
- High voltage and controls team lead — 2010-2014
  - Design/Control a 83,5kWh Li-Poly custom battery pack
  - Program a vehicle integration controller (model-based design in Simulink)
- Controls team lead — 2009-2010
  - Set up a test bench to integrate the motor, the battery and the vehicle integration controller
  - Emulate removed ECUs (model-based design in Simulink)
  - Design/Integration of most electrical systems with 2 other teammates

Member of a technical society building a solar car — 2005-2009

- High voltage and controls team lead — 2007-2009
  - Realisation of most electrical systems with 2 other teammates
- Participation to the World Solar Challenge — 2009
- Participation to the Panasonic World Solar Challenge — 2007

School projects (C code programming, PCB design)

- Vehicle integration controller of a hybrid SAE formula and a solar car — 2008-2009
- Precharge circuit for a motor controller and MPPTs — 2008

President of the Collège Laflèche's environmental committee — 2004-2005

Computer Skills

- ETAS, MDA, FDC, dSPACE (Control Desk, MicroAutoBox), Vehicle Spy (NeoVI)
- CAN bus protocol on microcontrollers and embedded controllers, Matlab (MotoHawk, xPC Target), LabVIEW (NI VeriStand), Vector tools (CANcaseXL, CANlog4, Canoe, CANdb++)
- C, C++, Assembler, Ladder, Matlab, Simulink (model-based design)
- Matlab (Simulink, Guide, xPC Target, MotoHawk), LabVIEW (NI VeriStand), Maple, EMTP, PSAF, PSIM, Power World, MathType, Pspice, SwCAD III, Eagle, PCAD, AVR Studio, MPLAB, AutoCAD

Work Experience

Lion Bus	**Jun 2015-**
High Voltage and Controls Engineer – Electric School Bus	
Bombardier Transportation	**Nov 2013-**
System Engineer – Auxiliary Power Supply Equipment	**May 2015**
General Motors of Canada	**Feb 2012-**
Engineering Specialist – Controls Strategist	**Sept 2013**
University of Ontario Institute of Technology	**Sept-Dec 2009**
Research Assistant	
Subject: EcoCAR the NeXt Challenge	
Esteban 5 : École Polytechnique's solar car	**May–Sept 2009**
High voltage and controls team lead	
École Polytechnique of Montréal	**May–Sept 2009**
Teaching Assistant – CAN Bus	
Dessau: Intern in the power system controls and protection department	**Jun-July 2008**
Nortel: Intern in the quality department	**May-Sept 2007**

Education

MASc in Automotive engineering	**2010-2014 (Mar)**

University of Ontario Institute of Technology (UOIT)

- Thesis: Electrical Design and Implementation of an HEV to EV Conversion
- Directed Studies: Controller Area Network for Vehicles
- GPA: 3.88

Bachelor degree in electrical engineering	**2005-2009**

École Polytechnique of Montréal

- Specialty: Electric energy and power systems
- GPA: 3.49

International Baccalaureate in pure sciences	**2003-2005**

Collège Laflèche of Trois-Rivières

Scholarships and Awards

Gala Forces Avenir 2010: Environment	**2010**
Criterion: Best environmental university project in Québec	
Admission award to the IGEE	**2008**
Criterion: Personality and academic results	
Admission award to the École Polytechnique of Montréal	**2005**
Criterion: Academic results	

Personal Characteristics

Good adaptation capacity in a team, resourceful, self-starter, diligent worker, rigorous scientifically and organised

Spoken and Written Languages

- French (Native)   • English (Fluent)

References

References available upon request.