

# Jonathan Mash

## contact

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Canada

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## programming

★ Node.js  
Javascript, HTML5,  
CSS3, C/C++, C#,  
★ Git

## interests

electronics, robotics,  
drones,  
solar/alternative  
energies,  
microcontrollers,  
single-board  
computers, linux

## skills

project management, product development, product design. electronics design, embedded systems, prototyping, manufacturing.

## experience

### 2010–Now **SPARQ Systems**

Kingston, Ontario, Canada

#### *Product Development Lead*

- Designed, prototyped, and manufactured a compact in-home device for solar panel monitoring. Involved in the design decisions of the associated web portal.
- Developed novel communication protocol over Power Line Communication using FEC coding for robust monitoring and control of the microinverters.
- Developed the manufacturing, assembly, and testing procedures to ensure only high quality products are delivered to our customers.
- Trusted by senior management to provide independent engineering support to customers due to in-depth knowledge of the entire system.

### 2009–2013 **Centre for Energy and Power Electronics Research**

Kingston, Ontario, Canada

#### *Engineering Research Assistant*

- Researched and designed a medium-power front-end converter for telecommunications equipment using simulation tools.
- Developed a wind turbine emulator using an induction motor connected to a permanent magnet synchronous generator for use in research activities.
- Developed novel non-linear control strategies for PMSG connected wind turbine systems.

### 2004–2008 **Queen's University Solar Vehicle Tam**

Kingston, Ontario Canada

#### *Project Manager*

Competed at two international competitions:

- Panasonic World Solar Challenge, Australia (October 2007)
- North American Solar Challenge, USA and Canada (July 2005)

Responsibilities:

- Oversaw all aspects of a semi-professional racing team.
- Supervised the design, fabrication and testing of the vehicle.
- Directed efforts in: marketing, sponsorship, event planning, and PR.
- Managed financial planning, purchasing, cash flow, and budgeting.

Skills and Innovative Approaches:

- Reorganized the team structure to increase efficiency and improve communication flow.
- Led fundraising efforts, raising over \$500,000 worth of cash and donations.
- Knowledge of all vehicle design incl.: electrical, mechanical, and software.
- Designed and constructed a solar array producing over 1200 Watts.
- Team's expert on power systems, lithium-based batteries, and solar cells.

## education

### 2009–2013 **M.Sc.** in Electrical Engineering

Queen's University @ Kingston

Queen's Centre for Energy and Power Electronics Research

Supervisor: Dr. Praveen Jain

Course Average: 92%

### 2004–2009 **B.Sc.** in Electrical Engineering

Queen's University @ Kingston

Ranked 2<sup>nd</sup> of 45 students in Electrical Engineering.

Ranked 5<sup>th</sup> of 576 students in all of Engineering.

Final Year Average: 93%