

Jonathan Mash

contact

15 Windfield Cres
Kingston, ON, K7K 6G3
Canada

+1 (613)-329-0825

me@jonmash.ca ✉
jonmash.ca 🔗
jonmash 🌐

education

Queen's University

2009 – 2013

M.Sc. in Electrical Eng.
*Queen's Centre for
Energy and Power
Electronics Research*
Thesis: Advanced
Nonlinear Control
Techniques for Wind
Energy Conversions
Systems
Course Avg: 92%

2004 – 2009

B.Sc. in Electrical Eng.
*2nd/45 in Elec. Eng.
5th/576 in Eng.*
Final Year Avg: 93%

programming

★Node.JS, Python, PHP
Javascript, HTML5,
CSS3, C/C++, C#,
TCP/IP, HTTP, Zigbee,
MySQL, CouchDB,
RTOS, ★Linux,
Windows, ★Git,

design tools

★Altium, Matlab, PSIM,
★Notepad++, Keil, IAR,
Sketchup, Eclipse,
Visual Studio, ★GitHub

interests

electronics, robotics,
★multi-rotors, drones,
solar power systems,
★micro-controllers,
single-board
computers, IoT,
★embedded systems,
linux, 3d printing

skills

core: problem solving, project management, product development, effective communication.
electronics: system design, embedded systems, simulation, prototyping, manufacturing.
hardware: specifications, pcb design, assembly & rework, testing & debugging, production.
software: specifications, design, programming, testing & debugging, deployment.

experience

2010 SPARQ Systems

Kingston, Ontario, Canada

▼ Lead Product Developer

- present**
- Given complete control over the design and implementation of an new monitoring platform developed using all new microinverter technology.
 - Developed an in-house **embedded Linux** device utilizing advanced **Zigbee** communication, USB, 802.11 **WiFi**, and a **Websocket** API to connect to cloud servers.
 - Built an Amazon **Cloud** based monitoring and control solution based on **Node.JS**, CouchDB **NoSQL** database, and a modern **HTML5** web front end.
 - Actively involved in high-level market research, feature requirements derivation, and product requirements specifications.
 - Component selection, **PCB** design, aided mechanical design, produced and tested **prototypes**, and oversaw the entire process from **design** through to **manufacturing**.
 - Led and supported the deployment of field trials at sites across North America.
 - Recruited and trained new employees to grow the group from just myself to a team of six highly talented developers and engineers.
 - Coordinated multiple teams and external contractors working on key projects.

Product Developer

- Designed, prototyped, and manufactured an in-house embedded device for solar panel and inverter monitoring.
- Developed a novel Power Line Communication protocol using Forward Error Correcting codes for robust Communication to the microinverters.
- Developed the manufacturing, assembly, and testing procedures to ensure high quality products are delivered to customers.
- Trusted by senior management to provide independent engineering support to customers because of my in-depth knowledge of the entire product line.

2009 Centre for Energy and Power Electronics Research

Kingston, Ontario, Canada

▼ Engineering Research Assistant

- 2013
- 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.
 - Derived novel non-linear control schemes for a PMSG-connected wind turbine.

2008 Ontario Power Generation

Pickering, Ontario, Canada

Student - Computers and Controls Division

- Developed and deployed an online portal to aid in knowledge retention.
- Identified project requirements, researched possible solutions, and implemented the chosen solution: Microsoft's Sharepoint and custom workflows.

2004 Queen's University Solar Vehicle Team

Kingston, Ontario, Canada

▼ Project Manager

2008 Competitions: **World Solar Challenge Australia & North American Solar Challenge**

- 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 all financial planning, purchasing, cash flow, and budgeting.
- Led fund-raising efforts, raising over \$500,000 in cash and in-kind donations.
- Knowledge of all vehicle design including electrical, mechanical, and software.
- Was the team's expert on power systems, lithium-based batteries, and solar cells.