

# Jean-François Duval

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B.E.E, Master's student and research assistant in  
Biomechatronics at MIT Media Lab

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## Education

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### Master of Science

Media Lab, Massachusetts Institute of Technology (MIT), Cambridge, USA

*Thesis: FlexSEA - Flexible, Scalable Electronics Architecture for Prosthetic and Robotic Applications*

2013 - 2015

(expected)

### Bachelor's Degree in Electrical Engineering: Robotics and AI, Co-op

Université de Sherbrooke, Sherbrooke, Québec, Canada

2008 - 2012

### College Degree in Applied Physics Technology

Cégep La Pocatière, La Pocatière, Québec, Canada

2005 - 2008

## Skills / Keywords

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Analog, digital and power electronics, PCB design, ARM Cortex-M0/3/4, Microchip PIC & dsPIC, PSoC, Altium Designer, Cadsoft Eagle, LTSpice, Matlab, Robotics, Medical devices, Electric vehicles, Leadership, System design, DFM, Teaching and mentoring, SolidWorks, Embedded programming, Linux, Prototyping and machining

## Work Experience

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### Lead Electrical/Electronics Engineer

Boosted, Inc., Sunnyvale, California, USA

2013

<http://boostedboards.com/>

Boosted Boards is a Silicon Valley startup that designs and sells the world's lightest electric vehicle. Light enough to carry anywhere and fast enough to go everywhere, their electric longboard is a revolutionary combination of portability and power.

- Responsible for the electronics design of a 2kW dual brushless motor controller and of a Bluetooth Smart remote control, from prototyping phase to early commercialization
- Established the Boosted EE design process (CAD software, scalable database libraries, design conventions)
- Developed partnerships and relations with vendors and sub-contractors to obtain the best/latest/custom parts we needed, interacted with our alpha and beta testers
- Consulted for a subcontractor to bring their BMS design up to our quality standards
- Product design, close collaboration with our lead mechanical engineer and industrial designer

### Electronics R&D Intern

Robotiq, St-Nicolas, Québec, Canada

T5 co-op (2012)

<http://robotiq.com/>

Robotiq designs and manufactures flexible robot grippers and complementary components that enable new applications and improve productivity of manufacturing businesses.

- Electronics design and prototyping of a 6-axis Force Torque sensor used to program industrial robots (teaching by demonstration)
- Precision analog electronics and embedded computing (mixed signals)
- STM32 ARM Cortex-M4F and -M3 hardware and software design
- Multiphysics system R&D

## **Mechatronics Engineer – Intern & Consultant**

**Meka Robotics LLC, San Francisco, California, USA**

T3 & T4 co-op, consulting (2011)

*(acquired by Google)*

Meka Robotics is a provider of world-class robotic systems for researchers. They develop human-safe, human-soft, and human-scale robot technologies that will enable the robots of tomorrow to work alongside people in the home and the workplace.

- Responsible for the electronics design of a compliant dexterous robot hand and a 7DOF arm: brushless motor control, compliant actuators, power boards, sensors, embedded computing, EtherCAT, USB, etc.
- Research and design for a full-body capacitive robot skin
- Advanced PCB design : highly integrated electronics systems, up to 6-layers PCBs, flex PCBs with blind vias

## **Research assistant in mobile robotics system development**

**IntRoLab, Université de Sherbrooke, Sherbrooke, Québec, Canada**

T1 & T2 co-op (2009 & 2010)

<http://introlab.3it.usherbrooke.ca/>

IntRoLab is a research laboratory that studies, develops, integrates and uses methodologies of mechatronics and artificial intelligence to design autonomous and intelligent systems.

- Responsible for the electronics design of a humanoid robot: brushless motor control, intelligent management of power sources, sensors, distributed intelligence, CAN, Ethernet, etc.
- Advanced PCB design : high power, high speed and critical signal integrity
- Design and integration of electrical, mechanical and software systems

## **Research and Development Technologist**

**Nova Biomatique inc., La Pocatière, Québec, Canada**

2008 - 2009

<http://www.novabiomatique.com/>

Nova Biomatique inc. researches, develops, designs, manufactures and markets products for climate control of confined spaces, mostly adapted for optimal growth of plants.

- Responsible for the electronics and software design of a greenhouse automation controller
- Commercial product development
- Project management with optimization and cost reduction for production
- Development of a simple and efficient user interface

## **Electronics Design Freelancer**

Electronics design for industrial and academic customers, open-source and open hardware designs

2009 - now

## **Scholarships - Awards**

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Seven Wardens (Iron ring) award for academic excellence and implication	2012
Fonds Paul-Desmarais and MELS scholarships	2011
Quebec Engineering Competition : 1 <sup>st</sup> Team Design, Junior	2010
Quebec Engineering Games : 3 <sup>rd</sup> Machine, 2 <sup>nd</sup> Electrical and 1 <sup>st</sup> overall	2010
Special Originality Distinction, <i>Concours Robot-Jouet</i> (Toy robot contest)	2008
Entrepreneurship Award from <i>Fondation J. Armand Bombardier</i>	2008
Méritas Award from <i>Ordre des Technologues Professionnels du Québec</i>	2008
EXFO and Axion awards for academic excellence, involvement and best average	2007
Participation in Expo Science Bell, Polytechnic school Award and Audience Award	2005
Freshman Award from <i>Cégep de La Pocatière</i>	2005
Multiple <i>Méritas</i> Awards	2000 - 2005

## Implication and Volunteer Work

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Quebec Engineering Competition and Canadian Engineering Competition	2010
Team "Machine" leader and executive committee member, Quebec Engineering Games	2009 - 2010
FIRST Robotics Competition team mentor	2008 - 2012
Eurobot OPEN International robotics competition	2007 & 2008
Cofounder, <i>Association Québécoise de Robotique Amateur</i>	2003 - 2012
STEM studies promotion	2008 - 2010
Misc. student involvement: Minister of Sciences, volunteering, computer graphics, etc.	2004 - 2005

## Hobbies and fields of interests

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- Everything related to design, innovation and creation
- Cycling: long-distance events, collegiate racing (mountain and road)
- Outdoors (camping, kayaking, hiking, snowshoeing), triathlon, squash, literature, travels

## Languages

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- Native French speaker, proficient in English (IELTS score of 8.0/9.0, 2012)