

# David Lavy

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## OBJECTIVES

To obtain a challenging position in a creative, technology-driven organization where I can apply my education, 7 years of expertise in the robotics field and implement my innovative ideas, skills and creativity for accomplishing compelling projects.

## SKILLS

- **Programming Languages:** *C/C++, Python, MATLAB/Octave/Simulink, C#, Java, HTML/CSS*
  - 7 years of experience designing, tuning, debugging and testing code in different languages.
- **Robotics Libraries:** *OpenCV, PCL, CUDA, OpenGL*
  - 5 years of expert knowledge using computer vision packages and algorithms applied to simulated and real robots.
- **Robotics Frameworks:** *ROS, Gazebo, MORSE, NAOqi*
  - Proven ability to create robotic applications in different middlewares and simulators.
- **Source control:** *Git, Github*
  - Experience using source control to track, maintain and contribute source code for different projects.
- **IDE & Build tools:** *QtCreator, Eclipse, Codeblocks, Visual Studio, CMake, Make*
  - 7 years of experience developing application software for different platforms in many robotic areas.
- **Operating Systems:** *Linux, Embedded Linux, Windows, VirtualBox, QEMU*
  - Hands on experience developing and testing software in different operating systems and emulators.
- **Writing:** *T<sub>E</sub>X, L<sup>A</sup>T<sub>E</sub>X*
  - Strong skills preparing and designing technical and scientific documents.
- **CAD Tools:** *AutoCAD, SolidWorks*
  - Proficient with 3 years of experience modeling mechanical parts as well as electrical design.
- **Office:** *Microsoft Word, PowerPoint, and Excel. SalesForce, SAP By Design*
  - Skillful in using office tools to create reports, presentations and supply chain management.

## RESEARCH EXPERIENCE

- E-M Algorithm for optical position sensing** Boston University, 2016
- Investigated the Expectation-Maximization algorithm as a tool for estimating signal positions on a two-dimensional detector for a single beam when detection counts are low. A multiple beam tracking was also considered using Kalman Filter and the Hungarian algorithm.
- Remote control of NAO using a Gumstix Board** Boston University, 2016
- Designed a remote control for the NAO humanoid robot using a Gumstix board. An LCD serves as a UI which sends data from the Gumstix to a PC via Bluetooth. The PC will process the data into executable commands which will send to the robot via WiFi.
- Autonomous navigation with NAO** Boston University, 2015
- Designed a navigation system using the visual information from the 2 cameras mounted on the NAO humanoid robot, as well as its sonar sensors, that seeks to find a ball, navigate to it, and kick it.
- Virtual shape recognition using Leap Motion** Boston University, 2015
- Designed a system to recognize hand drawing gestures of numerical letters in the air using a gesture-capturing sensor and output the corresponding values.
- Facial identification using a multilayer perceptron** Boston University, 2015
- Implemented and trained a neural network which classifies people based on faces. The system can take new people and new faces and extend its information to learn to recognize new people.
- Modelling and Control of UAV using SLAM** Univ. Nacional de Ingenieria, 2011
- Modelled a quad-rotor using linear control. Developed an artificial vision system with a mounted Kinect and used a navigation and mapping technique to make the vehicle autonomous.

**Design and modelling of a 4 DOF Robotic Arm**

Univ. Nacional de Ingenieria, 2010

- Simulation of a 4 DOF KUKA Robotic Arm in Simulink (MATLAB) using linear, nonlinear and fuzzy control. The robot was designed using SolidWorks and then exported to Simulink.

**WORK  
EXPERIENCE****Robotics Repair Engineer for the Americas**

Apr 2013 – Present

*Aldebaran Robotics/Softbank Group*, Boston, Massachusetts, USA

- Repair hardware and software issues for NAO and Pepper humanoid robots for all North and South America.
- Achieved fastest repair time worldwide since January 2015 for our Boston office, increasing customer satisfaction and overall KPI.
- Teach technical training sessions for distributors and customers about how to use and program the robots.
- Provide software and hardware assistance at trade shows and special events, in the USA, Mexico, France and Brasil, including the international competition Robocup.
- Trained at the headquarters in Paris and the Tokyo office about hardware and software repair for NAO and Pepper humanoid robots.

**Cafeteria Manager**

Winter 2010 – Winter 2011 – Winter 2013

*Pats Peak Ski Area*, Henniker, New Hampshire, USA

- Managed and trained a staff of 30 individuals in the cafeteria at a busy ski area.
- Ensured that operations ran smoothly and efficiently.

**Automation Engineer**

Mar 2012 – Aug 2012

*Alicorp*, Callao, Lima, Peru

- Supervised the electric and automatized engineering operations within two production factories.
- Managed the engineering and automation design of one of the mills. Facilitated communication and transport between factories, optimizing daily operations.

**Intern**

May 2011 – Oct 2011

*Mafersa*, Pueblo Libre, Lima, Peru

- Team member responsible for the design of electrical installations within residential and commercial buildings.
- Greatly improved knowledge of electrical design in AutoCAD and programming in Excel Macros.

**EDUCATION****Boston University**, Boston, Massachusetts, USA

- Master of Science (M.Sc.) in Electrical Engineering Sep 2014 – May 2016
  - Cumulative GPA: 3.89 / 4.0
- Graduate Coursework: Digital Image/Video Processing, DSP, Stochastic Processes, Machine Learning, Embedded Systems, Linux Kernels, Speech Processing

**Universidad Nacional de Ingenieria**, Lima, Peru

- Bachelor of Science (B.S.) in Mechatronics Engineering Sep 2006 – Aug 2011
  - Ranked 10/46 in graduating class.
  - Cumulative GPA: 3.75 / 4.00
- Undergraduate Coursework: Robotics Control, Artificial Intelligence, Computer Vision, HMI, Programming Languages, Algorithms, Videogame Programming

## HONORS & AWARDS

- Placed 2<sup>nd</sup> in CONEIMERA (*National Congress of Mechanical and Electrical Engineering*) 2011 (Lima, Peru)
  - Project Title: *Linear Modeling and Control of UAV using Autonomous Navigation*
- Travel grant to attend CONEIMERA 2011 from Universidad Nacional de Ingenieria
- Placed 2<sup>nd</sup> in CONEIMERA 2010 (Lima, Peru)
  - Project Title: *Security Systems for Access Control Using RFID Technology*
- Travel grant to attend CONEIMERA 2010 from Universidad Nacional de Ingenieria
- Certificate of recognition for highest academic performance in the Mechatronic Engineering Department at Universidad Nacional de Ingenieria, 2008

## CERTIFICATES

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|---|----------|
| ■ Programming a Robotic Car               | Udacity  |
| ■ Introduction to Artificial Intelligence | Udacity  |
| ■ Machine Learning                        | Coursera |
| ■ Neural Networks for Machine Learning    | Coursera |
| ■ Writing in the Sciences                 | Coursera |
| ■ Foundations of Computer Graphics        | edX      |

## LANGUAGES

- English: Fluent (speaking, reading, writing)
- Spanish: Fluent (speaking, reading, writing)
- French: Basic (speaking, reading, writing)
- Japanese: Basic (speaking, reading, writing)

## WORK STATUS

Legally authorized to work in the United States.