# David Lavy

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## RESEARCH EXPERIENCE

**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.

*Keywords*: Python, OpenCV, NAOqi, Linux

**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.

*Keywords*: C++, MATLAB, OpenCV, Machine Learning, Linux, Leap Motion SDK

**Facial identification using a Multilayer Perceptron** Boston University, *2015*

- Implemented and trained a neural network which classify people based on faces. The system can take new persons and new faces and extend its information to learn to recognize new people.

*Keywords*: Python, OpenCV, Machine Learning, Linux, PyBrain

**Modelling and Control of an 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.

*Keywords*: Python, C++, MATLAB, OpenCV, ROS, Linux

**Design and modelling of a 4DOF Robotic Arm** Univ. Nacional de Ingenieria, *2010*

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

*Keywords*: MATLAB, Simulink, SolidWorks, Artificial Intelligence

## SKILLS

- *Programming Languages*: C/C++, Python, MATLAB/Octave/Simulink, C#, Java, HTML/CSS
- *Robotics Libraries*: OpenCV, PCL, CUDA, OpenGL
- *Robotics Frameworks*: ROS, Gazebo, MORSE, NAOqi
- *Source control*: Git
- *IDE*: QtCreator, Eclipse, Codeblocks, Visual Studio
- *Operating Systems*: Linux, Embedded Linux, Windows
- *Writing*: TEX, LATEX
- *CAD Tools*: AutoCAD, SolidWorks
- *Office*: Microsoft Word, PowerPoint, and Excel. SalesForce, SAP By Design

## WORK EXPERIENCE

**Robotics Repair Engineer for the Americas** Apr 2013 – Present

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

- Repairs 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.
- Teaches technical training sessions for distributors and customers about how to use and program the robots.
- Provides 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 humanoids 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: 3.9 / 4.0
- Graduate Coursework: Digital Image/Video Processing, DSP, Stochastic Processes, Machine Learning, Embedded Systems, Linux Kernels, Speech Processing

**Universidad Nacional de Ingenieria**, Lima, 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

## CERTIFICATES

- Programming a Robotics 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**

## HONORS & AWARDS

- Placed $2^{nd}$ in CONEIMERA 2011 (Lima, Peru)
  - Project Title: *Linear Modeling and Control of an UAV using Autonomous Navigation*
- Travel grand to attend CONEIMERA 2011 by Universidad Nacional de Ingenieria
- Placed $2^{nd}$ in CONEIMERA 2010 (Lima, Peru)
  - Project Title: *Security Systems for Access Control Using RFID Technology*
- Travel grand to attend CONEIMERA 2010 by Universidad Nacional de Ingenieria
- Certificate of recognition for highest academic performance in the Mechatronic Engineering Department at Universidad Nacional de Ingenieria, 2008

## LANGUAGES

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