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.
- **Embedded Systems**: *Arduino, Gumstix, Raspberry Pi*
  - Expertise programming microcontrollers and single-board computers to design embedded and robotics applications.
- **Writing**: TEX, LATEX
  - 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 Investigation Engineer May 2016 – Present

Softbank Robotics America, Boston, Massachusetts, USA

- Investigate and solve the most impacting issues on the market in the last 3 months.
- Report and follow the root cause of the defect in the humanoid robot Pepper.
- Maintain and update a thorough documentation of all the investigation activity related to hardware and software.

Robotics Repair Engineer for the Americas Apr 2013 – May 2016

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 Signal/Image/Video Processing, DSP, Stochastic Processes, Machine Learning, Embedded Systems, Linux Kernels, Speech Processing, Signal Detection/Estimation, Pattern Recognition

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^{nd} 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^{nd} 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

- 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.