

# David Benjamín Paredes Merino

---

## CONTACT INFORMATION

Calle San Francisco 847  
San Juan de Lurigancho  
LIMA 36  
Lima-Peru

Telephone: +511-4582129  
Mobile Phone: +51-997739826  
E-mail: [db.paredes@gmail.com](mailto:db.paredes@gmail.com)  
Website: [www.davidparedes.wikidot.com](http://www.davidparedes.wikidot.com)

## OBJECTIVE

A visiting research position in the stated areas of research interest, with emphasis on:

- Understanding the interaction between representation and learning to achieve better interpretations of our visual world.
- Developing a research aptitude and striving for proficiency in preparation for a highly skilled graduate position.

## RESEARCH INTERESTS

Deformable part based-models, object tracking and detection, image segmentation, scene understanding, deep learning, computer vision, machine learning and robotics.

## EDUCATION

**Universidad Nacional de Ingeniería (UNI)**, Lima, Peru

*B.S. Mechatronics Engineering*<sup>1</sup> (Robotics)      **March 2011 - December 2015(expected)**

- Summa Cum Laude.

## ACHIEVEMENTS, HONORS AND AWARDS

Universidad Nacional de Ingenieria Research Fellowship	2015
Department of Mechanical Engineering Dean's List	2012 & 2014
Research Director of the Artificial Intelligence Student Research Group (GISCIA) <sup>2</sup>	2013
Mechanical Engineering Department Travel Grant to IEEE INTERCON(Trujillo, Peru)	2013
Honorable Mention, ACM-ICPC South American Regional Contest by IBM	2012
2nd place in University Admissions exam to Mechatronics Engineering program	2011
7th place at National Mathematic Olympiad - ONEM - Ministry of Education	2010
Blas Pascal & Bertolt Brecht High School Scholarship	2006,07,08,09,10
1st place at Prolog's National Mathematic Competition	2009 & 2010
2nd place at Cesar Vallejo's National Mathematic Competition	2006

## RESEARCH EXPERIENCE

**Universidad Nacional de Ingeniería**, Lima, Peru

*Computer Vision Research*      01/2014 - Ongoing  
I have implemented a bag-of-words model to classify scenes using a linear SVM and SIFT features, where a visual vocabulary was formed from the training set and clustering them with k-means. A confusion matrix summarize the results of testing the algorithm. Then, I started to explore object detection algorithms as deformable part-based models, especially how it exploits region-based segmentation. Currently, I am learning how to apply deep learning techniques to object tracking.

*Embedded Systems Course Project*      04/2014 - 07/2014  
I implemented a 2 degree of freedom face tracking application based on Haar like features using a Raspberry Pi (model B) and pan-tilt servos. A faster detector will need to use LBP features.

*XII LARC - Latin American Robotics Competition*      05/2013 - 10/2013  
This work consisted on building an autonomous robot able to collect solid garbage(represented by cans) in a sandy terrain. Leading the vision subsystem, I developed robust algorithms based on shape and colour to detect the cans, and a depth estimation using a regression model to aid navigation via visual feedback loop through a camera. These algorithms run in real-time from a laptop and are devised constrained to the limited environment.

---

<sup>1</sup>The mechatronics engineering major is part of the Mechanical Engineering Department.

<sup>2</sup>[www.giscia.wikidot.com](http://www.giscia.wikidot.com)

My group and I analyzed a public database(through Kaggle platform) in order to recognize patterns to make a electric load forecasting model. The approach proposed was a time series regression model build with SVM. We presented a paper showing the procedure of modeling, selection, validation and results in the Student Project Contest of IEEE INTERCON conference.

ONLINES COURSES	Statement of accomplishment with distinction: - Discrete Inference and Learning in Artificial Vision - Coursera - Computational Photography - Coursera - Machine Learning - Coursera - Control of Mobile Robots - Coursera - Algorithms: Design and Analysis, Part 1 - Coursera - Circuits and Electronics 6002.x edx-MITx - Programming a Robotic Car - Udacity - Introduction to Statistics - Udacity - Introduction to Computer Science - Udacity	2014 2013 2013 2013 2012 2012 2012 2012
CONFERENCE PRESENTATIONS	Electric Load Forecasting Model using SVM, INTERCON 2013 (Trujillo-Peru) & CONEIMERA 2013 (Lima-Peru),	
SEMINARS	- IEEE Computational Intelligence Society Workshop organized by CIS Peru Chapter: "Recent Advances in Computational Intelligence and Its Applications" - Medical image processing for detection of diseases using AM-FM at different scales - Produce high quality software, on time and without overtime - Management of technology and innovation projects - Introduction to Graph Theory - Peruvian Institute of Science and Mathematics (IMCA)	2014 2013 2013 2013 2011
RELEVANT COURSEWORK	Core mathematics, core physics, control theory, object oriented programming, numerical methods, material resistance, digital and electronic circuits, multi-body dynamics, sensor technology, thermodynamics, fluid mechanics, probability and statistics, digital signal processing.	
COMPUTER SKILLS	Programming: C/C++, Python, MATLAB, OpenCV library, R, $\text{\LaTeX}$ 2 $\epsilon$ and Linux shell scripting. Operating Systems: Linux (Ubuntu, Kubuntu & Raspbian), Windows. Softwares: Multisim, Proteus, AutoCAD, MS Office(Word, Excel, PowerPoint). Others: Wikidot Framework.	
LANGUAGES	English: Advanced level. Spanish: Native speaker.	
EXTRACURRICULAR ACTIVITIES	- Volunteer work at <i>Udacity Translation Project</i> through the Amara platform. - Follow the latest trends on gadgets. - Soccer, tennis, chess.	
REFERENCES	<b>Ricardo Rodriguez, M.Sc.</b> Professor of Artificial Intelligence Universidad Nacional de Ingenieria <a href="mailto:robust@uni.edu.pe">robust@uni.edu.pe</a>	