

CONTACT INFORMATION *Address:* *Mobile:* +58-416-615-5971
Urb. Junko Country Club *E-mail:* racuna@usb.ve
Calle Gloria, Qta. Arrayán, Parcela 112 *Marital Status:* Single
Caracas, Venezuela. *Age:* 29

RESEARCH INTERESTS **Navigation algorithms for mobile robots**, motion prediction, path planning, artificial potential fields, cooperative robots, swarms, distributed algorithms, autonomous systems, control.

EDUCATION **Simón Bolívar University**, Caracas, Venezuela.

M.S., Electronic Engineering - Mechatronics specialization, January 2013

- GPA: 4.8/5
- With Honors in Thesis.
- Thesis Topic: *Velocity Field Generation For Dynamic Environments using movement prediction. (Implemented in ROS using Python)*
- Advisers: Prof. Gerardo Fernández-López and Prof. Leonardo Fermín
- Area of Study: Mobile Robotics

B.S., Electronic Engineering, January 2008

- GPA 4.2/5
- Five year pensum with thesis.
- Thesis Topic: *Control platform with high computing power for mobile robot operation.*
- Adviser: Prof. Wilfredis Medina

PROFESSIONAL EXPERIENCE **Simón Bolívar University**, Caracas, Venezuela

Professor (Level Instructor)

May 2011 to present

- Supervisor: Prof. José Cappelletto
- Department of Electronics and circuits, Digital Section.
- Instructor in several courses in the area of computer architecture and digital circuits: EC2721, EC3731, EC3083, EC3192, EC3881, EC3882, EC3883, EC2073.
- Founder of the first Robotic Soccer Team *Futbot* in Venezuela.
- Founder of the first open Wiki for students and professors in the Area of Electronics and Circuits: [Wikitronica](#).
- Investigation in the area of Mobile Robots. Development of algorithms for safe path-planning using motion prediction.
- Supervision of graduate and undergraduate students in engineering.

Simón Bolívar University, Caracas, Venezuela

Academic Assistant

January 2008 to May 2011

- Supervisor: Prof. Gerardo Fernández
- Department of Electronics and circuits, Digital Section.
- Assistance to the professors in several courses in the area of computer architecture and digital circuits: EC2721, EC3731, EC3881, EC3882, EC3883.
 - Design of laboratory exams and activities.
 - Elaboration of video and written tutorials.
- Graded the weekly assignments.

Master's Prep School, Caracas, Venezuela

Math Professor.

2010 to 2012

- Math instructor in the courses of preparation for the GMAT, SAT and GRE tests.

Acumuladores Duncan, Caracas, Venezuela

Consulting for Acumuladores Duncan.

2010 to 2012

- Design of a Course in Voltage Inverters.
- Presenter of the First Venezuelan Course in Voltage Inverters.

SECO RA Construcción y Minería C.A., Caracas, Venezuela

IT consultant.

2002 to 2007

- Website Design and maintenance.
- Server administrator and network maintenance.

PROFESSIONAL **Referee Service**

SERVICE

- *IEEE Intelligent Vehicles Symposium*, 2013
- *X Annual Engineering Conference, ASME USB. Techonological Visions*, 2012

Conference Service

- Organizer for the 3rd Congress of Electronic Engineering USB. Caracas, Venezuela. 2007.

PROFESSIONAL **R&D Mechatronics Group** (Simón Bolívar University), Member, 2008–present

MEMBERSHIPS

- Professor Researcher 2013–present
- Master Thesis Researcher 2008–2012

Institute for Electrical and Electronics Engineers (IEEE), Member, 2013–present

- IEEE Systems, Man, and Cybernetics Society (2013–present)
- IEEE Robotics and Automation Society (2013–present)

PUBLICATIONS

- [1] Acuña, R., Terrones, A., Certad-H, N., Fermín-León, L., and Fernández-López, G. (2012). Dynamic Potential Field Generation Using Movement Prediction. In *A K M Azad, N J Cowan, M O Tokhi, G S Virk, and R D Eastman (Eds.), Adaptive Mobile Robotics* (pp. 773–780). Baltimore: World Scientific.
doi:10.1142/9789814415958_0098
- [2] Terrones, A., Acuña, R., Certad-H, N., Fermín-León, L., and Fernández-López, G. (2012). Local Distributed Control For Multi-Robot Navigation. In *A K M Azad, N J Cowan, M O Tokhi, G S Virk, and R D Eastman (Eds.), Adaptive Mobile Robotics* (pp. 797–804). Baltimore: World Scientific.
doi:10.1142/9789814415958_0101
- [3] Mastalli, C., Cappelletto, J., Acuña, R., Terrones, A., & Fernández-López, G. (2012). An Imitation Learning Approach For Truck Loading Operations in Backhoe Machines. In *A K M Azad, N J Cowan, M O Tokhi, G S Virk, & R D Eastman (Eds.), Adaptive Mobile Robotics* (pp. 827–830). Baltimore: World Scientific. doi:10.1142/9789814415958_0104
- [4] Cabrera, M. E., Bogado, J. M., Acuña, R., Fermín, L., & Ralev, D. (2012). Glove-Based Gesture Recognition System. In *A K M Azad, N J Cowan, M O Tokhi, G S Virk, & R D Eastman (Eds.), Adaptive Mobile Robotics* (pp. 747–753). Baltimore: World Scientific.
doi:10.1142/9789814415958_0095
- [5] Certad-H, N., Acuña, R., Terrones, A., Ralev, D., Cappelletto, J., & Grieco, J. (2012). Study and Improvements in Landmarks Extraction in 2D Range Images Based on an Adaptive Curvature Estimation. *Andean Region International Conference (ANDESCON), 2012 VI* (pp. 95–98). Cuenca.
doi:10.1109/Andescon.2012.31
- [6] Estévez, P., Cappelletto, J., Alvarez, F., Acuña, R., Fernández, G., Grieco, J., and Armada, M. (2009). Navegación Coordinada de un sistema multirobot usando campos de velocidades dinámicos. *RoboCity 2030. 5o Workshop, Cooperación en Robótica* (pp. 79–103).
- [7] Estévez, P., Cappelletto, J., Acuña, R., Alvarez, F., & Fernandez-López, G. (2007). Coordinated Navigation Using Dynamically Varying Velocity Fields. *9-th International Conference Artificial Intelligence and Soft Computing*. Zakopane.

CONFERENCE
TALKS

- [8] Acuña, R., Ralev, D. Expo Futuro 2013. Plenary Speaker. Grupo de Mecatrónica USB. Simón Bolívar University. Caracas. Venezuela. March 19, 2013.

- [9] Acuña, R., Terrones, A., Certad-H, N., Fermín-León, L., & Fernández-López, G. (2012). Dynamic Potential Field Generation Using Movement Prediction. 15th International Conference on Climbing and Walking Robots and the Support Technologies for Mobile Machines (CLAWAR'12). Baltimore. July 23-26, 2012.
- [10] DIMECANIC 2011. Plenary Speaker. Mobile Robotics. Margarita. Venezuela. July 26-27, 2011.
- [11] ELECTRON 2011. Plenary Speaker. Advances in Mechatronics. Margarita. Venezuela. December 10-11, 2011.
- CONFERENCE POSTERS [12] Acuña, R. 1st Scientific and Technical Workshops of ULAB (2013). Generación de Campos de Velocidades para entornos dinámicos empleando Predicción de Movimiento. Simón Bolívar University. Caracas. Venezuela. May 30, 2013.
- [13] Terrones, A., Acuña, R., Certad-H, N., Fermín-León, L., & Fernández-López, G. (2012). Local Distributed Control For Multi-Robot Navigation. 15th International Conference on Climbing and Walking Robots and the Support Technologies for Mobile Machines (CLAWAR'12). Baltimore. July 23-26, 2012.
- COURSES AND CONFERENCES ATTENDED
- Voltage Inverter Instalation Course. RAC. Ccs. Venezuela. 2010.
 - French Course Level III. DEX. USB. Ccs. Venezuela. 2010.
 - French Course Level II. DEX. USB. Ccs. Venezuela. 2010.
 - French Course Level I. DEX. USB. Ccs. Venezuela. 2009.
 - Microsoft Research-Latin American Summit, Panamá City. Panamá. 2008.
 - International Conference on Robotics FII. USB. Ccs. Venezuela. 2007.
 - 3rd Conference of Electronic Engineering. USB. Ccs. Venezuela. 2007.
 - 2nd Conference of Electronic Engineering. USB. Ccs. Venezuela. 2006.
 - 1st Conference of Electronic Engineering. USB. Ccs. Venezuela. 2005.
- STUDENT THESIS ADVISING
- José Camacho**
Undergraduate student in Electronic Engineering, Simón Bolívar University. Thesis topic: *Autonomous navigation with landmarks using 3D vision*. In course.
- Elvis Ruiz**
Graduate student in Electronic Engineering, Simón Bolívar University. Thesis topic: *Development of a control platform for the mobile robot Roomba using ROS and integrating a Kinect sensor*. With Honors in Thesis. March 20, 2012.
- Hector Henríquez**
Graduate student in Electronic Engineering, Simón Bolívar University. The-

sis topic: *Design and implementation of a shooting ball system for a robot soccer team.* With Honors in Thesis. November 05, 2011.

Julia Suniaga

Graduate student in Electronic Engineering, Simón Bolívar University. Thesis topic: *Design of an artificial intelligence system for a robot soccer team.* November 03, 2011.

STUDENT
INTERNSHIPS
ADVISING

Yholy Carvajal

Graduate student in Electronic Engineering, Simón Bolívar University. Internship topic: *Design and conformation of a support kit in the areas of transport and energy.* At Smarmatic. April 04, 2013.

Andrea Roa

Graduate student in Electronic Engineering, Simón Bolívar University. Internship topic: *Design and implementation of test bench for GPS equipments.* At HS Soluciones. With Honors. July 10, 2012.

Alberto Rodríguez

Graduate student in Electronic Engineering, Simón Bolívar University. Internship topic: *Degins of a path planner for cooperative robots.* Mechatronics Group, USB. With Honors. January 26, 2012.

TEACHING
EXPERIENCE

Simón Bolívar University, Caravas, Venezuela

Professor (Assistant)

May 2011 to July 2013

Instructor for the following courses:

- EC 3731: Computer Architecture II.
 - April-July 2011.
 - April-July 2012.
 - September-December 2012.
- EC 2721: Computer Architecture I.
 - January-March 2013.
 - April-July 2013.
- EC 3881: Projects Laboratory I.
 - September-December 2011.
- EC 3882: Projects Laboratory II.
 - January-March 2012.
- EC 3192: Laboratory of Electronic circuits I.
 - January-March 2012.
- EC 2073: Microprocessors.
 - April-July 2012.

- EC 3083: Electronic Workshop.
 - April-July 2012.

Teaching Assistant

January 2008 to April 2011

Assistant to the professors in the laboratories of the following courses:

- EC 3731: Computer Architecture II.
 - April-July 2009.
 - September-December 2008.
- EC 2721: Computer Architecture I.
 - April-July 2008.
 - January-March 2008.
- EC 3881: Projects Laboratory I.
 - January-March 2010.
- EC 3882: Projects Laboratory II.
 - April-July 2010.
- EC : Robotics.
 - April-July 2008.
 - January-March 2008.
- EC 1421: Signals and Systems.
 - September-December 2009.
 - January-March 2009.
- EC 1281: Electrical measurements laboratory.
 - January-March 2009.
- EC 2178: Electronic Circuits II.
 - September-December 2009.

SERVICE

Founder and frequent contributor to [Wikitronica](#)

- Founder of the site in 2012.
- Significant contributions to articles on Computer Architecture, Electronics, and Digital Systems.

[Robotics Competition CSSBOTS 2013, Simón Bolívar University, 2013](#)

- Coordinator of the 2013 competition in association with GIA.
- Led the 2013 Electronic Engineering Team.

Inter careers sports competitions 2006 (Simón Bolívar University). Coordinator of Electronic Engineering.

Committee on the Electronic Engineering Career. 2006-2007.

Founder of the student robotic group FUTBOT USB.

HARDWARE-
SOFTWARE
SKILLS

Analog and Digital Electronics:

- Computer-Aided Design Tools: Cadence OrCAD, NI Multisim, SPICE.

Embedded and Real-time Systems:

- Software and hardware development with several MCU and platforms (e.g., Motorola MCU's, Atmel Atmega MCU's, Microchip PIC MCU's, Arduino). Including Real Time OS.

Instrumentation, Control, Data Acquisition, Test, and Measurement:

- Simulink, LabVIEW and other National Instruments control and data acquisition hardware and software and Agilent bench-top equipment.

Computer Programming:

- C, C++, Python, PHP, UNIX shell scripting, GNU make, and others.

Numerical Analysis:

- MATLAB, Mathematica.

Version Control and Software Configuration Management:

- DVCS (Mercurial/MQ, Git/StGit), VCS (SVN), and others.

Information/Internet Technology:

- Networking (UDP, TCP, DNS, routing), Services (Apache, SQL, Media-Wiki, POP, IMAP, SMTP).

Desktop Editing and Productivity Software:

- Microsoft Visual Studio, Spyder, Eclipse, Qt Creator
- T_EX (L^AT_EX, B_IB_TE_X),
- Lyx
- Microsoft Office, OpenOffice.org, LibreOffice, Google Docs
- Photoshop, GIMP, InkScape, Adobe InDesign

Operating Systems:

- Microsoft Windows family, Apple OS X, Linux (Ubuntu).

AWARDS

Simón Bolívar University, Electronic Engineering Students

- Professor of the year, 2013.

EXTRA
CURRICULAR
ACTIVITIES

Hiking Group OIKOS (Simón Bolívar University)

- Course of low and medium mountain.

Scuba Diving Group (Simón Bolívar University)

- Basic scuba diving course

Sailing School (Pto. La Cruz, Venezuela)

- Basic and Advanced Course on Sunfish Sailboat.

Junko Golf Club (Caracas, Venezuela)

- Member of the junior golf team.

La Parva Ski School (Santiago, Chile)

- Basic and Advanced Ski course.

Club Mistral (El yaque, Margarita Island, Venezuela)

- Basic Windsurf.

Association of Professors APUSB (Simón Bolívar University)

- Member of the soccer team since 2011.

REFERENCES
AVAILABLE TO
CONTACT

Dr. Gerardo Fernández López

Caracas, Venezuela

(e-mail: gfernandez@usb.ve; phone: +58-412-903-4707)

- Associate Professor, Department of Electronics and Circuits, Simón Bolívar University
- President of Funindes USB
- President of Corporation Sartenejas Technological Park
- Head and Co-founder of R&D Mechatronics Group
- ★ *Dr. Fernández was the Advisor in my Master Thesis.*

Dr. Juan Carlos Grieco

Caracas, Venezuela

(e-mail: jcgrieco@usb.ve; phone: +58-414-462-4210)

- Associate Professor, Department of Electronics and Circuits, Simón Bolívar University
- Head and Co-founder of R&D Mechatronics Group

Dr. Joshué Perez Rastelli

París, France

(e-mail: joshue.perez_rastelli@inria.fr; phone: +33-1-39-63-50-29)

- Post-Doc++, Lab IMARA, INRIA France

MORE
INFORMATION

More information and auxiliary documents can be found at
<http://www.rag.com.ve>.