Juan David Gamba Camacho

"Imagination is more important than knowledge.
For knowledge is limited, whereas imagination embraces the
entire world, stimulating progress, giving birth to evolution."
Albert Einstein, "What Life Means to Einstein".

Personal Information

Date of Birth	*Feb 5th, 1993*
Gender	Male
Nationality	Colombian/ Costa Rican
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Education

2018–2021 **Doctor of Philosophy - PhD in Advanced Robotics,** *Dipartimento di Informatica, Bioingegneria, Robotica e Ingegneria dei Sistemi,* Università degli Studi di Genova, Italy.

2016–2018 **Master's Degree, Electrical Engineering,** *Departamento de Engenharia Eletrica,* Pontificia Universidade Catolica do Rio de Janeiro, Brazil.

2012–2015 **Bachelor's Degree, Automation and Control,** *Escuela de Ingenieria Electronica,* Universidad Latina de Costa Rica, Costa Rica.

2010–2012 **Associate's Degree, Electronics and Communications Engineering,** *Escuela de Ingenieria Electronica,* Universidad Latina de Costa Rica, Costa Rica.

Achievements & Honors

11/2015 **Winner of The National Award of Electronic Engineering, Professional Category - ASOELECTRONICA ITCR,** *Nationwide SCADA, Energy Quality, Instituto Costarricense de Electricidad*, Costa Rica.

Experience

2018–2021 **Researcher PhD Student,** *Istituto Italiano di Tecnologia,* Genova, Italy.

- Design of control strategies for balancing applied to robotics.
- Path planning strategies to solve NLP (Nonlinear Programming) problems.
- Implementation of Non-linear observers based on Sliding Mode theory.
- royfeatherstone.org/skippy/index.html

2015–2016 **Project Engineer - Security Solutions,** *Emerson Process Management,* Costa Rica.

- Designing and implementing scripts for different application involving embedded devices; for the Security US Team and provide support for different Power Water Solutions area projects.

2014–2015 **Project Engineer,** *Emerson Process Management,* Costa Rica.

- Implementation, testing, and commissioning of different projects developed with Ovation (company software), also provide technical support and troubleshooting on-site activities. Responsibilities included: Field Service Support; Project Engineering.
  Projects:
- Enertek, Mexico: Design and implementation of the control logic for Air Condensers and a Vacuum System for the full functionality with the Steam Turbine. Debug and configure the Modbus communication between the Alstom and SCADA systems.
- Promissao and COG (Centro de Operação da Geração), Brazil: Field support for the maintenance of GU (Generation Unit) one and three. Configuration of WIN-911 (notifications, alarms, and events software). Configuration of EDS (platform for network-security).

2013–2014 **Intern Engineer,** *Instituto Costarricense de Electricidad,* Costa Rica.

- Design and implementation of a nationwide SCADA on energy quality. The system has around fifty thousand variables using LabVIEW and the Data Logging and Supervisory Control module. The application consists of logging information via Modbus and other communications protocols from several sites distributed along with the country and storing it to be accessed by everyone through a public server.

Scientific Publications

2021 **Balancing on a Springy Leg,** *IEEE International Conference on Robotics and Automation, June 2021*, Xi'an, China.

2021 **Robust Balancing Control of a Spring-legged Robot based on aHigh-order Sliding Mode Observer,** *IEEE-RAS International Conference on Humanoid Robots, July 2021*, Munich, Germany.

2018 **A Robust Visual Servoing Approach for Robotic Fruit Harvesting,** *Master Thesis, Departamento de Engenharia Elétrica, Pontifícia Universidade Católica do Rio de Janeiro, 2018*, Brazil.

2018 **A Robust Vision-based Control for Robotic Fruit Harvesting using Deep Learning,** *IEEE LARS 2018 - 15th Latin American Robotics Symposium*, Brazil.

2018 **A Visual Servoing Approach For Robotic Fruit Harvesting in the Presence of Parametric Uncertainties,** *CBA Proceedings Volumes, 2018. XXII Congresso Brasileiro de Automatica*, Brazil.

Skills & Background Knowledge

Computer skills

Basic	Java, HTML
Intermediate	VHDL,Assembler, C, LabVIEW, Solid Works, Power Shell, VBA, V-REP, ROS, CasADi, LaTeX.
Advanced	Pyhton, Matlab, Linux, Windows, Microsoft Office.

Communication skills

Good ability in sharing and/or presenting ideas.

Very good team-work skills.

Friendly, sociable.

Ability to bear under high pressure of tasks.

Research Interests

Control Theory: Linear and Non-linear Control, High Order Sliding Mode Observers and Dynamic Control.

Optimal Control: Linear, Quadratic and Non-linear Programming.

Machine Learning: Reinforcement Learning, Deep Learning and Deep Reinforcement Learning.

Block-chain & Cryptocurrencies.

Languages

Spanish	Mothertongue	
English	Advanced	*Fluent in communicative and academic aspect*
Portuguese	Intermediate	*Fluent in communicative*
Italian	Basic	*B1 Level*

Interests

- Music
- Documentaries
- Sports
- Social Activities