



ANA LUCIA CRUZ RUIZ

Robotics Engineer

CONTACT

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-  France

PROFILE

Robotics engineer interested in the development of intelligent motion control, machine learning, and perception solutions.

TECHNICAL SKILLS

- Machine learning techniques
- Robot control algorithms
- Robot kinematic analysis
- Robot dynamic analysis
- Programming tools:
 - . Python
 - . C++
 - . MATLAB
- Simulation tools:
 - . ROS
 - . Rviz
 - . Simulink
 - . V-rep
- Mechanical design tools:
 - . Autodesk Inventor
 - . CATIA

LANGUAGES

ENGLISH (Near native - C2)

SPANISH (Native)

FRENCH (Advanced - C1)

ITALIAN (Advanced - B2)

EDUCATION

- Robotics Nanodegree**
Udacity (with BOSCH, Electric Movement, KUKA) 2017
- Machine Learning**
Coursera (by Stanford University) 01-03/2017
- PhD in Control and Signal Processing**
INRIA, ENS Rennes, France 2013-2016
- Master's degree in Advanced Robotics**
École Centrale de Nantes, France 2011-2013
- Bachelor's degree in Mechatronics**
Universidad Tecnológica Centroamericana 2007-2011

PROFESSIONAL EXPERIENCE

- Robotics R&D engineer (Internship)**
IRCCyN & Laval Univ. // France // 2013 (6 months)
- Mechatronics engineer**
3D Solutions // Honduras // 2010 (6 months)

PROJECTS

- **ROBOT PERCEPTION, DECISION-MAKING, CONTROL**
Pick and place with KUKA KR210 robot
(ROS, Moveit!, Gazebo, Rviz, Python)

Autonomous navigation of a mobile robot
(Python, Unity game engine)

Toolbox: Simulation of the kinematics and sensors of mobile robots
(MATLAB, Simulink)

Automation of industrial tasks with stäubli RX90/PUMA robots
(V+, Val II)

- **ROBOT DESIGN**
ARACHNIS: A GUI for the design of cable-driven parallel robots
(MATLAB)

Design of a 3-DoF planar parallel robot
(CATIA, MATLAB)

- **MACHINE LEARNING**
Machine learning-based control strategies for virtual characters
(MATLAB, Simulink, SimMechanics, Non-negative matrix factorization toolbox)

ANA LUCIA CRUZ RUIZ

OTHER SKILLS

- Instructive speaker
- Clear and concise writer
- Effective listener
- Attentive to detail
- Organized
- Versatile
- Perseverant

OTHER INTERESTS


- Popularizing science and technology
- Designing interactive robotics/english workshops for children
- Teaching and tutoring
- Playing piano (classical, pop/rock)
- Writing

AWARDS

Fondation Centrale Scholarship
Nantes // France // 2012

Speech CIC Bank's Ceremony
Les Invalides// France // 2012

REFERENCES

 STEPHANE CARO, *IRCCyN*
Stephane.Caro@irccyn.ec-nantes.fr

 PHILIPPE CARDOU, *LAVAL UNIV.*
Philippe.Cardou@gmc.ulaval.ca

 CHARLES PONTONNIER, *ENS*
charles.pontonniier@irisa.fr

PRESENTATIONS

Scientific presentations (International conferences, workshops)
IRCCyN, INRIA // France // 2013-2016

Speaker at the "International Girls in ICT Day Event"
Inter. Telecommunications Union // Honduras // 2016

Speaker at an event by IEEE/WIE (Women in Engineering)
WIE, UNITEC // Honduras // 2016

Speaker at the event "Just like robotics, you have a great future"
École centrale de Nantes// France // 2016

Teacher/Tutor Computer Science, Math, Physics, English
Middle school/Personal Tutoring // Honduras // 2006-2011

PUBLICATIONS

A synergy-based control solution for overactuated characters: application to throwing
Computer Animation and Virtual Worlds // 2016

Muscle-based control for character animation
Computer Graphics Forum // 2016

Motion control via muscle synergies: Application to throwing
8th ACM SIGGRAPH Conf. on Motion in Games // 2015

Identifying representative muscle synergies in overhead football throws
CMBBE// 2015

A bio-inspired limb controller for avatar animation
CMBBE // 2014

ARACHNIS: Analysis of Robots Actuated by Cables with Handy and Neat Interface Software
Second International Conference on Cable-Driven Parallel Robots // 2014

Measuring how well a structure supports varying external wrenches
Second Conference in New Advances in Mechanisms, Transmissions and Applications// 2013



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