ANA LUCIA CRUZ RUIZ
Robotics Engineer

CONTACT

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PROFILE

Robotics engineer interested in motion control, machine learning and perception.

TECHNICAL SKILLS

- Machine learning techniques
- Robot control algorithms
- Robot kinematic analysis
- Robot dynamic analysis
- Programming tools:
  - Python
  - MATLAB
  - C++
- 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**

Object recognition with PR2 robot
(ROS, Gazebo, Rviz, Python)

Pick and place with KUKA KR210 robot
(ROS, Moveit!, Gazebo, Rviz, Python)

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

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**

Low-dimensional 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.pontonnier@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