



# ANA LUCIA CRUZ RUIZ

Robotics Engineer &  
Science Communicator

## CONTACT

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- France

## PROFILE

Robotics engineer interested in the development of smart motion control solutions and the popularization of science and technology.

## SKILLS

- **ROBOTICS**
  - Machine learning
  - Robot control algorithms
  - Robot kinematic analysis
  - Robot dynamic analysis
  - Programming:
    - . MATLAB
    - . Python
    - . C++
  - Dynamic simulations:
    - . Simulink
    - . V-rep
  - Mechanical design:
    - . Autodesk Inventor
    - . CATIA
- **WRITING & COMMUNICATION**
  - Instructive speaker
  - Clear and concise writer
  - Effective listener
  - Attentive to detail
  - Organized
  - Versatile

## EDUCATION

- PhD in Mechanics**  
INRIA, ENS Rennes, France 2013-2016
- Master's degree in Control Engineering, Robotics and Applied Informatics – Focus: Advanced Robotics**  
École Centrale de Nantes, France 2011-2013
- Bachelor's degree in Mechatronics**  
Universidad Tecnológica Centroamericana 2007-2011

## PROFESSIONAL EXPERIENCE

### ○ ROBOTICS ENGINEER

#### Robotics R&D engineer (Internship)

IRCCyN // France // 2013 (6 months)

Development of software tools to automate the design and analysis of robots by using new performance evaluation criteria. Creation of technical documentation and user manuals.

#### Mechatronics engineer

3D Solutions // Honduras // 2010 (6 months)

Design of 3D models of plastic products according to client specifications. Assistant in the manufacturing of aluminum molds for the fabrication of plastic products.

### ○ TECHNICAL WRITER/COMMUNICATOR

#### Scientific writer/ reviewer

IRCCyN, INRIA // France // 2013-2016

Writer and reviewer of scientific articles within the scope of my PhD degree. Publications and presentations of conference, journal, and state-of-the-art papers in domains ranging from robotics, to biomechanics, and animation.

#### 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

#### Translator "Honduras this Week" journal

Honduras this week // Honduras // 2005

# ANA LUCIA CRUZ RUIZ

## LANGUAGES

ENGLISH (Near native - C2)

SPANISH (Native)

FRENCH (Advanced - C1)

ITALIAN (INTERMEDIATE - B2)

## AWARDS


Fondation Centrale Scholarship  
Nantes // France // 2012

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

## INTERESTS

- Robotics
- Popularization of science and technology
- Planification of interactive robotics workshops for children
- Playing piano (classical, pop/rock)

## 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

## PROJECTS

**Machine learning based control strategies for a redundant virtual arm**

(MATLAB, Simulink, SimMechanics, V-rep, C++)

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

**Toolbox: Simulation of the kinematics and sensors of mobile robots**

(MATLAB, Simulink)

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

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

## 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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