



Nicolas LOY RODAS, PhD

Curriculum Vitae

July 6, 1989

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SUMMARY

PhD in Medical Robotics with 5 years of experience working on object-oriented software development for Medical applications and research in the field of Computer-assisted medical interventions.

During my PhD, I led the development of a **radiation awareness system** for improving the monitoring of ionizing radiation during X-ray guided medical procedures. My work has led to **two patent applications**, several **publications in scientific journals/conferences** and to the development of a **prototype system installed and demonstrated in an operating room**.

Top skills : Computer-Assisted Medical Interventions, Medical Imaging, Software development, Oral/written scientific communication.

PROFESSIONAL EXPERIENCE

Ganymed Robotics, France

Research Engineer - Computer-Assisted Orthopedic Surgery

Dec 2018

GE Healthcare, France

Software Engineer - X-ray imaging applications

Oct-Dec 2018

IHU Strasbourg, France

Research Engineer

Leader of a transfer of technology project : transfer of the X-ray radiation simulation and visualization frameworks developed during my PhD thesis to our industrial partner.

Feb-Jun 2018

ICube Laboratory, University of Strasbourg, France

PhD Candidate in Medical Robotics

Led the development of a global radiation awareness system for providing real-time visual feedback of the radiation exposure during X-ray guided procedures. Proposed new approaches for :

- simulating the propagation of scattered radiation and the dose to patient and staff in real-time.
- providing in-situ visual feedback about radiation exposure by means of augmented and virtual reality.
- optimizing an X-ray device configuration to minimize radiation exposure.

2015-2018

ICube Laboratory, University of Strasbourg, France

Research Engineer : Computer Vision, Augmented Reality, Image processing

2013-2015

- Development of camera tracking and object detection approaches using RGBD cameras.
- Development of Monte-Carlo simulations of ionizing radiation propagation.

EDUCATION

PhD in Medical Robotics

2015-2018

University of Strasbourg, France

- Thesis : “Context-aware Radiation Protection for the Hybrid Operating Room”.
- Advisors : Prof. Dr. Michel de Mathelin and Dr. Nicolas Padoy.

MSc. Imaging, Robotics and Biomedical Engineering

2011-2013

Telecom Physique Strasbourg Engineering School, France

- Study emphases : Computer Vision and Robotics.
- Master’s Thesis : “Object Detection in the Interventional Room using RGB-D Cameras”.

Engineer’s degree (*Diplôme d’ingénieur*)

2011-2013

National Institute of Applied Sciences (INSA), Strasbourg, France

- Study emphases : Robotics, Mechatronics and Automation.
- Final project : “Automation feasibility analysis of a deburring station at Erimeca Group, Rosheim”.

BSc. Mechatronics Engineering

2007-2011

Anahuac University of Merida, Yucatan, Mexico

- Study emphases : Mechatronics, Mechanical Design and Manufacturing.
- Bachelor’s Thesis : “Design and construction of a vacuum oven for the creation of bimetallic alloys”.

PATENT APPLICATIONS

N. Padoy, N. Loy Rodas, et al., *Method for determining a configuration setting of a source of ionizing radiation*, EU application, January 2017.

N. Padoy and N. Loy Rodas, *Method for estimating the spatial distribution of the hazardousness of radiation doses*, WO2016020278 A1, 2014.

SKILLS

<i>Technical</i>	Medical Imaging, Computer Assisted Interventions, Medical Robotics, Software development, Augmented/Virtual Reality
<i>Languages</i>	French (fluent : French High-School diploma obtained with honors in 2007) English (fluent : IBT TOEFL : 105/120 and TOEIC : 985/990) Spanish (native speaker)
<i>Programming</i>	C++, CUDA C, Python, MatLab
<i>Libraries</i>	OpenCV, Qt, PCL, VTK, Eigen, Boost, Geant4
<i>Dev. tools</i>	Visual Studio, Qt Creator, CMake, SVN, Batch
<i>Others</i>	Windows, Linux, Adobe After Effects, Adobe Illustrator
<i>Design</i>	Website designer and publicity chair for the International Conference on Information Processing in Computer-Assisted Interventions : IPCAI 2017.