



# RAFAEL MONROY

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## EDUCATION

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- PhD., Computer Science (Trinity College Dublin)** Mar. 2017 - Present  
Augmented Reality for mobile devices.
- M. Sc., Computer Science (Swiss Federal Institute of Technology Zurich, ETHZ)** Fall 2009 - Fall 2011  
Thesis on Stereoscopic 3D processing at Disney Research Zurich.
- Bachelor in Biomedical Engineering (Universidad Iberoamericana)** Fall 2002 – Spring 2007

## PROFESSIONAL EXPERIENCE

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- Research Fellow (Fraunhofer IGD)** Apr. 2012 – Dec. 2016  
In 2012 a new department was created at Fraunhofer IGD with the goal of developing an automated pipeline to digitize cultural heritage objects.
- Implementation of a network communication framework using CORBA.
  - Design and implementation of automated workflows for the scanning pipeline.
  - Design and implementation of a color-managed image acquisition process.
  - Communication and collaboration with external suppliers.
- External Consultant (Disney Research Zurich)** May 2012 – Jul. 2012  
Work towards the publication of a scientific article.
- Design and data analysis of psychophysical experiments.
- Internship/Part-time (Disney Research Zurich)** Aug. 2010 – Jan. 2012  
Initially as a part-time job I joined the 3D Video Processing group. This later developed into an internship and finally, a master thesis.
- Work on three projects related to stereoscopic video processing.
  - Development of a library to load and extract individual frames in a video.
  - Development of a Maya plugin to convert depth maps into animated point clouds.
  - Parallel programming with CUDA to combine two sources of stereoscopic 3D content.
  - Work on perceptual models for stereoscopic videos.
  - C/C++ and Matlab development.
- Java Developer Senior (GCP Global, Mexico City)** Feb. 2009 – Aug. 2009  
GCP Global's core business is in the field of IT security. I joined the company as part of the development team working on the next version of their Business Risk Management suite.
- Java backend programming together with Hibernate.
  - Frontend development on Adobe Flex.
- Research and Development Engineer (GTSSF, Mexico City)** Aug. 2007 – Feb. 2009  
GTSSF is a consulting company that delivers a broad set of IT services.
- Support and maintenance of an existing finance-oriented CRM, developed in Perl.
  - Development of a CRM software for hospitals and clinics (C++/MSSQL).
  - Development of an online survey system implemented on PHP and MySQL.

## Design Engineer (CODE Ingenieria, Mexico City)

Nov. 2006 – May 2007

CODE Ingenieria is a company founded by some colleagues of mine from college and me. Its main focus is the development of embedded solutions.

- Firmware development for embedded wireless applications using the Zigbee protocol.
- C/C++ development.

## OTHER EXPERIENCE

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### ETHZ/Disney Research Zurich

Jun. 2010 – Aug. 2010

Semester project: *3D Video Post-Production, Mixing Virtual and Real Elements.*

### Universidad Iberoamericana

Sep. 2006 – Jun. 2007

Internship: *Development of an Augmentative and Alternative Communication (AAC) system for speaking-impaired people.*

### Universidad Iberoamericana

Jul. 2005 – Oct. 2006

Member of the Robotics Team. Development of several line maze robots.

## PROGRAMMING SKILLS

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Programming languages: C/C++, OpenGL, GLSL, CUDA, OpenCL, Matlab, Java, Android development.

Database management: MySQL, MSSQL.

Operating systems: Unix and Windows.

Webpage creation: HTML, Perl, PHP, Javascript.

CAD drawing: Autodesk 3dsMax, Autodesk Inventor, Autodesk Maya, Autodesk Mechanical.

Design software: Adobe Photoshop CC, Adobe Illustrator CC, Adobe InDesign CC, Adobe Premiere Pro CC.

## LANGUAGES

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Spanish:

Native.

English:

Fluent.

German:

Intermediate (B1).

## AWARDS

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Academic excellence award. National Association of Engineering Colleges. Mexico 2008.

Honorable mention. Universidad Iberoamericana. Mexico 2007.

## PUBLICATIONS

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### Dynamic Environment Mapping for Augmented Reality Applications on Mobile Devices

R. Monroy, M. Hudon, A. Smolic.

VMV 2018.

### SalNet360: Saliency Maps for Omni-directional Images with CNN

R. Monroy, S. Lutz, T. Chalasani, A. Smolic.

Signal Processing: Image Communication 2018.

### A Computational Model for Perception of Stereoscopic Window Violations

S. Poulakos, R. Monroy, T. Aydin, O. Wang, A. Smolic, and M. Gross.

QoMEX 2015.

### CultLab3D – On the verge of 3D mass digitization

P. Santos, M. Ritz, R. Tausch, H. Schmedt, R. Monroy, A. De Stefano, O. Posniak, C. Fuhrmann, D. W. Fellner.

GCH 2014.

### Disparity-aware Stereo 3D Production Tools

A. Smolic, S. Poulakos, S. Heinzle, P. Greisen, M. Lang, A. Hornung, M. Farre, N. Stefanoski, O. Wang, L. Schnyder, R. Monroy, M. Gross.

CVMP 2011.