



Rafael Monroy

Email: rafaelmonroy84@gmail.com

Education

M. Sc., Computer Science

Fall 2009 - Fall 2011

Swiss Federal Institute of Technology Zurich

Thesis on Stereoscopic 3D processing at Disney Research Zurich.

Bachelor in Biomedical Engineering

Fall 2002 – Spring 2007

Universidad Iberoamericana

Professional experience

Research Fellow

Apr. 2012 – Dec. 2016

Fraunhofer IGD

In 2012, a new department was created at Fraunhofer IGD whose main goal is the development of a 3D scanning pipeline to massively scan 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
- Design and construction of a controlled illumination setup
- Communication and collaboration with external suppliers
- CAD design of custom parts
- Photorealistic renderings of results

External Consultant

May 2012 – Jul. 2012

Disney Research Zurich

Further work towards the publication of an article related to the topic of master thesis.

- Design and data analysis of psychophysical experiments
- Matlab programming

Internship/Part-time

Aug. 2010 – Jan. 2012

Disney Research Zurich

Initially as a part-time job, I was part of the 3D Video Processing group. This later developed into an internship and finally, a master thesis.

- Work on several projects related with 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 to be used during video post-processing
- Parallel programming using CUDA to combine two sources of stereoscopic 3D content
- Work on perceptual models for stereoscopic videos
- C/C++ and Matlab programming

Java Developer Senior

Feb. 2009 – Aug. 2009

GCP Global, Mexico City

GCP Global's core business is in the field of IT security. When I joined the company they were developing the next version of their Business Risk Management suite.

- Java backend programming together with Hibernate
- Frontend development using Adobe Flex

Research and Development Engineer

GTSF, Mexico City

Aug. 2007 – Feb. 2009

GTSF is a consulting company that delivers a broad set of IT services.

- Support and maintenance of an existing finance-oriented CRM, developed in Perl using MySQL as database
- Development of a CRM software for hospitals and clinics (C++/MSSQL)
- Development of an online survey system using PHP and MySQL

Design Engineer

CODE Ingeniería, Mexico City

Nov. 2006 – May 2007

CODE Ingeniería 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++

Other experience

ETHZ/Disney Research Zurich

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

Jun. 2010 – Aug. 2010

Universidad Iberoamericana

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

Sep. 2006 – Jun. 2007

Universidad Iberoamericana

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

Jul. 2005 – Oct. 2006

Programming skills

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

Database management: MySQL, MSSQL.

Operating systems: Unix and Windows.

Webpage creation: HTML, Flash, Perl, PHP, Javascript.

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

Design software: Adobe Photoshop, Illustrator, InDesign.

Languages

Spanish:

Native.

English:

TOEFL iBT 109.

German:

B1.

Awards

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

Honorable mention. Universidad Iberoamericana. Mexico 2007.

Publications

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.