

**Education**

**PhD in Electrical Engineering and Computer Science**

University of California, Merced, May 2018

Dissertation topic: **“Data-Based Motion Planning for Full-Body Virtual Human Interaction with the Environment”**

Supervisor: Prof. Marcelo Kallmann,

**Summary:** My project is about a data-based mobile manipulation framework for achieving real-time autonomous characters able to perform full-body interactions.

**Research Interest:** Computer Animation, Motion Planning, Machine Learning.

**Bachelor in Computer Science, Universidad de Guanajuato, Guanajuato, Mexico, June 2012**

Thesis work: **“Implementation of a machine learning model for humanoid motion generation”**

**Publications**

- *Fast Behavioral Locomotion with Layered Navigation Meshes*, Interactive 3D Graphics and Games (I3D), [2018](#)
- *Coordinating Full-Body Interactions with the Environment*, Symposium on Computer Animation (SCA), [2017](#)
- *Full-Body Behavioral Path Planning in Cluttered Environments*, Motion in Games (MIG), [2016](#)
- *Modeling Data-Based Mobility Controllers with Known Coverage and Quality Properties*, Digital Human Modeling, [2016](#)
- *Deformation, Parameterization and Analysis of a Single Locomotion Cycle*, Motion in Games (MIG), [2014](#)

**Experience**

- **Animation Engineer**, Visual Concepts Entertainment 6/08/2018-Present  
Duties: Research and Development of the Animation interface for the game series NBA 2K.
- **Research Assistant**, University of California, Merced. 23/08/2012-11/05/2018
  - *UC Merced Computer Graphics Lab*, Motion Planning and Animation.
- **Teaching Assistant** Intermittent 2010-2018
  - *Computer Graphics*: University of California, Merced: Fall 2013, Fall 2015, Spring 2017, Spring 2018; Universidad de Guanajuato: Spring 2010, Spring 2012.
  - *Algorithm Design and Analysis*: University of California, Merced: Fall 2017; Universidad de Guanajuato: Fall 2010, Spring 2011, Fall 2011.
- **Visiting Research Assistant, USC Institute for Creative Technologies.** Summer 2014  
Developed and integrated a locomotion engine for the SmartBody platform. Performed research on the topic, which generated a poster paper published at Motion in Games 2014.
- **Fellow Assistant**, at the University of Texas, Dallas Summer 2010  
Duties: Collaborated as a programmer in a Calculus educational videogame.

**Skills**

**Computing:** 10+ years of experience in C/C++, OpenGL, GLSL, OpenCV, Qt. Experience on git, subversion, Linux, Motion Capture data, Motion Builder and Python.

**Mathematics:** College level knowledge in Vector Calculus, Real and Complex Analysis, Differential Equations, Linear Algebra, Abstract Algebra, Probability and Statistics.

**Scientific software:** MATLAB, R project, Wolfram Mathematica, LaTeX.

**Languages:** Proficient at Spanish and English.

**Paper reviewer:** The Visual Computer, Eurographics, International Conference on Robotics and Automation (ICRA), IEEE Conference on Virtual Reality and 3D User Interfaces (IEEE VR), Symposium on Computer Animation (SCA), Motion in Games (MIG), Computer Animation and Virtual Worlds, Conference on Computer Animation and Social Agents (CASA), Symposium on Interactive 3D Graphics and Games (I3D), Intelligent Virtual Agents (IVA), Workshop on the Algorithmic Foundations of Robotics (WAFR).

**Other:** Teamwork, Problem-solving and leadership

**Honors and Awards**

- **UC MEXUS-CONACYT Doctoral Fellowships for Mexican Students 2012-2017**
- **CIMAT's** full-scholarship for tuition and living expenses 2007-2012
- **Academic Honored Student UG** award received for 4 years (2008, 2009, 2010, 2012)
- 9<sup>th</sup> Place in **ACM International Collegiate Programming** regional phase 2009
- 2<sup>nd</sup> Place in **Mexican Mathematics Olympiad** 2006