Mario Rincón-Nigro

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Summary

R&D Software Engineer with broad experience in 3D computer graphics, general purpose GPU-computing, augmented reality, and digital mapping.

Education

- **M.S. in Computer Science**. University of Houston. Houston, TX. Fall 2012.
  Thesis Title: *"Cost-based Workload Balancing for Ray Tracing on a Heterogeneous Platform"*.
  GPA: 3.83/4.0
- **B.S. in Systems Engineering**. Universidad de Los Andes. Mérida, Venezuela. December 2007.
  Thesis Title: *"Automatic Code Generation in Object Oriented Languages from UML Models"* [1]

Professional Experience

- **Lead Software Engineer - Senior Software Engineer. Here Technologies**. Berlin, Germany. December 2015 - present.
  - Designed, coded, and tested a next-generation multi-platform middleware for real-time digital map rendering.
  - Designed, coded, and tested a navigation system for automotive customers.
  - Coded, re-factored, and tested a legacy multi-platform middleware for real-time digital map rendering.
    Technologies and tools: *C++11, OpenGL, OpenGLES, GLSL, NDS Data Format, Google Test/Mock, QNX, Git, Gerrit, Jenkins, Scrum methodology* .
- **Senior Software Engineer. Nokia**. Berlin, Germany. March 2014 - December 2015.
  - Designed, coded, and tested a 3D multi-platform rendering engine for augmented reality applications.
  - Prototyped an augmented reality application for pedestrian guidance.
    Technologies and tools: *C++98/11, OpenGL, OpenGLES, GLSL, Java, JNI, Android SDK, QNX, Mercurial, Jenkins, Scrum development* .
- **Co-op Engineer (Internship). Advanced Micro Devices**. Sunnyvale, CA. May 2012 - August 2012.
  - Worked on reproducing, root-causing, and fixing complex software defects in OpenGL drivers for AMD graphics cards.
  - Developed a demo to showcase motion blur by means of a technique for stochastic rasterization.
    Technologies and tools: *C++98, WinDbg, GDB, OpenGL, GLSL* .
- **Research Assistant. Computer Graphics and Interactive Media Lab at the University of Houston**. Houston, TX. May 2010 - July 2013.
  - Investigated applications of GPU-acceleration to make safer straight-access computer-assisted neurosurgical interventions.
  - Investigated the use of highly realistic face avatars to increase user engagement in instant messaging for mobile devices.
  - Investigated efficient load balancing strategies for ray tracing using multiple GPUs.
    Technologies and tools: *C++, Java, JNI, C, Python, Perl, CUDA, CUDA Visual Profiler, OpenGL, OpenGLES, GLSL, OpenCV, PCL, Matlab, Flite, JNI, PHP, R, Qt, Maya* .

[1] Source Code for code generation tool Genna available at https://github.com/Pikecillo/genna

- **Teaching Assistant. Department of Computer Science at the University of Houston**. Houston, TX. August 2009 - December 2013.
  - Graded and lectured for the courses: Algorithms and Data Structures (Fall 2011, Spring 2012, Fall 2012, Fall 2013), Game Art and Animation (Fall 2009), and Advanced Game Art and Animation (Spring 2010).
- **Research Assistant. Texas Obesity Research Center at the University of Houston**. Houston, TX. May 2009 - August 2009.
  - Developed a wrapper library based on WiimoteLib for interfacing with multiple Nintendo Wii Remotes to record and visualize the accelerometer signals.
    Technologies: *C#, WiimoteLib* .
- **Software Developer Engineer. DyR Technologies**. Mérida, Venezuela. December 2007 - December 2008.
  - Designed, coded, and tested a web-based enterprise project management systems for the Venezuelan oil industry using in-house web framework.
  - Designed, coded, and tested a code generation tool for automating the creation of forms, and associated SQL queries, from SQL database schemas.
    Technologies and tools: *PHP, Ajax, JavaScript, PostgreSQL, Smarty templates, GWT, Perl* .

Publications

- *"GPU-Accelerated Interactive Visualization and Planning of Neurosurgical Interventions"*. **M. Rincón-Nigro**, N.V. Navkar, N.V. Tsekos, Z. Deng. IEEE Computer Graphics and Applications, Jan/Feb 2014, pp. 14-23.
- *"A Text-Driven Conversational Avatar Interface for Instant Messaging on Mobile Devices"*. **M. Rincón-Nigro**, Z. Deng. IEEE Transactions on Human-Machine Systems (THMS), 43(2), May 2013, pp. 328-332.
- *"Cost-based Workload Balancing for Ray Tracing on Multi-GPU Systems"*, **M. Rincón-Nigro**, Z. Deng. ACM SIGGRAPH 2013 Research Poster, Anaheim, CA, July 2013.
- *"Automatic Code Generation from Finite State Machines"*. **M. Rincón-Nigro**, J. Aguilar-Castro, F. Hidrobo-Torres. Computación y Sistemas, 14(4), April 2011, pp. 405-421. (In Spanish)
- *"Improving the Energy-Efficiency of General-Purpose GPU Computing Through Statistical Power Consumption Modeling"*. X. Ma, **M. Rincón-Nigro**, Z. Deng. University of Houston. Technical Report, 2011.

Awards

- Recipient of the 2011-2012 NSMAA Eckhard Pfeiffer-Alumni Scholarship. University of Houston. Houston, TX. May 2011.
- Second Award in the Team Test of the XXIII Venezuelan Mathematical Olympiads. CENAMEC. Caracas, Venezuela. July 1998.
- Honorable Mention in the XXIII Venezuelan Mathematical Olympiads. CENAMEC. Caracas, Venezuela. July 1998.

Miscellaneous Activities

- Paper reviewer for: International Journal of Image and Graphics (2013), CAD/Graphics (2013), International Journal of Computer Assisted Radiology and Surgery (2018).
- Represented Universidad de Los Andes in the 10th ACM-ICPC South American Region Programming Contest. Universidad Metropolitana. Caracas, Venezuela. November 2007.
- Represented Universidad de Los Andes in the 9th ACM-ICPC South American Region Programming Contest. Universidad de Oriente, Núcleo Sucre. Cumaná, Venezuela. November 2006.