Mario Rincón-Nigro

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Summary

R&D Software Engineer with extensive experience in the areas of computer graphics and animation, GPU-computing, computer vision, machine learning, augmented reality, and digital maps.

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.
  Technologies and tools: *C++11, OpenGL, OpenGLES, GLSL, NDS Data Format, Google Test/Mock, QNX, Git, Gerrit, Jenkins, Scrum methodology* .

  - Designed, coded, and tested a next-generation multi-platform middleware for real-time digital map rendering.
  - Designed, coded, and tested a navigation application for an automotive HMI.
  - Coded, re-factored, and tested a legacy multi-platform middleware for real-time digital map rendering.

- **Senior Software Engineer. Nokia**. Berlin, Germany. March 2014 - December 2015.
  Technologies and tools: *C++03/11, OpenGL, OpenGLES, GLSL, Java, JNI, Android SDK, QNX, Mercurial, Jenkins, Scrum development* .

  - Designed, coded, and tested a 3D multi-platform rendering engine for augmented reality applications.
  - Prototyped an augmented reality application for pedestrian guidance.

- **Co-op Engineer (Internship). Advanced Micro Devices**. Sunnyvale, CA. May 2012 - August 2012.
  Technologies and tools: *C++03, WinDbg, GDB, OpenGL, GLSL* .

  - 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.

- **Research Assistant. Computer Graphics and Interactive Media Lab at the University of Houston**. Houston, TX. May 2010 - August 2013.
  Technologies and tools: *C++03, Java, JNI, C, Python, Perl, CUDA, CUDA Visual Profiler, OpenGL, OpenGLES, GLSL, OpenCV, PCL, Matlab, Flite, JNI, PHP, R, Qt, Maya* .

  - Investigated applications of GPU-acceleration to make safer straight-access computer-assisted neuro-surgical 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.

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[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.

  - Lectured and graded 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.
  Technologies: *C#, WiimoteLib* .

  - Developed a wrapper library based on WiimoteLib for interfacing with multiple Nintendo Wii Remotes to record and visualize the accelerometer signals.

- **Software Developer Engineer. DyR Technologies**. Mérida, Venezuela. December 2007 - December 2008.
  Technologies and tools: *PHP, Ajax, JavaScript, PostgreSQL, Smarty templates, GWT, Perl* .

  - 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.

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.