Mario Rincón-Nigro

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Summary

Software Engineer experienced in 3D computer graphics and animation, general purpose GPU-computing, digital maps, and model-driven software engineering.

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]

Work Experience

- **Senior Software Engineer. Nokia - HERE**. Berlin, Germany. March 2014 - present.
  - Development of the rendering platform for digital maps visualization.
  - Development of a library for augmented reality applications based on sensor fusion and geo-located data. [2]
  Technologies and environment: C++, OpenGL, GLSL, Java, JNI, Android SDK, Mercurial, Git/Gerrit, Jenkins, Scrum methodology.
- **Co-op Engineer. Advanced Micro Devices**. Sunnyvale, CA. May 2012 - August 2012.
  - Maintenance of OpenGL drivers for AMD graphic cards.
  - Development of an OpenGL demo to showcase motion blur through stochastic rasterization.
  Technologies and environment: C++, WinDbg, OpenGL, GLSL, Perforce.
- **Research Assistant. Computer Graphics and Interactive Media Lab - University of Houston**. Houston, TX. May 2010 - July 2013.
  Research focus on computer graphics, computer animation, and GPU-computing.
  Selected projects:
  - GPU-accelerated Planning of Neurosurgical Interventions. Investigated ways to enable interactive planning of computer-assisted neurosurgical interventions through GPU-acceleration.
  Implemented using: C++, CUDA, OpenGL.

  - Conversational Avatars for Instant Messaging in Mobiles. Developed a prototype application featuring highly-realistic conversational face avatars with lip-sync animation for instant messaging in mobile devices. Designed and performed user study to evaluate user acceptance and engagement.
  Implemented using: Java, C, Android SDK, OpenGL ES, GLSL, Flite, PHP, R.

  - High-performance ray tracing in multi-GPU environments. Investigated efficient load balancing strategies for ray tracing using multiple GPUs.
  Implemented using: C++, CUDA.
- **Teaching Assistant. Department of Computer Science - University of Houston**. Houston, TX. August 2009 - December 2013.
  Grading and lecturing for: 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.)

[1] Source code available at https://github.com/Pikecillo/genna
[2] Available as part of Here Android SDK https://developer.here.com/mobile-sdks/documentation/android-hybrid-plus/topics/ar.html

- **Research Assistant. Texas Obesity Research Center - University of Houston**. Houston, TX. May 2009 - August 2009.
  Development of a wrapper library based on WiimoteLib for interfacing with multiple Nintendo Wii Remotes, and visualizing the accelerometer signals.
  Implemented using: C#, WiimoteLib.

- **Software Developer Engineer. DyR Technologies**. Mérida, Venezuela. December 2007 - December 2008.
  Development of a web-based enterprise project management system using in-house framework.
  Technologies and environment: PHP, Zend Framework, Perl, JavaScript, Ajax, PostgreSQL, Smarty templates, GWT.

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.

Extracurricular Activities

- Paper reviewer for: International Journal of Image and Graphics (2013), CAD/Graphics (2013).

- 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.

Professional References

Available upon request.