Mario Rincón-Nigro

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Summary

Software engineer with research and development experience in 3D computer graphics, general purpose GPU-computing, computer animation, 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]

Technical Skills

- Programming languages: C, C++, Java, Python, Perl, Bash scripting, PHP, JavaScript.
- Operating systems: GNU/Linux, Windows.
- Database systems: PostgreSQL, MySQL.
- Other: Matlab, OpenGL, GLSL, CUDA, OpenCL, Android SDK, OpenKinect, OpenCV, Point Cloud Library (PCL), Django, GWT, Lex/Flex, Yacc/Bison, HTML, XML, Ajax, Cheetah and Smarty templates, LaTeX, Mercurial, SVN.

Work Experience

- **Senior Software Engineer. Nokia HERE**. Berlin, Germany. March 2014 - present.
  Development of features for 3D rendering in location-based augmented reality mobile applications. Feature implementation, maintenance, and testing, of a rendering platform for map visualization. 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 graphics drivers for AMD cards. Development of an OpenGL demo to showcase motion blur through stochastic rasterization. Technologies and enviroment: 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:
  (1) **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)

  (2) **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)

  (3) **High-performance ray tracing in multi-GPU environments.** Investigated efficient load balancing strategies for ray tracing using multiple GPUs (Implemented using: C++, CUDA)

[1] Source Code available at http://code.google.com/p/gennaproject/

- **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).

- **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 to record and visualize the accelerometer signals (Implemented using: C#, WiimoteLib)

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