Marlena Fecho

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INTERESTS

Photorealistic Rendering, Global Illumination, Physically-Based Simulation, 3D Reconstruction.

EDUCATION

University of California, San Diego, La Jolla, CA   2012
Candidate: M.S. in Computer Science, specializing in Computer Graphics and Vision
Relevant Coursework: Rendering Algorithms, Computer Vision I, Multi-View Geometry

California Institute of Technology, Pasadena, CA   2008
Graduated: B.S. in Electrical Engineering
Relevant Coursework: Computer Graphics, GPU Programming, Machine Learning, Microprocessor Systems, Analog
Electronics, Differential Equations, Linear Algebra, Classical Mechanics, Statistical Physics

PROFESSIONAL EXPERIENCE

Immersive Visualization Lab, Callt2   Jan 2011 - present
Graduate Researcher
- Working with a team, exploring techniques for producing textured 3D maps in real time using an Xbox Kinect.

University of California, San Diego, Computer Science and Engineering Department   Sep 2010 - present
Teaching Assistant for CSE 3, an introductory programming course
- Working with a team of 5 TAs, 30 undergraduate tutors and the professor to manage a 550 student class.
- Supervised lab sections, graded labs and projects, handled student's questions and logistic issues.

Sportvision Inc, Mountain View, CA   Jan 2008 – Sep 2010
Sr Software Engineer
- Worked with a team on a lidar-based soccer player tracking system. Helped develop the clustering and tracking algorithms. Developed a tool to replay recorded lidar data, emulating the actual lidars. Took this system to several field tests, where responsibilities included setup, troubleshooting, and implementing last-minute features as needed.
- Worked with a team on a video-based baseball player tracking system. Detected players automatically, using computer vision techniques. Wrote filters to read from cameras, playback recorded footage and decompress various video formats. Performed several iterations of field testing and refinement of algorithms. Deployed a semi-permanent system in AT&T Park for the San Francisco Giants.
- Development was primarily in C++.

California Institute of Technology, Computer Science Department, Pasadena, CA   June 2007 - Dec 2007
Summer Undergraduate Research Fellow / Research Assistant
- Developed a Java-based tool for simulating an asynchronous, multi-agent system that assumes formations.
- Experimented with different algorithms and analyzed their performance in order to improve the methods.

TECHNICAL SKILLS

Languages: C++, Python, Java, MATLAB, C, C#, SQL, 8086 Assembly, Flash Actionscript
Graphics Programming: OpenGL, GLSL, Cuda
Graphics Software: Adobe Photoshop, Maya, Lightwave, Google SketchUp

PROJECTS

Class Projects:
Ray Tracer: Current work for CSE 168. Features include ray-triangle intersection, lambertian, specular, refractive and phong shading models, procedurally generated textures, bump mapping, HDR environment mapping, and shadows. Written in C++, using Miro base code.
3D Shaded Rasterizer: Given input of Open Inventor format, and shading method (Flat, Gouraud, or Phong), rasterizes the scene, using z-buffer technique, in an interactive window. Written in Python.
Independent Projects:
Particle Fountain: Continuous stream of particles with variable direction and speed. Written in Python and OpenGL.
2D Collision Engine: Animated environment with in which a moving circle collides realistically with fixed, arbitrarily shaped objects. Written in Flash Actionscript.

ACTIVITIES

In my free time I enjoy making music, cooking, and exploring the great outdoors.

References available upon request.