Jianwei Gao

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EDUCATION

- **2005-2008: University of Florida** Gainesville, FL
  M.S., Compute Information Science Engineering (GPA 3.5)
- **2004-2005: University of Bath** Bath, United Kingdom
  M.S., Multimedia (Distinction)
- **1998-2002: Nanjing University** Nanjing, China
  B.S., Computer Science and Engineering

AWARD

- **International Student Achievement Award**
  from University of Florida 2005

RESEARCH FOCUS

- Computer Graphics, GPGPU, Virtual Environment, Computer Simulation, Image Processing, Computer Algorithm, Multimedia.

COMPUTER SKILLS

- *Languages & Software:* Pascal, C, C++, OpenGL, DirectX, JAVA.
- *Operating Systems:* Windows, Linux.

WORKING EXPERIENCE

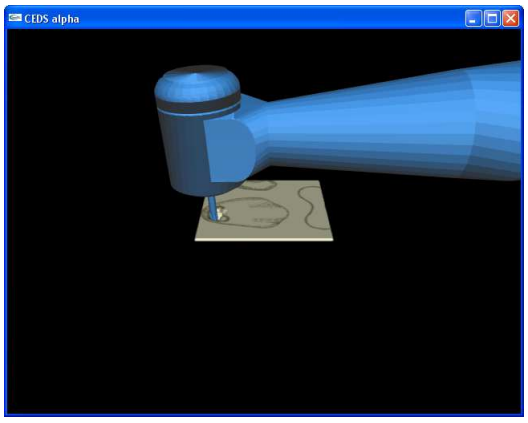
- **Graphics Research Contractor** January 2010 - December 2010
  AMD, Inc. Orlando, FL
- **Graphics Development Intern** January 2008 - August 2008
  AMD, Inc. Orlando, FL
  - VRGPU - a real-time volume data visualization tool
  - Foliage system development
  - GPGPU technique development
- **Software Engineer** Feburary 2002 - September 2003
  Beihai Yinhe Hi-Tech Industrial co.,ltd Nanjing, China
  - Development of Terminal Manage System and Supervisor Control and Data Acquisition System based on Distributed Real-Time Database System.

PUBLICATION

- "Parallel Integration of Planetary Systems with GPU", *ACM ACMSE Conference*, Auburn AL, Mar. 28-29, 2008.
- "CUDA Aided Planetary System Simulation", Poster, *AstroGPU*, Princeton, NJ, Nov. 9-10, 2007.

PROJECTS

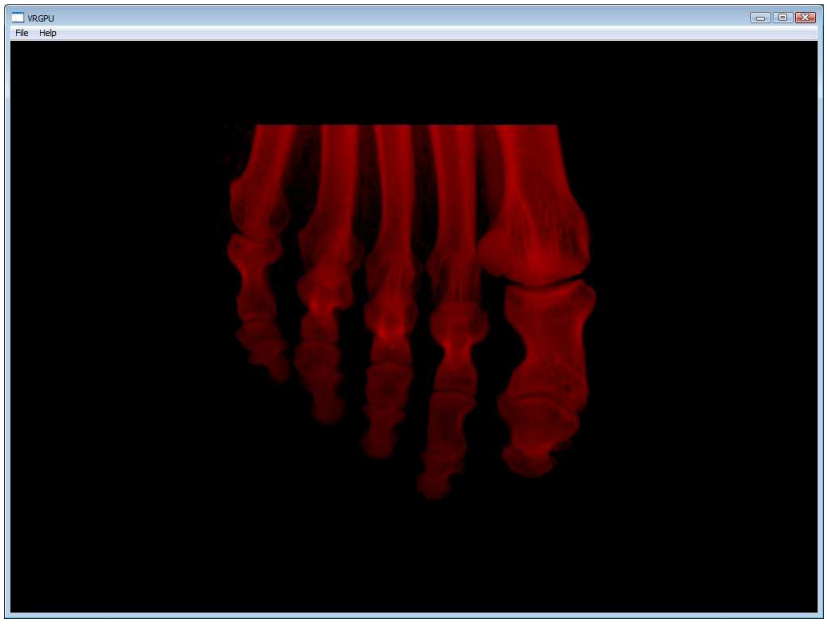
- **CEDS**
  CEDS is a software simulator I participated in developing for educational purposes by students and dentists. It simulates both the action of the dental bur and practicing pad, LEARN-A-PREP II, with PC tablets. Different bur shapes are supported, plus a scoring system to evaluate the students performance. This software can not only be an cost effective alternative to the traditional pratice pad, but also provide more features that cannot be obtained by classical drilling procedures.



- **VRGPU**
  -Development of a real-time volume data visualization tool leveraging parallel(GPU) computation

A real-time volume data visualization tool was designed and implemented during my internship at AMD Orlando. I investigated the potential of current graphic cards to visualize large volume dataset. I implemented an algorithm extending ray casting, on top of which a few function modules were added. We verified the capability and restrictions of current cards, and achieved the following performance result:

- Real-Time Rendering (@ 150fps)
- Real-Time Interaction (@ 80fps)
- Real-Time Filtering (@ 70fps)
- Dynamic Volume Dataset



- **CUDA Aided Planetary System Simulation**
  Direct numerical simulations of large numbers of planetary systems are key to the study extra-solar planetary systems. We investigated the potential of Graphics Processing Units (GPUs) to dramatically accelerate such calculations and enable new types of analyses. We reported on a CUDA implementation of two different integrators, Verlet and Bulirsch-Stoer.

  We verified that GPUs can serve as highly efficient dedicated parallel computing co-processors of the CPU host: the wall-clock time of integrating a large number of systems was reduced by two orders of magnitude compared to a comparable implementation we used so far on a modern CPU. We verified further that it is not only possible to port a complex integration algorithm like Bulirsch-Stoer to the restrictive GPU environment but that it can outperform the simpler Verlet integrator.

- **New Functional Module for Bezier View**
  BezierView is a light weight viewer that renders Bézier patches, rational Bézier patches and polygonal meshes. It was developed by Xiaobin Wu, a previous student of Professor Jorg Peters. We added a new functional module to this viewer. The function of the new module is to provide the user with a curvature comb, displaying the cross sectional curvatures during analyzing the surface.