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Lieyu Shi

Seeking for SDE intern for 2018 Summer
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Work Experience

2014–now Teaching Assistant for OOP Programming and Operating System
Provided tutorship for freshman on object-oriented programming C++ and java, and juniors on operating system programming assignments (process management, shared memory and semaphore controlling, and virtual memory management).

Education

2014–now **Ph.D.** student in **Computer Science**, University of Houston, TX, USA | GPA: 3.4/4
Research: Particle-based fluid simulation and analysis

July 2013 **Bachelor** of Science in **Mathematics**, Xi'an Jiaotong University, China | GPA: 3.0/4
Thesis: "Two-grid finite element algorithm for semi-linear elliptic equations"

Project

Spring 2017 **Unsupervised learning in flow visualization**.
Designed novel linear-complexity metrics and performed unsupervised learning for high-dimensional flow data with prevailing clustering techniques. Proposed metrics were more **scalable** and **robust** for particle-based fluid datasets than existing work. This project was an extensible cmake-compiled project initially released on github.

Fall 2017 **Sharding and repulication for online storage**.
Computer network course project. Designed a simplified two-way online storage system with Java socket programming, and able to backup and record data information while downloading and uploading files by gson library. Learnt to use script to compile and run Java software on server with external library.

2015-2017 **Particle-based Fluid simulation**.
Developed an OpenMP-accelerated position-based fluid simulation framework with C++ on Paraview, and simulated various large-scale scenarios by user interaction. Still worked on CUDA version of this project and post-visualization for realistic rendering.

Fall 2016 **Operating System Course Project**.
Performed socket communication of client-server mode, POSIX threads and semaphores for a mutual-exclusion application, and a simple shell implementation by user-input. Enhanced understanding for operating system concepts and Linux environment.

Publication

2017/01 *Analysis-enhanced particle based flow visualization*, VDA 2017 poster paper, **Lieyu Shi**, Lei Zhang, Wei Cao, Guoning Chen

2017/08 *Metric-based curve clustering and feature extraction in flow visualization*, IEEE CAD&CG 2017 short paper, **Lieyu Shi**, Guoning Chen

Courses

Undergraduate: Calculus, algebra, geometry, optimization, modeling, artificial intelligence, finite element method, partial/ordinary differential equation, complex/real analysis, topology, statistics

Graduate: Computer architecture, Computer network, Operating system, Machine learning, Data structure, Algorithm(A-), Computer Graphics(A), Visualization(A), Numerical analysis(A), Theory of computation(A)

Computer Skills

Intermediate: C++, C, Java, Matlab, R, Mathematics, latex, Paraview

Basic: VTK, Cuda, OpenGL, Qt, CMake, Blender, OpenMP

Operating System: MacOS, Linux

Personal Strength

Solid background in mathematics. Great interest in programming. Active self-learning.