Lei ZHANG

Email : zleizju@gmail.com
Github: https://github.com/lanzhige
Mobile : +1-480-467-8661
Linkedin: https://www.linkedin.com/in/lei-zhang-a95b63148/

Education

- **Zhejiang University, China** — Hangzhou, China
  Bachelor of Science in Computer Science — *Sept. 2012 – July. 2016*
- **Arizona State University, United States** — AZ, US
  Master of Software Engineering — *Aug. 2017 – May. 2019(expected)*

Experience

- **CAD&CG National Key Lab** — Zhejiang University, China
  Student Research Assistant — *May 2015 - June 2016*
  - **3D Meteorological Data Visualization System**: It is a visualization system to display some meteorological data like temperature, wind, humidity material on the earth in a 3-dimension way. It's a client software. My job in this program is writing UI, fixing logic problems in graphic render and change features by discussing with users.
  - **High-Resolution Meteorological Data Visualization System**: It is a system is to display the meteorological data on a multi-screen and high-resolution hardware cluster. It uses 33 pieces of 2k resolution SLCDs to splice a large screen and uses 11 client machines to present the meteorological data. My job in this system is to solve the synchrony problem among the displays and refactor the previous codes of meteorological data visualization.
- **SeSaMe Lab** — National University of Singapore
  Internship Researcher — *Aug 2016 - Jun 2017*
  - **Trajectory Visualization**: The trajectory visualization system is to visualize the change and trend of traffic flow in urban data. My job consists of a front-end website for component display and a back-end visualization data server for calculation tasks. The front-end visualization focuses on the distribution of traffics and the changes of trajectory directions. I used heatmap, radar chart, and patterns based on chord diagram to visualize the data on a website. The back-end server is implemented to provide the data to display. To speed up the calculation, I use GPU to parallel process the data.
- **VADER Lab** — Arizona State University
  Graduate Research Assistant — *Aug 2017 - present*
  - **Visualization of Ecological Protected Area**: This is a recently started project to visualize the value of areas between protected areas which helps decision makers understand the importance of each region to do environmental protection. I'm currently working on preprocessing data to generate tiles of different zoom levels of the map.

Course Projects

- **MIPS Assembler**: A command line assembler to translate the assembly language like MIPS to machine codes. It's developed for assembling the following system on FPGA.
- **FPGA Chinese Character Display System Using Self-designed Instruction Set**: Self-design instruction set (imitate the MIPS instruction set) and a logic circuit. Self-design memory structure and file system. Implement a system to display Chinese character on LED screen. 16 bits are used as the smallest unit just like 8 bits as a byte in a conventional system.
- **Simple Database System**: A command line program to imitate MYSQL which implements functions such as select operation, find operation, adding an index, etc.
- **Simple Pascal Compiler**: A compiler of Pascal language to check lexical, syntactical errors.
- **HTTP Protocol Imitation Program with Encryption and Signature**: In this project, I implement get and post functions according to standard HTTP prototype. Also, I add DES algorithm to encode and RSA algorithm to make a digital signature to transfer data.
- **Chinese Chess Game**: A Chinese Chess game developed in Turbo C on Dos environment. Supporting illegal movement check and victory determine. Also, game saving and backtrack are available.

Programming Skills

- **Languages**: : C, C++, Java, JavaScript, HTML, CSS, Python, GLSL, SQL, PASCAL, Assembly Language(X86, MIPS)
- **Technologies**: : CUDA Programming, OpenGL, MYSQL and MongoDB, Embedded System programming, Parallel Computing, QT, Bootstrap framework