Lei ZHANG

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EDUCATION

- **Zhejiang University, China** — Hangzhou, China
  Bachelor of Science in Computer Science — *Sept. 2012 – July. 2016*

- **Arizona State University, United States** — Arizona, US
  Master of Software Engineering — *Aug. 2017 – May. 2019(expected)*

EXPERIENCE

- **VADER Lab** — Arizona State University
  Graduate Research Assistant — *Aug 2017 - present*
  - **Visualization of Ecological Protected Area**:
    * This is a recent project in development to visualize distance to protected areas.
    * Work on preprocessing data to generate tiles of different zoom levels for the map.

- **SeSaMe Lab** — National University of Singapore
  Internship Researcher — *Aug 2016 - Jun 2017*
  - **Trajectory Trend Visualization**:
    * Implement a trajectory visualization system focusing on display flow changes.
    * Develop a front-end using heatmap, radar chart, and chord-like diagrams to visualize the result.
    * Implement back-end server using GPGPU for high speed data processing

- **CAD&CG National Key Lab** — Zhejiang University, China
  Student Research Assistant — *May 2015 - June 2016*
  - **3D Meteorological Data Visualization System**:
    * Worked with two researchers to build a visualization system to display meteorological data(temperature, wind, humidity material on the earth) in a 3-dimension way.
    * My job in this program is to develop UI, improve rendering logic, and change features through user's discussion.
  - **High-Resolution Meteorological Data Visualization System**:
    * Worked in a group of three to implement a system for displaying meteorological data on a multi-screen and high-resolution hardware cluster.
    * My job is to solve the synchrony problem among the displays and refactor the meteorological data visualization code.

COURSE PROJECTS

- **Simple Pascal Compiler (Spring Semester 2016)**:
  A compiler of Pascal language to check lexical, syntactical errors.
- **HTTP Protocol Imitation Program with Encryption and Signature (Spring Semester 2015)**:
  In this project, I implemented get and post functions according to standard HTTP protocol. Also, I added the DES algorithm for encoding and the RSA algorithm to make a digital signature to transfer data.
- **MIPS Assembler (Fall Semester 2014)**:
  A command line assembler to translate a MIPS-like assembly language to machine codes. It's developed for assembling the following system on an FPGA.
- **FPGA Chinese Character Display System Using Self-designed Instruction Set (Fall Semester 2014)**:
  Self-designed instruction set (imitate the MIPS instruction set) and a logic circuit. Self-designed memory structure and file system. Implemented a system to display Chinese characters on an LED screen. 16 bits are used as the smallest unit just like 8 bits as a byte in a conventional system.
- **Simple Database System (Fall Semester 2014)**:
  A command line program to imitate MYSQL which implements functions such as select operation, find operation, adding an index, etc.
- **Chinese Chess Game (Spring Semester 2013)**:
  A Chinese Chess game developed in Turbo C on Dos environment. Supporting illegal movement check and victory determination. Also, game saving and backtracking 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