Jiyuan Shen

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EDUCATION

Shanghai JiaoTong University, China *2013 - 2017(Anticipated)*
Bachelor of Engineering, Department of Computer Science and Engineering
Cumulative GPA: 85.3/100, Averaged Math Point: 93.4/100

University of California Los Angeles, CA, USA *2016.7 - 2016.9*
Exchange Student in the School of Electrical and Computer Engineering
Research Assistant in Center for Vision, Cognition, Learning and Autonomy

My research interests lie in computer vision and data mining in graphs and complex networks, and their data driven applications to interdisciplinary computations.

Courses related to my research interests:

Shanghai JiaoTong University: Linear Algebra: (95), Discrete Math: (100), Probability and Statistics: (91), Computer Architecture: (94), Linux Kernel: (91), Machine Learning and Data Mining: (89, rank 2nd), Software Engineering Project: (95), Massive Data Processing: (91, rank 3rd).

RESEARCH EXPERIENCES

Tracking the US presidential elections
Center for Vision, Cognition, Learning and Autonomy @ UCLA
We use hierarchical And-Or Graph jointly represent the latent structure of both texts and visuals. New topics are detected through a cluster sampling process for which we adopted SWC. Then the structure topic trajectory shows how topics emerge, evolve and disappear over time.

Variation of Memoristor
Computer Architecture Lab @ SJTU
(The project is undergoing.) We use model of variation on memoristor given by Vortex(DAC15) where features include normal distribution, random presence and weight-error relation. Instead of changing pages, we consider modifying topology of neuro-network to automatically adapt to memoristor variations or modifying weight designs.

Leaf Three-dimensional Reconstruction with Multi-Photos
Visual Media and Data Management Lab @ SJTU
We first introduce a feature detection sequence as KNN ratio test, symmetry test and RANSAC after basic SURF feature detection to get the most robust feature detector. We also introduce Lookup Table that stores 2D coordinates of current frame and its triangled 3D coordinates, then by keeping track of 2D-3D pair during each iteration of processing new frames we can minimizes projection errors.

SOFTWARE EXPERIENCES

- **Car-Maze** *(C++)* Mini-car automatically plays maze games where straight lines involved. The coding takes image binarization on input maze, path tracing by C++ maze algorithm, extraction on key points, checking on turnings and single-chip side command-control interactions.
- **Car-Android** *(Java)* Mini-car follows instructions controlled by android application and poses corresponding actions at real-time. In android application part, controls relate button, gravity, gesture and voice; In single-chip part, control-command interaction are determined; Video returning can display mini-

car's vision at real-time.

- **Com-Org-Simulator** *(Verilog)* The simulator composes of instruction memory, data memory, registers, control, sign extension. Both single-cycle and MIPS-like multi-cycle are implemented. Pure coding principles come from textbooks including PC count for jump etc.
- **Paging-Simulator** *(C)* The simulator will simulate the paging requirements of those programs by reading in a set of data files specifying the scheduling and memory access behaviors
- **Mine-Sweeper** *(Python)* Alpha-version mine sweeper game takes three level principles.
- **Compiler-Simulator** *(C)* The simulator has two part. First part uses Lax and Yecc to generate parse tree; second part as code generator to translate intermediate representation to LLVM instructions. Both the intermediate parse tree and LLVM instructions are stored as output texts.
- **File-Sharing** *(Java)* The application is implemented in two ways: pure tcp and udp plus rdt3.0.

AWARD AND ACTIVITY

- The fourth computer CCF software capacity certification (C++)
- Shanghai JiaoTong University Scholarship for year 2013-2014
- Class commissary in charge of organization in class F1303005, SEIEE In SJTU
- Secretary in Nework Department of Student Union, SEIEE In SJTU

TECHNICAL STRENGTHS

Programming Languages	Procient with C/C++ Familiar with Python, Java, Matlab, Verilog
Additional Familiar Skills	cmake, LaTeX, OpenMP, Pthread