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Paul (Likai) Yan

Summary

Junior Computer Science student with a strong background in computer systems and programming languages. Solid understanding in math and physics and proven record of problem solving in multiple field.

BSCS expected Jan. 2017. Seeking a summer 2016 internship or a fall 2016 co-op in software development.

Education

Fall 2013 - present **Washington University in St. Louis**, GPA: 3.63/4.00, **Comp. Sci. & Elec. Eng. majors**.
Ishida/Stout Scholar; Harold P. Brown Fellow (half-tuition awarded)

Summer 2015 **University of Illinois at Urbana-Champaign**, GPA: 4.00/4.00, Comp. Sci. concentration.

Related Experience

Jan. 2016 - present **DEMETER Data Integration Processor Research**, *Undergrad Research Assistance*, Dept. of CSE.
- Help design and test high level language instructions and interpretations for *Application-Specific Instruction Processor* that connects the language to instruction-level parallelism

Jan. 2016 - present **Teaching Assistant for Digital Logic and Computer Design**.
- Hold lab help sessions, fix weird VHDL code error, and collect fried FPGA boards

Nov. 2015 - present **Automatic DLA Detection Research**, *Undergrad Research Assistance*, Dept. of CSE.
- Apply Bayesian inference to parameterize models on collected quasar spectrum, and use trained models to recognize Damped Lyman-α absorbers (DLA)

Aug. 2015 - Nov. 2015 **Prolog Clause Parser**, *Side Project based on Programming Systems and Languages Text.*
- Developed a recursive descent parser via hand-written LL(1) functions in C++11 to recognize Horn clause strings in Prolog grammar
- Implemented an interpreter that accepts abstract syntax tree generated from the parser, does semantic analysis, and then create C++ code

April - Aug. 2015 **Tree-based Photo Mosaic Generator and Image Size Reducer**, *Personal Project.*
- Reorganized .png file format into a 2D (x,y) recursive tree; implemented kd-tree to find closest neighbor in 3D (RGB) space
- Designed and implemented prune function that merges similar pixels nodes to reduced image storage size; implemented Huffman encoding for further compression

April - June 2014 **WashU-2 Processor Improvement**, *Digital Logic and Computer Design Course Project.*
- Enhanced WashU-2, an FPGA-based general purpose processor, by adding VHDL interrupt subsystem that prioritizes immediate input over memory instructions

Summer 2013 **Quantum Physics Research** , *Summer Research Intern*, Wabash College, Indiana Univ..
- Modeled isotope's subatomic particle motion in magnetic field with data from NSCL's past MoNA runs, and proved that particles decay time negatively correlates to observation frequency
- Designed an experiment using ^{14}C graphene and metal oxide deposition to exhibit macro-scale detectable quantum-Zeno effect in a continuously observed environment
- Collaborated closely with Quantum Matter & Device Lab at Purdue University; together proposed Sigma-Aldrich ^{14}C graphene production from radioactive $^{14}CO_2$

Skills

Languages: C++ [-std=c++98/c++11], Java, Python; MATLAB, Mathematica; PHP, JavaScript/TypeScript

Development: C++ std::thread library, multi-paradigm programming (OO, functional, active object concurrency)

Systems: Experienced with *nix with a good understanding in modern OS concepts; Familiar with Hadoop

Electronics & Physics: FPGA & VHDL (Xilinx ISE); LISE++, Simulink, Multisim, Pspice, LoggerPro; Mathematical circuit analysis; Oscilloscope analysis; Soldering

Technical: LaTeX, XeTeX, GDB, Vim, Visual Studio, Git, Subversion, Make, Doxygen