Pei QING

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edwardtoday

Education

2011–2012 **M.Sc. in Software Technology**, *The Hong Kong Polytechnic University*, GPA:3.95/4 with Distinction.

2006–2010 **B.Eng. in Computer Science and Technology**, *Tsinghua University*, Beijing, GPA:85/100.

2007–2010 **B.S. in Economics**, *Tsinghua University*, Beijing, dual degree.

Working Experience

2013–present **Software Engineer**, *Shanghai Sansi Technology Co., Ltd.*, Shanghai.

- Smart bulb iOS app. First working demo in 32 days including learning Objective-C for 2 weeks.
- Networking module of LED display/lamp control system. Unified interface for TCP/UDP/RS-485 controllers. **6X higher throughput** than previous version by asynchronous design.
- Display calibration toolkit optimization. **30X faster** pixel searching. Better perceived uniformity.
- Advocated the adoption of Git, GitLab & Redmine within the group.
- Converted 9 low-utilization physical servers to a more maintainable virtual machine.

2012–2013 **Research Assistant**, *Biometrics Research Center, The Hong Kong Polytechnic University*.

Data Source: Samples of pulse, electrocardiogram, tongue photo, front face photo and breath composition analysis results from both healthy and diabetes people.

Objective: To discover if some disease (diabetes in this case) has strong correlation with multiple physical signs of human body. Build a diagnosis model bases on the correlation to improve accuracy and consistency of diagnoses.

Methodology: Iterations of "Feature Extraction $\rightarrow$ Fusion of Multiple Features $\rightarrow$ Feature Optimization $\rightarrow$ Machine Learning $\rightarrow$ Model Simplification" process.

Current Status: We achieved an **accuracy of 97.1%** of diabetes diagnosis. By contrast, the accuracy using a single source of physical signs were 65% to 90%. Thus we have lowered the mis-diagnosis rate by roughly an order of magnitude.

2010–2011 **Software Developer**, *Virtuos Games*, Shanghai.

- Architected and implemented a cross-platform game for PC/Mac/iPhone/iPad. Optimized the graphics performance from **14FPS to 31FPS** on iPhone 4.
- Designed synchronization tool with C++/Python to support inter-department process.

2008 **Volunteer, Assistant Officer**, *International Broadcast Center, $29th$ Olympic Games*, Beijing.

- Collected needs from agents of different media. Contact officers from inside IBC to meet their needs, or turn to Director for request necessary resources.
- Administrated attendance system of the venue, sending daily report on venue operations status.

Personal Projects

2013 **image-converter-for-kindle: Convert JPEG images to kindle screensavers**, *Python*.
Resize, crop, rotate and optimize images for the e-ink screen on Kindle.

2013 **mymaxim: Show random maxim in my blog posts**, *Javascript*.
A script that shows random maxims on my personal site.

2012 **hkputhesis: The Hong Kong Polytechnic University M.Sc. thesis latex template**, *LaTeX*.
No one has ever made such a template for HKPU thesis. While I was writing my M.Sc. dissertation, I wrote the template and open-sourced it in case someone needed them in the future.

2011–2012 **3D Palm-print Recognition**, *MATLAB*.
- Achieved a **worldwide leading 98.7%** identification accuracy using 3D palm-print features. (Accuracies found in previous literature were less than 93%.)
- 2X speedup (compared to searching sorted database) gained by utilizing 3D global feature index.

2010 **Real-time Parallel Decoding of Multi-view Video**, *C++*, Adviser: Lifeng Sun, *Scoring 93/100, top 10%*.
- Involved in the scheduling algorithm design for dual-view to 8-view MVC video.
- Assisted to implement a MVC enc/decoding tool, focusing on the decoding.
- Designed and implemented a 3D MVC player on the NVIDIA 3D Vision platform.
- Adopted by CCTV to provide experimental 3D online broadcasting of the 2010 Asian Games.

2010 **MIPS CPU Simulator**, *Java*.
- A simulator that reads assembly code and illustrates how a MIPS CPU executes it.
- States of all registers and memory spaces can be shown.

2009 **Ray-tracing Renderer and Mesh Simplification**, *C++*, Computer Graphics course project, ranked 6/90+ students.
- Implemented a C++ ray-tracing renderer with Phong model.
- **Top 10%** by rendering speed in class.
- Implemented both vertex decimation and edge contraction algorithms to simplify a mesh to a customizable complexity.
- Provided real-time preview of simplification progress with OpenGL.

2008 **16-bit FPGA MIPS CPU**, *VHDL*.
- Designed a five-step pipelining structure.
- Implemented a processor in VHDL.
- Drove several peripherals including audio and video output.
- Processor frequency can be up to 50MHz on Cyclone II FPGA.
- Worked as a team leader.

Publications

Bob Zhang, Wei Li, Pei Qing, and David Zhang. Palm-print classification by global features. *Systems, Man, and Cybernetics: Systems, IEEE Transactions on*, 43(2):370–378, 2013.

Skills

Programming — Used in Working: C++, Objective-C, MATLAB, LaTeX. Used in Personal Code: Python, Java, R

Keynote — Proficient in making readable and clear slides using Apple Keynote or Microsoft PowerPoint. Experienced in delivering presentations.

Data Analyzing — Good at computer aided data analysis tools such as Excel, GNU R. Able to write programs to process and interpret data.

English — Fluent in spoken and written English, CET-6 652, TOEFL 107