Pei QING

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Education

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

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

2007–2010 **BS in Economics**, *Tsinghua University*, Beijing, second major.

Experience

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

- Independently wrote the networking module of LED display/lamp control system. Unified interface provided for TCP/UDP and serial port (RS-485) controllers. **6X higher throughput** than previous version by asynchronous design.
- Revised display calibration software with a more systematical approach and a **30X faster** implementation.
- Refined teamwork process by introducing version control with git / GitLab and issue management with Redmine to colleagues.
- Initiated the transition from 7 of low-utilization physical servers to a lower-cost, easily-managed, more robust virtualization solution.

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

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 → Fusion of Multiple Features → Feature Optimization → Machine Learning → 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 on both PC/Mac and iPhone/iPad. Optimized the graphics performance from **14FPS to 31FPS** on iPhone 4.
- Designed synchronization tool with C++/Python to improve inter-department cooperation.
- Acted as communicator between Technical and Art department to smooth out interdepartmental tasks.
- Acted as technical leader of internal iOS project. My demonstration attracted 3 clients to sign contracts with Virtuos on new iOS projects.

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.

Projects

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

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.

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.

2009 **PhoneMe: A cross-platform address book**, *Java*, Software Engineering course project, ranked 2/50+ students.
- Drafted and maintained requirements, design and technical document.
- Committed 30% code of the 16,000-line project.
- Allocated tasks to team members weekly and tracked daily progress and issues.
- Held project discussion weekly to minimize mis-communication costs among members.
- 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: MATLAB, C++, 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

Awards

2009 **Outstanding Student Leaders in Department of Computer Science and Technology**, *Tsinghua University*.

2008 **Excellent Volunteer at International Broadcast Center (IBC)**, *The Beijing Organizing Committee for the Games of the XXIX Olympiad*.

2006 **First Prize in Haiwen Cup Shanghai High-school English Competition**, *Shanghai Municipal Education Commission*.

2004 **Second Prize in "21st Century Cup" National English Speaking Contest**, *Foreign Language Teaching and Research Press*.