Tao Liu

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EDUCATION

University of New South Wales (UNSW) **Jul 2012 – Present**

M. S in Computer Science and Engineering (Research) **GPA: Distinction**

Thesis Topic: Security Evaluation of Message Authentication Systems

- Systematically analyzed the security of Cost-Effective Tag Design (CETD)[1] and fixed the security weaknesses with low additional costs.

Auditing Courses: COMP9101 Design and Analysis of Algorithms, COMP9201 Operating Systems, COMP9243 Distributed Systems, COMP9171 Object-Oriented Programming, COMP9041 Software Construction

Beihang University (BUAA), Top University in Project 985, China **Sep 2008 – Jun 2012**

B.E in Software Engineering **GPA: Distinction**

- **Award:** Beihang University Undergraduate Scholarship, Second Prize 2011

  Each School of Beihang University nominates 5%-7% candidates annually based on academic achievement, commercial application of research, and leadership potential

EXPERIENCE

Graduate Teaching Assistant, UNSW **Aug 2013 – Dec 2013**

Course: COMP9032 Microprocessors and Interfacing

- Supervised 2 groups of 30 students in AVR assembly language programming. In total, 20 out of 30 got full marks on weekly labs and 5 out of 30 got full marks on the final design project

Summer Intern, National ICT Australia (NICTA) **Nov 2012 – Feb 2013**

The Software Systems Research Group

Object: I was responsible for design and implement a basic desktop environment running on seL4 microkernel.

Properties of Design: The design is based on CAmkES model[2], which is a componentised architecture for microkernel embedded system. Different units of the desktop are encapsulated to isolated components. And the interactions between components are defined using standard CAmkES mechanism. This approach emphasises on reliability and robustness, which means a failure in a particular component, will not contaminate the whole system. Moreover, I designed the core components to be thread-safe, so that those can be connected by multiple other components. My duties also involve bug fixing and improvement of the software tools used for building such system as well as reading and presenting results.

Accomplishments: The desktop environment provided functions to choose slides stored on virtual disk and display it to the screen. My accomplishments include:

- Designed the system structure and defined interfaces between components.
- Developed device drivers for various input and output devices, such as keyboard, video card and virtual disk.
- Implemented image processing and FAT32 file system.
- Integrated all components with a supervisory client that is the user interface.

EXTRA-CURRICULAR ACTIVITY

Vice-Present, Beihang University Volunteer Association **Oct 2009 – Oct 2010**

- **Venue Administration Volunteer** of 11th China National Competition of College Students' Extracurricular Academic and Scientific Achievement
- **Honors:** Annual Outstanding Volunteer of Beihang University 2009, 2010

  Beihang University nominates 20 candidates each year based on volunteer service time and service feedback

PROJECTS

Security Evaluation System, UNSW **2013**

- Developed general purpose software in C to evaluate the security of Message Authentication (MA) systems
- Friendly APIs to facilitate connecting various source codes of MA systems and evaluation mechanisms

Audio Processing Command-Line Tool, UNSW **2013**

- Extended the course project "audio reversing command-line app" in Java to a multiple services tool with friendly APIs for scalability

Commercial Guiding System for the Blind, VIA-Beihang Joint Lab **2011**

- Constructed a Human Sensing Sub-System for the project on 8051 MCU using infrared probe
- High identification accuracy and high recognition speed.

A-Star Programming Contest Website, Baidu **2010**

- Designed and implemented UI and front-end codes

SKILLS

- **Programming Languages:**
  Expert: C, Java, and Python;
  Very Competent: HTML, CSS, and Matlab;
  Understanding: Linux/Unix Shell script, JavaScript, C++, and C#
- **Working Platforms:**
  IDE: MS Visual Studio, Eclipse, and Xcode;
  Operating Systems: MS Windows, Linux/UNIX, OS X, and Virtual Machine
- **Languages:**
  English: Fluent**; Mandarin Chinese:** Native

Bibliography

[1] Hong, M., et al. (2012). A cost-effective tag design for memory data authentication in embedded systems. Proceedings of the 2012 international conference on Compilers, architectures and synthesis for embedded systems. Tampere, Finland, ACM: 17-26.

[2] Kuz, I., et al. (2007). "CAmkES: A component model for secure microkernel-based embedded systems." J. Syst. Softw. 80(5): 687-699.