KAI YU

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School of Computer Science and Engineering, Beihang University

China, 100191

EDUCATION

Beihang University (BUAA) **Beijing** **09/2012 – 07/2016**

- Bachelor of Computer Science - Major GPA: 3.67/4.0 (Overall Ranking: 9/240)

Kyushu University **Japan** **10/2014 – 08/2015**

- Exchange Student to School of Engineering - GPA: 3.4/4.0 (1st semester: 3.0; 2nd semester: 3.85)
- Under guidance of Prof. Keiji Iramina (Specialization: Biomedical Engineering, Neuroimaging, Neuroinformatics)

Honors & Awards

2013 - Silver Medal (17/154) **ACM-ICPC Asia Regional Contest**

2013 - 1st Prize (Finals Top 5%) Lanqiao National Software Professionals Design and Entrepreneurship Contest

2013 - 1st Prize (Top 5%) Academic Competition Award of BUAA (twice in succession)

2015 - 2nd Prize (Top 23%) Scholarship of Academic Performance of BUAA

2014 - Bronze Award (25/131) 24th "Feng Ru Cup" Competition of Business Plan (leader of 7 members' team)

2014 - 3rd Prize (5/20) "Beyond Star" Program Design Contest (leader of 3 members' team)

2013 - 3rd Prize National English Contest for College Students

2014 – Awarded **Full Scholarship** under the State Scholarship Fund for exchange students by China Scholarship Council.

PUBLICATIONS

- Leng Biao, Yu Liu, **Kai Yu**, Xiangyang Zhang, and Zhang Xiong. ***"3D object understanding with 3D Convolutional Neural Networks."*** Information Sciences (2015).
- Leng Biao, Yu Liu, **Kai Yu**, Songting Xu, Ziqing Yuan, and Q. I. N. Jingyan. ***"Cascade Shallow CNN Structure for Face Verification and Identification."*** Neurocomputing (2016).
- **Kai Yu**, Yang Zhou, Da Li, Zhang Zhang, and Kaiqi Huang. ***"A Large-scale Distributed Video Parsing and Evaluation Platform."*** Chinese Conference on Intelligent Visual Surveillance (2016). Submitted.

WORK EXPERIENCE

Founder & Software Engineer **Theia Technologies Co. Ltd** **Beijing** **09/2015 – 05/2016**

- Developed independently a CNN based face detection & recognition C/C++ & C# software development kit (FDR-SDK) (not including CNN model training), the core product of the company, which supports popular CNN structures similar to Faster R-CNN & GoogLeNet, and is extensible for new layers & structures and able to run on Windows/Linux/ARM-Linux.
- Wrote about 17000 lines of C/C++ codes in the FDR-SDK project, highly reusable and following strict code style.
- Optimized speed of the FDR-SDK with BLAS, self-designed CUDA cores and SIMD, making it able to forward propagate GoogLeNet once in 38.9ms on Intel i7-4790K (CPU only), 8.8ms on NVIDIA GeForce 980Ti and 116.5ms on NVIDIA Tegra K1. Reduced memory usage to 200MB for detection and recognition on 720p images.
- Located and analyzed codes of model format in the Caffe project (a popular deep learning framework) for developing an auxiliary program with Python & Matlab for auto model migration from Caffe to the FDR-SDK.
- Developed independently an on-chip real-time Face-to-ID-card authentication system with UI based on the FDR-SDK, integrating USB camera, Hikvision web camera and ID-card reader device. Implemented meticulous exception handling and logging system, enabling the system to pass robustness test for industrial use.
- Concurrently managed development of 4 systems based on the FDR-SDK: standalone face verification module with socket API, full application system of face retrieval in videos, face detection and recognition web demo and even-higher encapsulated face verification SDK.

Intern **Institute of Automation, Chinese Academy of Sciences** **Beijing** **05/2016 – Present**

- Assisting research under guidance of **Prof. Kaiqi Huang** and Dr. Zhang Zhang.
- Studied pedestrian recognition and re-identification based on attributes through state-of-the-art papers.
- Designed the system framework of a large-scale distributed video parsing and evaluating platform (LaS-VPE platform, open-source on GitHub), featuring flexibility for combining various video understanding algorithms brought by high modularization, and fault-tolerance & robustness brought by usage of Spark Streaming, Kafka, etc., intended for overall surveillance system evaluation, user feedbacks collection and incremental learning.
- Concurrently managed 6 submodule development in 7 members' team while developing core part of the platform.
- Instructed two interns with limited CS background to satisfyingly finish their tasks on vision algorithm wrapping with JNI, Kafka & HDFS performance evaluation, and Java video decoding tool building during within 2 months.

Teaching Assistant **BUAA SCSE** **Beijing** **05/2014 – 07/2014**

- Developed independently a JMail-based system for assignment management of Object-Oriented Programming Course. Released a first version within a week. Learnt to enhance robustness and user experience for user-oriented software.

Lecturer **BUAA Shahe Night School** **Beijing** **10/2012 – 07/2013**

- Offered lectures on logic and advanced usage of office, browser, etc. to over 10 rear staffs almost new to computer.
- Designed lectures according to students' knowledge background, comprehension and daily requirements.

ACADEMIC PROJECTS

Implementation of State-of-the-art Papers

- *Blessing of Dimensionality: High-dimensional Feature and Its Efficient Compression for Face Verification*
- *Face Alignment at 3000 FPS via Regressing Local Binary Features* & *Joint Cascade Face Detection and Alignment*

Multi-cycle Microprocessor **Beihang University** **Beijing** **12/2013 – 02/2014**

- Designed a multi-cycle microprocessor under MIPS architecture, consisting of 1300+ lines of Verilog-HDL codes, supporting 56 MIPS-C5 instructions and I/O interruption handling.
- Acknowledged as an Excellent Project (15%) by passing 8 times of spot testing and 1v1 code review by professor.

Extended PL/0 Compiler **Beihang University** **Beijing** **09/2015 – 02/2016**

- Developed a compiler consisting of 2000+ lines of C++ codes, supporting compilation error reporting, PCODE generation and interpreter-based execution with runtime-error checking, concurrently with FDR-SDK development.

TECHNICAL SKILLS AND OTHERS

- Extra Language Ability: Chinese (Native), Japanese (JLPT N1)
- Accreditation: China Computer Federation - Computer Accreditation for Professionals (470/500 pts)
- Programming Languages: C/C++, JAVA (JNI), C#, C++/CLI, Matlab, Python
- Programming Platforms: CUDA, OpenCL, Android, Django, Caffe
- Programming Utilities: GIT, GCC, Visual Studio, Eclipse, Code::Blocks
- GitHub Profile: https://github.com/kyu-sz (Staring: https://github.com/kyu-sz/LaS-VPE-Platform)
- Technical Blog: https://szkenyu.wordpress.com/
- Interest: Badminton (Kyushu University Badminton Club), Cycling