Chang **Liu**

SOFTWARE DEVELOPMENT ENGINEER

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"Success is not final, failure is not fatal. It is the courage to continue that counts."

Education

KTH Royal Institute of Technology (KTH)   *Stockholm, Sweden*

M.Sc. MAJOR: EMBEDDED SYSTEMS, MINOR: INNOVATION & ENTREPRENEURSHIP   *2015 - 2016*

• Machine Learning, Data Analysis, Software Development, Internet of Things, ASIC Design and FPGA, System Modeling

Eindhoven University of Technology (TU/e)   *Eindhoven, The Netherlands*

M.Sc. MAJOR: EMBEDDED SYSTEMS, MINOR: INNOVATION & ENTREPRENEURSHIP   *2014 - 2015*

• Computer Architecture, Embedded Software and Hardware, Multiprocessors, Network-on-Chip, Wireless Networks, Digital Design

EIT Digital Master School   *The Netherlands & Sweden*

INNOVATION & ENTREPRENEURSHIP   *2014 - 2016*

• Innovation & Entrepreneurship, Business Development, Marketing Research, Financial Analysis, Product Development

University of Electronic Science and Technology of China (UESTC)   *Chengdu, China*

B.ENG., ELECTRONICS AND COMPUTER SCIENCE RELATED SUBJECTS   *2010 - 2014*

• **Excellent Graduation Thesis**. **Overall GPA: 88%**

Skills & Competences

Programming	Python, C, C++, Java, JavaScript, Scala, CUDA, SystemC, VHDL, Verilog
Tools	Linux Environment, Shell Script, LaTeX, Git, Amazon EC2
Languages	English, Chinese (Mandarin)
Business	Innovation & Entrepreneurship, Business Development, Marketing, Product Development
Personality	Team-player, Proactive, Motivated, Ambitious, Persuasive, Open-minded, Curious, Adaptive, Responsible

Experience

INDUSTRY

ING   *Amsterdam, The Netherlands*

JR IT SPECIALIST - DEV ENGINEER   *Sep. 2016 - PRESENT*

• IT Graduate Program. Three Rotations with different departments on different projects.
• Lean & Agile and Scrum Team. DevOps.
• (On-going) Project 1: Data analysis with Cyber Fraud Prevention Team for Wholesale Banking Service. Python with Pandas and Numpy.

Ericsson   *Stockholm, Sweden*

INTERNSHIP AND MASTER THESIS   *Jan. 2016 - Aug. 2016*

• Machine Learning and Data Analysis on log data. Recurrent Neural Network (RNN) and Naive Bayes.
• Python (with Keras, Numpy, SciPy and Theano), Java and Amazon EC2.
• Large scale software architecture.

Robotics Institute, UESTC   *Chengdu, China*

RESEARCH ASSISTANT   *Sep. 2012 - Jun. 2014*

• Design and development of intelligent controlling algorithms and solutions for robot manipulators and marine risers.
• Implementation of the algorithms on real robots. Accomplishment of several papers published.

ACADEMIA

Personal Projects on Machine Learning

Stockholm, Sweden

KTH Royal Institute of Technology (KTH)

Sep. 2015 - PRESENT

- Machine Learning algorithms analysis and programming using **Python**.
- Study and practice Apache Spark and Scala language.

System Design using SystemC (C++) and Transaction Level Modeling (TLM)

Stockholm, Sweden

KTH Royal Institute of Technology (KTH)

Sep. 2015 - Nov. 2015

- System design and implementation using SystemC: Bus, RAM and ROM, Channel and Interface, Transaction Level Modeling, Concurrency and Time, Process and Thread, Simulation, Debugging, Signal and Data Type.

JPEG Decoding based on Xilinx's MicroBlaze Multiprocessor Embedded Platform

Eindhoven, The Netherlands

Eindhoven University of Technology (TU/e)

Feb. 2015 - Jun. 2015

- JPEG Decoding algorithm and Image Processing.
- Focused on the impact of multiple processors, accelerators, distributed shared heterogeneous memory hierarchy.
- Various parallel strategies. DMAs and Network-on-Chip Communication with limited bandwidth.

Dynamic Memory Management for High Performance and Low Power Cost

Eindhoven, The Netherlands

Eindhoven University of Technology (TU/e)

Dec. 2014 - Jan. 2015

- Use smaller memories/buffers: Scratch Pad Memory (faster and less energy consuming)
- Reduce the number of memory accesses by optimizing C code: Loop Transformation, Temporal and Local Data Reuse, etc.

Bitcoin Mining based on NVIDIA's GPUs using CUDA

Eindhoven, The Netherlands

Eindhoven University of Technology (TU/e)

Oct. 2014 - Dec. 2014

- Solve the hash algorithm for mining "fake" bitcoins by utilizing GPU's powerful data parallelism and multi-thread features.
- GPU architecture, multi-thread computing, shared memory. **CUDA C and OpenCL.**

Intel: Processor Design Space Exploration based on the Silicon Hive Architecture

Eindhoven, The Netherlands

Eindhoven University of Technology (TU/e)

Sep. 2014 - Oct. 2014

- Design and optimize a low power VLIW processor for the ECG application using Intel's TIM language.
- In particular focus on the trade-off between performance and energy consumption.

Wireless Sensor Network (WSN): Automatic Agricultural Monitor and Control

Eindhoven, The Netherlands

Eindhoven University of Technology (TU/e)

Sep. 2014 - Dec. 2014

- Design and evaluate a WSN based on a bunch of Atmel's low-power MCUs using C.
- Implement Beacon-enabled CSMA-based MAC protocol (IEEE 802.15.4) and hierarchy routing layer.

Virtual Environment: Panum's Fusional Area Approximation

Eindhoven, The Netherlands

Eindhoven University of Technology (TU/e)

Sep. 2014 - Dec. 2014

- Design and conduct an experiment to measure the shape of a fusion area.
- Based on Fontys' VR-Cave laboratory and WorldViz Vizard (**Python**).

Honors & Awards

Scholarships

2014	**Scholarship of Excellent Graduate** Outstanding performance during entire undergraduate time	*UESTC, China*
2013	**Jiuzhou Scholarship** Only two students were honored	*Jiuzhou Group, China*
2012	**Suzhou Industrial Park Scholarship** Top 5%	*Suzhou Industrial Park, China*
2011	**The People's Scholarship** Great grades in the first year	*UESTC, China*

Extracurriculums

Business Development. Market Research. Presentation and Communication.

Finland & The Netherlands

EIT Digital Summer School

Aug. 2015, Helsinki, Finland

EIT Digital Winter School

Feb. 2015, Eindhoven, The Netherlands

Volunteer on ICONS 2013

Chengdu, China

The 3rd IFAC International Conference on Intelligent Control and Automation Science (ICONS 2013)

Sep. 2013

Volunteer on ICSR 2012

Chengdu, China

International Conference on Social Robotics (ICSR 2012)

Oct. 2012