

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 - PRESENT

- 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 - PRESENT

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

University of Electronic Science and Technology of China (UESTC)

Chengdu, China

B.Sc., ELECTRONICS AND COMPUTER SCIENCE RELATED SUBJECTS, GPA: 88%

2010 - 2014

- Excellent Graduation Thesis:** "Modeling, Control Algorithm Design and Experiments based on Euler-Bernoulli Beam."

Skills & Competences

Programming	Python, C, C++, Java, Apache Spark, Scala, VHDL, Verilog, CUDA, SystemC (and TLM)
Tools	Linux Environment, Shell Script, TeX, Git, Travis CI, Eclipse, Amazon EC2, Microsoft Office
Languages	English, Chinese (Mandarin)
Business	Innovation & Entrepreneurship, Business Development, Marketing, Financial Analysis, Product Development
Personality	Team-player, Proactive, Motivated, Ambitious, Persuasive, Open-minded, Curious, Adaptive, Responsible

Experience

RESEARCH

Ericsson

Stockholm, Sweden

INTERNSHIP AND MASTER THESIS

Jan. 2016 - PRESENT

- Machine Learning and Data Analysis. Recurrent Neural Network (RNN). Python and Amazon EC2.
- Continuous Integration and Delivery. Lean & Agile** Software Development. **Java**.
- 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.

PROJECTS

Personal Projects on Machine Learning

Stockholm, Sweden

KTH ROYAL INSTITUTE OF TECHNOLOGY (KTH)

Sep. 2015 - PRESENT

- Machine Learning (ML) algorithms analysis and programming using **Python**.
- Audit Advanced Machine Learning Course in KTH.
- 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.

Digital Design using VHDL based on Altera Cyclone-V FPGA

Stockholm, Sweden

KTH ROYAL INSTITUTE OF TECHNOLOGY (KTH)

Sep. 2015 - Nov. 2015

- Sequential Logic, Resolution Function and Databus. Latch, Flip-flop, and FSM. RTL and Synthesis. Datapath and Microcontroller.
- Tools: Quartus II and ModelSim.

Audio Processing based on Xilinx's Spartan FPGA using Verilog

Eindhoven, The Netherlands

EINDHOVEN UNIVERSITY OF TECHNOLOGY (TU/E)

Apr. 2015 - Jun. 2015

- Design & optimization: pipelining, re-timing, folding, unfolding, strength reduction, re-use of partial results, vectorization, etc.
- Implementation media: VLSI, FPGA, Digital Signal Processors. ISE Design Suite.

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.

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