# Lei Wang

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## Education

### Texas A&M University
*College Station, United States*

PhD Student in Computer Engineering — *Aug. 2019 - Present*

- Advisor: Dr Paul Gratz
- Research area: computer architecture; optimization for multi-threaded workload, in particular computer games.

### Imperial College London
*London, United Kingdom*

Bachelor of Engineering in Electrical and Electronic Engineering, Second-class honours, upper division — *Oct. 2016 - Jun. 2019*

- BEng Final Year Project: a high level schematic editor for simplified Hardware Description Language (HDL) Entry

## Skills

**Programming** C, C++, Verilog HDL, Arm Assembly, Matlab, Python, HTML, CSS, JavaScript, SQL, F#, Promela
**Frameworks** Flask, Electron, Fable, Node.js
**Languages** Chinese(Native), English(TOEFL 106, IELTS 7.0), Japanese(JLPT N3)
**Software** Gem5, Intel Pin, Spin (Formal Verification), LaTeX, STM32CubeMX, Keil, Visual Studio, git, Microsoft Office, Autodesk AutoCAD.

## Experience

### SoC Architect Intern
*Palo Alto, United States*

ZEKU Inc. — *May. 2022 - Nov. 2022*

- Work with ZEKU SoC architecture team to deliver a full system model using gem5 simulator.
- Optimize power and performance for multithreaded mobile workload..

### Graduate Teaching Assistant
*College Station, United States*

Texas A&M University — *Aug. 2021 - May. 2022*

- Lab instructor for ECEN 449/749 Microprocessor System Design (2022 Spring).
- Lab instructor for ECEN 350 Computer Organization and Design (2021 Fall).

### Grader
*College Station, United States*

Texas A&M University — *Aug. 2020 - Dec. 2020*

- Grader for ECEN 350 Computer Organization and Design (2020 Fall).

### TAMU Robomaster Robotics Advisor
*College Station, United States*

Texas A&M University Robomaster Society — *Aug. 2020 - Jun. 2021*

- Work with embedded and computer vision teams for serial port communication and code integration.
- Develop code in C/C++ for ARM-based processor with STM32CubeMX and Keil for robot movement control and wireless signal communication.
- Teach and advise society members for embedded code development and integration.

### Student System Administrator
*London, United Kingdom*

Imperial College Union — *Nov. 2018 - Mar. 2019*

- Work with the Imperial College Union Administration Team.
- Configure and maintain WordPress websites for student clubs and societies at Imperial College London.
- Respond to requests and inquiries from student society and club website administrators.

### Software Engineering Intern
*Tel Aviv, Israel*

Fleetonomy — *Jul. 2018 - Sep. 2018*

- Work on full stack development for a fleet management application similar to Uber.
- Develop unit tests for Python flask backend.
- Develop webpages for visualizing vehicle positions and movements for testing.
- Work on integrating third-party services such as Datadog for system performance monitoring.

## Projects

### Formal Verification for a Traffic System

*College Station, United States*

Coursework

*Oct. 2021 - Dec. 2021*

- Design and verify a traffic system with formal techniques.
- Traffic system implemented in Python flask with a web-page-based GUI.
- Verification done by re-coding the application in Promela and run using Spin, a verification tool for multi-threaded applications.

### Book-Keeper

*College Station, United States*

Team Project

*May. 2020 - Aug. 2020*

- Develop software for handling reimburse requests within the Texas A&M University Robomaster Society.
- Technology stack: React , Nginx, Gunicorn, Python Flask, deployed using Docker.

### Final Year Project

*London, United Kingdom*

Individual Project

*Apr. 2019 - Jun. 2019*

- Graphical hardware description language (HDL) editor that outputs Verilog HDL code.
- Implemented in F# and integrated with the Fable compiler to transpile F# to JavaScript.
- Transpiled JavaScript code run under the Electron framework that supports Linux, MacOS and Windows.

### Using FPGA Hardware for Algorithm Acceleration

*London, United Kingdom*

Team Project

*Jan. 2019 - Mar. 2019*

- Configure a FPGA device to run the NIOS II processor.
- Algorithm written in C and uploaded to the FPGA device and executed in the NOIS II processor.
- Explore ways to reduce execution time, including using pipeline, different types of multipliers, and the CORDIC algorithm.
- Implement hardware blocks to realize the CORDIC algorithm with pipeline.
- Results show the use of dedicated hardware reduces the execution time significantly with increase in hardware usage.

### Adding Features to Visual2, the Arm Assembly Simulator

*London, United Kingdom*

Team Project

*Jan. 2019 - Mar. 2019*

- Add new features to Visual2, including pipelining display, multiplication instructions and improvement to the error messages.
- Code in F# and JavaScript.

### Second Year Project

*London, United Kingdom*

Team Project

*Nov. 2017 - Mar. 2018*

- Gloves with sensors built in to detect palm facing, acceleration and finger bending for sign language translation.
- Machine learning model training with readings from sensors.
- Sign language translation achieved by feeding sensor readings to machine learning models.

### First Year Project

*London, United Kingdom*

Team Project

*Nov. 2016 - May. 2017*

- Build a remote-control rover that is able to detect electromagnetic waves and measure frequencies.

## Honors and Awards

### Graduate Merit Scholarship

*College Station, United States*

Texas A&M University

*Aug. 2020*

- From the Department of Electrical and Computer Engineering.