

# Linyi LI

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## EDUCATION

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**University of Illinois at Urbana-Champaign**, Urbana, IL, USA *Aug 2018 - Present*  
CS Ph.D Student  
Advisor: *Prof. Tao Xie*

**Tsinghua University**, Beijing, China *Aug 2014 - Jul 2018*  
Bachelor of Computer Science and Technology  
**GPA: Major: 91.6/100 (Top 9%)** Overall: 90.1/100 (Top 18%)  
**Senior Thesis:** Research & Implementation on Web API Scenario Modeling and Automated Test Generation.  
*Advisor: Prof. Xiaoying Bai*

## RESEARCH EXPERIENCE

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**WeChat Pay Automated Test Script Generation** *Aug 2018 - Present*  
*Advisor: Prof. Tao Xie, University of Illinois at Urbana-Champaign* *Research Assistant*

- Test case analysis, including domain-information embedding training and knowledge-guided clustering.
- Generate API interface and compose test scripts from analysis result.

**API Modeling and Scenario-based Testing** *Mar 2017 - Jun 2018*  
*Advisor: Prof. Xiaoying Bai, Tsinghua University* *Research Assistant*

- Led the group research and designed an abstract scenario model for API integration testing.
- Defined a series of specification extensions that embedded the scenario model with OpenAPI.
- Proposed data generation and test case generation algorithms for the scenario model.
- Developed an automated testing tool chain that verified the effectiveness and usefulness of the scenario model and the algorithms.

**Deep Convolutional Network Explanation with Integrated Gradients** *Jun 2017 - Sept 2017*  
*Advisor: Prof. Matt Fredrikson, Carnegie Mellon University* *Research Internship*

- Applied integrated gradients, a type of influence analysis method, to convolutional networks.
- Verified effectiveness of integrated gradients in the measurement of individual neuron contribution.
- Developed a way to capture vital lesions in Diabetic Retinopathy Detection with this method.

**Distributed API Testing System** *Nov 2015 - Jun 2017*  
*Advisor: Prof. Xiaoying Bai, Tsinghua University* *Research Assistant*

- Designed the entire architecture of a distributed automated web API testing system for load testing.
- Developed the center controller and monitor module of the testing cluster.
- Defined communication protocol between distributed nodes.

**MIPS32 Architecture CPU Implementation with FPGA** *Sept 2016 - Dec 2016*  
*Advisor: Prof. Weidong Liu, Tsinghua University* *Class Project Extension*

- Designed the 5-stage pipelined CPU supporting the MIPS32 instruction set.
- Implemented the structure on FPGA using Verilog.
- Created product to be compatible with UNIX-like operating systems.

## PUBLICATIONS

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1. Kals Leino, Shayak Sen, Anupam Datta, Matt Fredrikson, **Linyi Li**. Influence-Directed Explanations for Deep Convolutional Networks. International Test Conference 2018.
2. Junyi Wang, Xiaoying Bai, **Linyi Li**, Haoran Ma, Zhicheng Ji. A Model-Based Framework For Cloud API Testing. Computer Software and Applications Conference (COMPSAC), 2017 IEEE 41st Annual. Vol. 2. IEEE, 2017. (DOI: 10.1109/COMPSAC.2017.24)
3. Junyi Wang, Xiaoying Bai, Haoran Ma, **Linyi Li**, Zhicheng Ji. Cloud API Testing. Verification and Validation Workshops (ICSTW), 2017 IEEE International Conference on Software Testing. IEEE, 2017. (DOI: 10.1109/ICSTW.2017.71)

## SCHOLARSHIPS AND AWARDS

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Tsinghua University Outstanding Undergraduate ( <b>301 of 3555</b> )	2018
Excellence Undergraduate, Department of Computer Science and Technology, THU ( <b>52 of 171</b> )	2018
“Top Open” Oversea Training Grant	2017
Academic Excellent Award with HUAWEI Scholarship ( <b>3 of 171</b> )	2017
Practical Excellent Award with University Scholarship ( <b>2 of 167</b> )	2016
“Sogou Cup” Artificial Intelligence Programming Contest Top 16	2015
Top 0.03% on the National College Entrance Exam	2014
National Olympics in Informatics, Bronze Medal	2013
National Olympics in Informatics in Provinces, First Prize	2012

## TEACHING EXPERIENCE

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**Data Structure** *Sept 2015 - Jan 2016*  
*Student Teaching Assistant*

- Hosted two seminars for conducting assignment discussions.
- Contributed several original problems for future assignments and exams.

## INTERNSHIP EXPERIENCE

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**Sogou Inc.** *Aug 2015 - Oct 2015*  
*Back-end Engineer* *Beijing*

- Designed the interfaces between back-end and front-end for a tutor ordering platform.
- Implemented an efficient and advanced tutor search module that supported multiple keys.

## PROGRAMMING CONTEST

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*3rd Place*, ICPC Mid-Central USA Regional Contest 2018

## SKILLS AND OTHERS

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<b>Programming Languages</b>	C/C++, Python, Java, Haskell, OCaml, x86 Assembly, Verilog, ...
<b>Frameworks</b>	Tensorflow, PyTorch, Keras, ...
<b>Languages</b>	Chinese (proficient Mandarin and Xiang, intermediate Cantonese), fluent English, intermediate Tujia

*Last Updated: Dec 7, 2018*