

# SIYUAN HE

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## EDUCATION

- Ph.D. in Computer Science, Purdue, advised by Tiark Rompf, from 2021.9
- Master in Information Science, University of Michigan, 2019.8 to 2021.4
- Bachelor in Electrical and Computer Engineering, Shanghai Jiaotong University, 2016.9 to 2020.8

## RESEARCH INTERESTS

My research interest is programming languages, specifically, type/effect system and functional programming languages. My previous research fields include formal verification, verifiable C, cryptography, and artificial intelligence.

## PUBLICATION

- Siyuan He; Ke Du; Joshua Wilhelm; Jean-Baptiste Jeannin, *Verification of an Airport Taxiway Path-Finding Algorithm*, 2020 AIAA/IEEE 39th DASC (Best of Session).

## RESEARCH

### Reachability Types

Instructed by Prof. Tiark Rompf

**Repo**  
2021.9 to present

- Syntactic qualifiers
- Must-tracking reachability

## PREVIOUS RESEARCH

### Hazel, Extraction to OCaml

FPLab, instructed by Prof. Cyrus Omar

**Repo**  
2019.10 to present

- Extraction from Hazel AST to OCaml code

### Formal verification of a pathway finding algorithm

Instructed by Prof. Jean-Baptiste Jeannin

**Repo**  
2019.10 to 2020.10

- Design and formalize a taxiway path-finding solution
- Verify the path-finding algorithm and map transition algorithm

### DeepWeb

Deepspec, Instructed by Prof. William Mansky

2020.8 to present

- Implement and verify concurrent deepweb server

## TEACHING ASSISTANT

- 2019 - VE370 Computer Organization, Shanghai Jiaotong University

## WORK EXPERIENCE

### Lenovo Research (Beijing, China)

Research Intern, Face Recognition Group

**AI Lab**  
2017.12 to 2018.2

- Blur detection
- Pre-processing optimization

### Nokia, Shanghai-Bell (Shanghai, China)

Intern, Data analysis

**ION, 5G Core**  
2020.5 to 2020.8

- Overall lab test on smart street-lamp network project
- Design of front-end and back-end coordination of a smart education system (not leading position)

## OTHERS

**Piano** Practice from 6 years old, gain several certificates

**Chinese calligraphy** Practice from 7 years old, gain several gold awards, invited by a culture conference between China-USA.

**Micro-film** Write script and direct a microfilm in sophomore year