

Jiayi Wei

CONTACT

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SKILLS

| | |
|------------------------|-------|
| Machine Learning | 6 yrs |
| Functional Programming | 6 yrs |
| PyTorch | 3 yrs |
| Program Synthesis | 2 yrs |
| Transformer Models | 2 yrs |
| Robotics | 2 yrs |
| Bayesian Statistics | 1 yr |
| Formal Methods | 1 yr |

CODING LANGUAGES

| | |
|--------------|-------|
| Scala | 6 yrs |
| Python | 3 yrs |
| Julia | 2 yrs |
| Haskell | 1 yr |
| Java/C# | 1 yr |
| Coq/Isabelle | 1 yr |

EDUCATION

Ph.D. in Computer Science
UT Austin – Austin, Texas, USA
Anticipated graduation date: June 2023

2018 - now

B.Sc. in Physics
Univ. of Sci. and Tech. of China – Anhui, Hefei, China

2013 - 2017

WORK EXPERIENCE

Intern Software Engineer, JetBrains

Summer 2021

Optimizing LambdaNet (our ICLR'20 work) for an IDE environment.

- Improved inference-time speed and memory usage significantly.
- Modified the architecture and training pipeline to make the model utilizing pre-existing type annotations.

PhD Software Engineer Intern, Facebook

Summer 2020

Expression-level code autocomplete using transformers.

- Designed a novel prediction layer to enforce valid Python syntax trees.
- Modified the attention layer to incorporate static analysis information.
- Improved the overall top-1 accuracy from 29.94% to 39.85%.

SELECTED PROJECTS

Coeditor: Contextual Code Change Prediction (ongoing)

2022/10 - now

- Suggests code changes using a modified CodeT5 architecture.
- Retrieves relevant code snippets using lightweight static analysis.
- Comes with an end-user-facing VSCode Extension.

A deep learning library written in Scala

2018 - 2019

- Provides PyTorch-like flexibility with a functional programming API.
- Powers the models in our ICLR'20 and OOPSLA'19 work.

PUBLICATIONS

TypeT5: Seq2seq Type Inference using Static Analysis

ICLR'23

Jiayi Wei, Greg Durrett, Isil Dillig

STEADY: Simultaneous State Estimation and Dynamics Learning from Indirect Observations

IROS'22

Jiayi Wei, Jarret Holtz, Isil Dillig, Joydeep Biswas

OneVision: Centralized to Distributed Controller Synthesis

IROS'21

Jiayi Wei, Tongrui Li, Swarat Chaudhuri, Isil Dillig, Joydeep Biswas

LambdaNet: Probabilistic Type Inference using Graph Neural Networks

ICLR'20

Jiayi Wei, Maruth Goyal, Greg Durrett, Isil Dillig

Relational verification using reinforcement learning

OOPSLA'19

Jia Chen, Jiayi Wei, Yu Feng, Osbert Bastani, Isil Dillig

Singularity: Pattern Fuzzing for Worst Case Complexity

FSE'18

Jiayi Wei, Jia Chen, Yu Feng, Kostas Ferles, Isil Dillig