

Jiayi Wei

CONTACT

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SKILLS

Machine Learning 5 yrs

Functional Programming 5 yrs

Program Synthesis 2 yrs

Robotics 2 yrs

PyTorch 2 yrs

Transformer Models 1 yr

Proof Assistants 1 yr

Bayesian Inference 1 yr

CODING LANGUAGES

Scala 6 yrs

Python 2 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: May 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

Structured Prediction for Type Inference (ongoing)

2022/4 - now

- A learning-based technique to predict type annotations for Python.
- Augment pre-trained transformer models with type checker feedback.
- Trained with imitation learning using a DAgger loop.

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

STEADY: Simultaneous State Estimation and Dynamics Learning from Indirect Observations

arXiv'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