# Hu Yiran

Tel: +1 765-543-3520 | hu954@purdue.edu

## EDUCATION

**Purdue University**                                                                                      **08/2023-Now**

Third-year Ph.D. student in Computer Science          Advisor: Lin Tan

**Research Interests**: SE-AI Synergy, LLM Agents, Application of ML/NLP

**Tianjin University, China**                                                                      **09/2019-05/2023**

Bachelor of Science in Computer Science and Technology    GPA: 89.45/100, 3.78/4.0   Advisor: Junjie Chen

## PUBLICATIONS

**Can Language Models Replace Programmers for Coding? REPOCOD Says 'Not Yet'**

Accepted at ACL2025

**SELP: Generating Safe and Efficient Task Plans for Robot Agents with Large Language Models**

ICRA 2025 Best Paper Award Finalist

**LocRDF: An Ontology-Aware Key-Value Store for Massive RDF Data**

Accepted at WISA 2022

## ACADEMIC RESEARCH

**Research Participant, Purdue University**                                                      **08/2023-Now**

➢ Led in building LLM agent TENET for test-driven repository-level code generation

   ✧ Proposed a novel test harness mechanism for efficient test-driven supervision; a tailored agent toolset for efficient retrieval and debugging; and a reflection-based refinement workflow for test-aware debugging

   ✧ Achieved Pass@1: 69.08% (RepoCod) and 81.77% (RepoEval), with +9.5% / +2.2% over top agentic approaches.

   ✧ The paper **TENET: Leveraging Tests Beyond Validation for Code Generation** is under review for publication

➢ Contributed in building REPOCOD: A Benchmark for Repository-Level Code Generation

   ✧ Built REPOCOD, consisting of 980 real-world Python coding tasks from 11 open-source repositories

   ✧ Designed an automated test collection pipeline to pair function with relevant test cases

   ✧ Evaluated ten state-of-the-art LLMs and identified their limitations in generating repository-level code

➢ Contributed in building framework SELP: Generating Safe and Efficient Task Plans for Robot Agents with LLMs

   ✧ Created a new dataset, DroneNav, for evaluating complex drone navigation tasks

   ✧ Proposed equivalence voting and LTL constrained decoding mechanism to improve planning safety and efficiency

   ✧ outperformed the top LLM planner by 11.63% in safety rate and by 19.78% in time efficiency.

**Research Assistant, Intelligent Software Testing Lab of Tianjin University**            **09/2022-04/2023**

➢ Deployed LEMON (FSE 2020 Distinguished Paper) on MindSpore to improve the robustness of the framework

   ✧ Reproduced 7 mutation rules from LEMON and implemented 4 novel rules for MindSpore

   ✧ Found and reported 16 bugs in the MindSpore

## COMPETITION & TRAINING

**Teaching Assistant of CS176, CS251 and CS253 at Purdue University**                  **08/2023-Now**

*Position: Half-time Teaching Assistant*

➢ Conducted 36 lab sessions and 226 office hours, assisting students in data processing and algorithm design

➢ Instructed labs and lectures with a cohort of 170 students, fostering focus and dedication to the coursework

**Internship in Beijing Zhongke Wenge Science and Technology Co., Ltd**            **05/2022-07/2022**

*Position: Algorithm Engineer in R&D Center*

➢ Improved text detection accuracy by 27.83% by applying the SAST model to handle image distortion issues

➢ Integrated and evaluated group-proposed improvements into PaddleOCR, addressing key framework limitations and enhancing overall recognition accuracy by 15.43%

## AWARDS & HONORS

Outstanding Graduate of Tianjin University

First Class Scholarship, Tianjin University

Advanced Individual for Academic Performance, Tianjin University

First Prize of Tianjin University, "Challenge Cup" National College Students Science and Technology Competition

## SKILLS

Languages: English      Chinese (Native)

Software and Programming: Python, C++, Java, Matlab, Unity, Premiere Pro