

# TIANJUN YUAN

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Durham, USA & Suzhou, China

## EDUCATION

### Duke University & Duke Kunshan University (Dual Degree)

B.A. in Interdisciplinary Studies; Computational Science; Applied Math (Duke)

B.S. in Computational Science, Applied Math Track (DKU)

*Class of 2026*

Durham, USA

Suzhou, China

- GPA: 3.71/4.00; Dean's List: Fall 2022, Spring 2023, Fall 2023, Spring 2024
- Selected Coursework: NLP (Graduate Course, A), Advanced Algorithm (A+), Advanced Linear Algebra (A+), Math of ML (A), Computer Organization (A).

## RESEARCH INTERESTS

I am broadly interested in systems for machine learning (MLSys). My recent work focuses on **Distributed Learning in Real-World Systems** (on-device/collaborative settings) and **LLM-Assisted Proof & Correctness** in system verification.

A background in Olympiad programming trained me to design elegant, resource-aware algorithms; I am also deepening my systems coding skills to build core ML infrastructure components.

## RESEARCH EXPERIENCE

### Duke University

*Dec 2024 – Present*

Advised by Prof. Danyang Zhuo

- **Ongoing — LLM for Verification:** Designed an LLM-assisted pipeline for Coq/OCaml that proposes proof sketches and tactic plans, with failure-aware search to recover from tactic exceptions in CompCert systems verification.
- **Ongoing — ML Systems Simulation Extensions:** Extending a GPU cluster simulator to model PyTorch 2.x `torch.compile` and other frameworks (*NSDI '26 Submission's extension*).

### Duke Kunshan University

*Sep 2023 – Nov 2024*

Advised by Prof. Bing Luo & Prof. Xianhao Chen (HKU)

- **Personalized Split Federated Learning:** Built personalized split/federated pipelines for on-device fine-tuning of foundation models via knowledge distillation, targeting low-latency, privacy-preserving adaptation (*MobiCom '25 submission*).
- **Multi-agent Cooperation & Matching:** Designed Multi-agent system experiments to study cooperation stability. (*EMNLP '25 submission*)

## PUBLICATIONS AND MANUSCRIPTS

- *Phantora: Maximizing Code Reuse in Simulation-based Machine Learning System Performance Estimation.*  
Jianxing Qin, Jingrong Chen, Xinhao Kong, Yongji Wu, **Tianjun Yuan**, Liang Luo, Zhaodong Wang, Ying Zhang, Tingjun Chen, Alvin R. Lebeck, Danyang Zhuo.  
*Submitted to NSDI 2026.*
- *Adaptive Personalized Split Federated Learning for On-Device Fine-tuning of Foundation Models.*  
**Tianjun Yuan**, Jiaxiang Geng, Pengchao Han, Xianhao Chen, Bing Luo.  
*Submitted to MobiCom 2025.*
- *Cognitive Insights and Stable Coalition Matching for Fostering Multi-Agent Cooperation.*  
Jiaqi Shao, **Tianjun Yuan**, Tao Lin, Xuanyu Cao, Bing Luo.  
*Submitted to EMNLP 2025.*

## AWARDS AND SCHOLARSHIPS

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- **National Inspirational Scholarship** Oct 2024  
Awarded to the top 9 students across the university for outstanding academic performance.
- **DKU Summer Research Scholar (SRS)** Jun 2024
- **ACM-ICPC East-Asia Regional Contest**: 3× Gold Medal; Best rank: 20/452 regionwide
- **Asia-Pacific Informatics Olympiad (APIO)**: Gold Medal Aug 2020
- **Chinese National Olympiad in Informatics (NOI)**: Silver Medal Aug 2020
- **Tsinghua University Informatics Winter Camp**: Second Prize Dec 2019

## LEADERSHIP & WORK EXPERIENCE

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**Teaching Assistant** Jan 2023 – Mar 2023; Aug 2023 – Oct 2023  
COMPSCI 201 (Introduction to Programming and Data Structures)

- Led weekly recitation sessions;
- Held office hours to support students on course materials and assignments.

**Founder & President, Programming Contest Club** Dec 2022 – Jun 2023

- Organized regular trainings, and led the club members to win 7 medals in ACM-ICPC
- The club received 2023 DKU Academic Student Organization of the Year Award

## SKILLS

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<b>Programming Tools</b>	Python, C, OCaml, PyTorch, Rust, L <sup>A</sup> T <sub>E</sub> X
<b>Languages</b>	English (fluent), Mandarin (native)
<b>Other</b>	5-dan in Go (Weiqi)