

# TIANJUN YUAN

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Durham, USA & Suzhou, China

## EDUCATION

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

*Class of 2026*

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

Durham, USA

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

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

<ul style="list-style-type: none"><li>National Inspirational Scholarship</li></ul> <div>Awarded to the top 9 students across the university for outstanding academic performance.</div>	Oct 2024
<ul style="list-style-type: none"><li>DKU Summer Research Scholar (SRS)</li></ul>	Jun 2024
<ul style="list-style-type: none"><li>ACM-ICPC East-Asia Regional Contest: 3× Gold Medal; Best rank: 20/452 regionwide</li></ul>	
<ul style="list-style-type: none"><li>Asia-Pacific Informatics Olympiad (APIO): Gold Medal</li></ul>	Aug 2020
<ul style="list-style-type: none"><li>Chinese National Olympiad in Informatics (NOI): Silver Medal</li></ul>	Aug 2020
<ul style="list-style-type: none"><li>Tsinghua University Informatics Winter Camp: Second Prize</li></ul>	Dec 2019

LEADERSHIP & WORK EXPERIENCE

Teaching Assistant	Jan 2023 – Mar 2023; Aug 2023 – Oct 2023
COMPSCI 201 (Introduction to Programming and Data Structures)	
<ul style="list-style-type: none"><li>Led weekly recitation sessions;</li><li>Held office hours to support students on course materials and assignments.</li></ul>	
Founder & President, Programming Contest Club	Dec 2022 – Jun 2023
<ul style="list-style-type: none"><li>Organized regular trainings, and led the club members to win 7 medals in ACM-ICPC</li><li>The club received 2023 DKU Academic Student Organization of the Year Award</li></ul>	

SKILLS

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