



上海交通大学
SHANGHAI JIAO TONG UNIVERSITY



上海交通大学
约翰·霍普克罗夫特
计算机科学中心
John Hopcroft Center for Computer Science

John Hopcroft Center for Computer Science

Shanghai Jiao Tong University

Overview



The Inauguration Ceremony

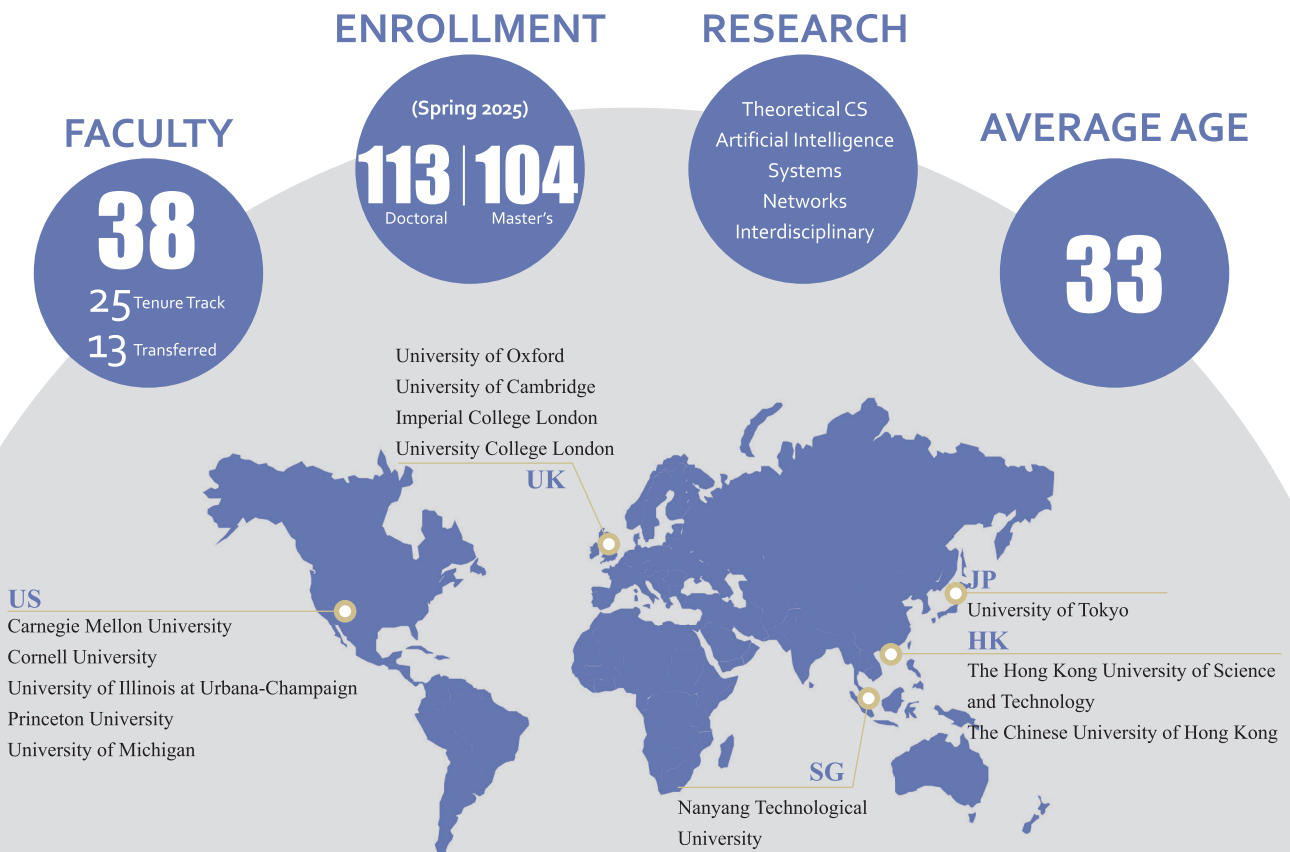


The John Hopcroft Center for Computer Science at Shanghai Jiao Tong University, established in January 2017, is named after John Hopcroft, a Turing Award winner, Foreign Member of the Chinese Academy of Sciences. The center is led by him as the director.

Mission: Create a relaxed and open international academic environment, recruit promising young scholars, and help them grow into world-class scholars in the field of computer science, significantly raising the level of computer science research and education in China.

Explore and perfect internationally advanced mechanisms for cultivating talents in computer science and related interdisciplinary fields.

Assessment: The center does not solely rely on the traditional, singular assessment methods such as the number of papers, fundings, and awards. Instead, it encourages faculty teach two high-quality courses and to publish one high-quality paper each year.



Director, John Hopcroft



Honored with 2023 China International Science and Technology Cooperation Award

John Hopcroft, a world-renowned computer scientist, is a member of the U.S. National Academy of Sciences, the National Academy of Engineering, and the American Academy of Arts and Sciences, as well as a foreign member of the Chinese Academy of Sciences. He is a recipient of the Turing Award in 1986. He is currently an Emeritus Professor at Cornell University and a Visiting Chair Professor at Shanghai Jiao Tong University.

Over the past thirteen years, he established the John Hopcroft Center for Computer Science at Shanghai Jiao Tong University, personally participating in faculty recruitment and training, and nurturing a significant number of emerging talents. He has taught twenty undergraduate courses in China and authored two textbooks, which were published without compensation.



Taught a total of 20 undergraduate courses over 13 years in person



Frequently discuss with faculties from the John Center

Academic Research

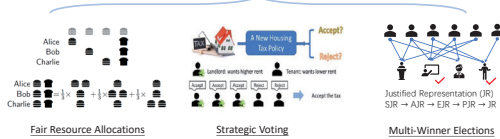
After years of development, the center has formed four stable and mature research directions: Theoretical Computer Science, Artificial Intelligence, System Architecture, Network Communications. With an open and inclusive attitude, the center actively recruits talents from Interdisciplinary Sciences.

Theoretical Computer Science

Featured Research Topics

Fair Division and Computational Social Choice

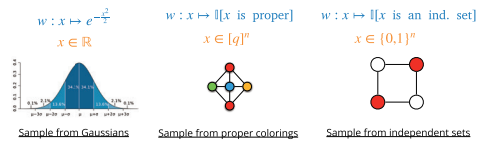
How to make collective decisions?



Papers appeared in *EC*'21, '22, '23 and '25; *WINE*'23 and '24; *WWW*'25; and *AAAI*'23, '24 and '25; *UAI*'21 and '23; *AAMAS*'24 and '25; and other conferences/journals.
A paper about strategic voting, "Aggregation of Antagonistic Contingent Preferences: When Is It Possible?" won *WINE* '24 best paper award.

Sampling From High-Dimensional Distributions

Given a function $w: \mathbb{R}^n \rightarrow \mathbb{R}_{\geq 0}$, how to sample from a distribution proportional to it?



Papers appeared in *STOC*'20 and '24; *SODA*'19, '21, and '25; *ICALP*'22 and '25; and *COLT*'25.

Research Areas: Theories, Tools and Applications of PL & Verification.

Focus

We develop approaches to formally verify the correctness and security of systems software.

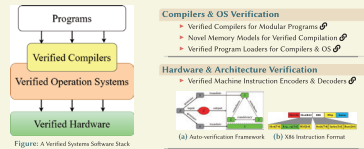
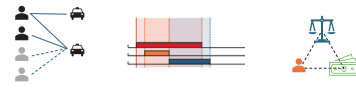


Figure: A Verified Systems Software Stack

Online Algorithms and More

- Online Matching
- Online Scheduling
- Selfish Agents & Fairness



Paper appeared in *JACM*, *SICOMP*, *FOCS*, *SODA*, *EC*, ...

Computational Phase Transition of Random k -SAT

$$\Phi = (\bigwedge_{i=1}^m \bigvee_{j=1}^k x_{i,j}) \wedge (\bigwedge_{i=1}^m \bigvee_{j=1}^k \neg x_{i,j}) \wedge (\bigwedge_{i=1}^m \bigvee_{j=1}^k x_{i,j})$$

Given a random k -SAT formula of clause density α , we are interested in the problems of solution search, counting, and sampling.

How does computational tractability change as density varies?

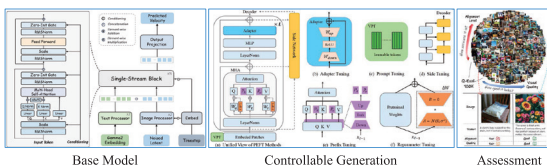


Artificial Intelligence

Featured Research Topics

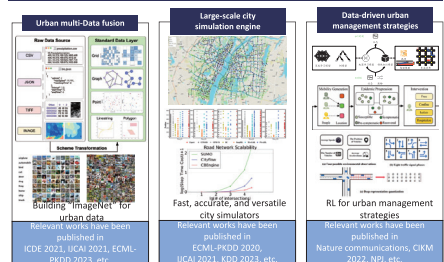
Multimodal Image Generation and Assessment

To develop a **unified multimodal framework** that generate hyper-realistic images aligned with human intentions, perceptions, and contextual understanding.



Relevant Papers published in *CVPR* '24, *ECCV* '24, *NeurIPS* '24, *AAAI* '24, *CVPR* '25 *Oral*

Research Direction: Urban Spatial-Temporal Big Data Intelligent Decision Making

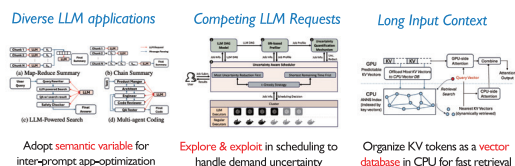


System Architecture

Featured Research Topics

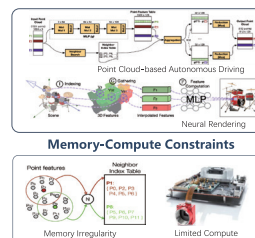
Efficient LLM Serving

How to make it faster and cheaper to serve modern LLM inference workloads?

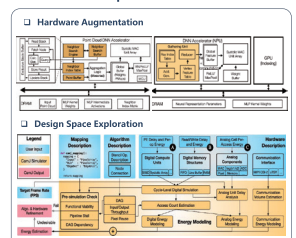


Papers appeared in *OSDI*'24, *NeurIPS* ENLSP'25, *ICDCS*'25

Various AI Models



Domain-Specific Accelerators

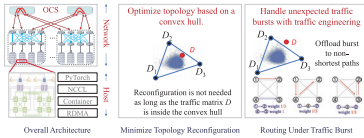


Network Communications

Featured Research Topics

Building Hybrid Optical/Electrical Networks for AI

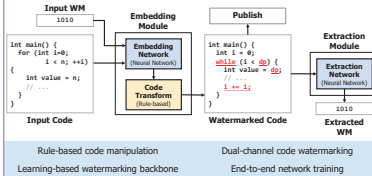
OCsEs (Optical Circuit Switches) only support 1-1 mapping and have high reconfiguration latency. How to build a hybrid network that benefits from the high optical switching bandwidth, without incurring high control complexity?



Paper appeared in SIGCOMM'24 and '25, NSDI'19 and '23, and ToN'22 and '23.

Watermarking source code snippets

Tracing code provenance, defending against code misuse, protecting repository copyright



Paper appeared in IEEE S&P'24

High-rate large-scale transmission

uTag: a new type of battery-free sensor which can support concurrent tracking of 150 targets with a 12KHz per-tag sampling rate.

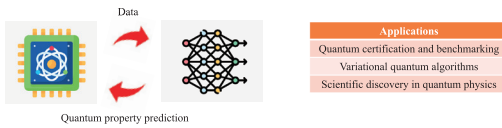


Interdisciplinary Sciences

Featured Research Topics

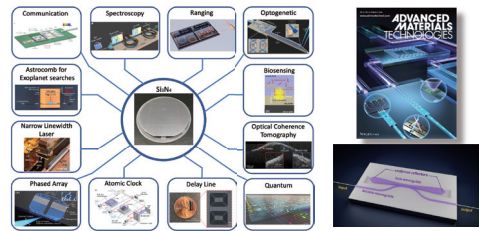
Learning quantum systems with AI

How to efficiently extract the classical descriptions of an unknown quantum state from measurements?



Related works are published on *Nature Communications* (2022, 2024) and *Physical Review Letters* (2023), and selected as Research Highlights of *Nature Computational Science*.

Integrated Photonic Chips and Their Applications



Papers published in *Nature* (2024), *Nature Photonics* (2023), *Laser & Photonics Reviews* (2025, 2023), etc.

Research Achievements

ASPLOS 2025 Best Paper Award

WINE 2024 Best Paper Award

Conference on Robot Learning
2020 Best System Paper Award

IEEE T-ASE 2024 Best New
Application Paper Award

Optical Foundation 20th
Anniversary Challenge Award



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Connie Chang-Hasnain

01 November 2022

Xingchen Ji
Shanghai Jiao Tong University
Rm-1105, Department of Electrical Engineering
Shanghai Shanghai 200240
China

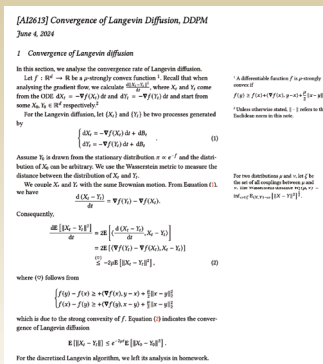
Dear Xingchen Ji,

Congratulations, you have been selected as a winner of the 2022 Optica Foundation 20th Anniversary Challenge. This program supports early-career members with the opportunity to leverage optics and photonics in driving new scientific discoveries and breakthroughs to transform our world.

Educate and Inspire

The center actively explores new models of teaching and educating, focuses on improving teaching quality, and encourages outstanding young scholars to teach courses.

Mission: Treat undergraduate teaching as the top priority, and cultivate the excellent to be even more outstanding.



Lecture notes that are widely praised by students

Teaching Awards



Honored with the First SJTU Distinguished Teacher Award



Awarded with the 24th SJTU Outstanding Teaching Nomination Award



Awarded with "Outstanding Contribution Award for High School and University Connection"



Awarded with the Longhu Teaching Award by SJTU Zhiyuan College



Awarded with the SJTU Zhiyuan Honors Teaching Faculty



Awarded with the SJTU "Zhu Guang" Award



Awarded with the SJTU "Jia He" Outstanding Teaching Award

Outstanding Graduate Students



Outstanding Graduates in Shanghai



Awarded with 11th Baidu Scholarship (the only theoretical research scholar)



Awarded with the Optica Women Scholars Award (the only Asian student recipient)

Meet Our Faculty



John Hopcroft
Director



Yu Yu
Executive Director



Quanshi Zhang
Deputy Director



Haiming Jin
Deputy Director



Shuai Li
Deputy Director



Zhouhan Lin
Deputy Director



Bo Jiang
Performance Evaluation and
Optimization
UMass Amherst



Chihao Zhang
Theoretical Computer Science
Shanghai Jiao Tong University



Liyao Xiang
Security and Privacy
University of Toronto



Shizhen Zhao
Optimization of Networked Systems
Purdue University



Ye Pan
Characters/Avatars
University College London



Jiaxin Ding
Spatio-temporal Data Mining
Stony Brook University



Yuting Wang
Formal Verification and
Programming Languages
University of Minnesota, Twin Cities



Chen Chen
Distributed Deep Learning
*The Hong Kong University of
Science and Technology*



Xingchen Ji
Integrated Photonics
Cornell University



Guanjie Zheng
Data-driven Decision Making
The Pennsylvania State University



Dongyao Chen
IoT System and Security
University of Michigan, Ann Arbor



Nanyang Ye
Deep Learning
University of Cambridge



Yehan Ma
Industrial Internet of Things
Washington University



Biaoshuai Tao
Theoretical Computer Science
University of Michigan



Kuan Yang
Theoretical Computer Science
University of Oxford



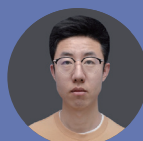
Yuhao Zhang
Theoretical Computer Science
The University of Hong Kong



Meng Jin
Wireless Communication
Northwest University



Xiaohong Liu
Deep Learning, Computer Vision
McMaster University



Yadong Wu
Quantum Information, AI for
quantum
University of Calgary



Wei Li
CG & Physical simulation &
Physics-based intelligence
*University of Chinese Academy
of Sciences*



Weiwen Liu
Large language models and
Recommendation algorithms
The Chinese University of Hong Kong



Sixue Liu
Graph Theory and Algorithm
Design
Princeton University



Shiyu Liang
Machine Learning, Optimization
*University of Illinois at Urbana-
Champaign*



Yu Feng
Efficient and High-performance
Mobile Visual Computing
University of Rochester



Tao Huang
Efficient Deep Learning,
Computer Vision
The University of Sydney

Collaboration and Engagement



Received a donation of 6 million yuan to establish the scholarship named after John Hopcroft



Established joint laboratory with DiDi

Established the first AI laboratory in the banking industry with China Merchants Bank Credit Card



Held The 4th Forum of SJTU-THU-PKU Turing Centers



Co-organized 2023 SJTU-THU-PKU Computer Science Summer School

Signed a cooperation agreement with Alibaba.

Held the First Forum of SJTU-THU-PKU Turing Centers

Open Positions

The John Hopcroft Center for Computer Science at Shanghai Jiao Tong University is seeking to fill several tenure-track positions in computer science at the rank of Assistant Professor and Associate Professor starting on a mutually agreed date. Faculty duties include research, teaching at the undergraduate and graduate levels, and research supervision. Candidates should hold a Ph.D. in computer science or a related field by the start of employment.

How to apply:

To apply, please submit a curriculum vita (CV) to Prof. Yu and Prof. Jin at jhc@sjtu.edu.cn. Applications will be accepted until all positions are filled.



www.jhc.sjtu.edu.cn

Email: jhc@sjtu.edu.cn

Tel: 86-21-54740299