

Pengyuan Zhou

Page: <https://pengyuan-zhou.github.io/>

Scholar: <https://scholar.google.com/citations?user=6n-ELeoAAAAJ>

RG: <https://www.researchgate.net/profile/Pengyuan-Zhou>

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Research Interest	<i>Distributed Learning, Connected Vehicles, Metaverse</i>	
Education	University of Helsinki, Finland	May, 2020
	<i>PhD, Computer Science</i>	
	<i>Supervisor: Prof. Jussi Kangasharju</i>	
	University of Science and Technology Beijing, China	January 2015
	<i>M.Sc, Electrical Engineering</i>	
	University of Science and Technology Beijing, China	July 2011
	<i>B.Sc, Electrical Engineering</i>	
Experience	University of Science and Technology of China	2021.09-now
	<i>Research Associate Professor</i>	
	<i>School of Cybersecurity</i>	
	Hong Kong University of Science and Technology, Hong Kong	2021.01-06
	<i>Visiting Researcher, hosted by Prof. Pan Hui</i>	
	<i>Work on Federated Edge Learning.</i>	
	University of Helsinki, Finland	2020-2021
	<i>Postdoc Researcher, advised by Prof. Pan Hui</i>	
	Hong Kong University of Science and Technology, Hong Kong	2018.02-06
	<i>Visiting Researcher, hosted by Prof. Pan Hui</i>	
	<i>Work on Edge Computing powered Vehicle Network.</i>	
	UNINETT, Norway	2017.02-06
	<i>Visiting Researcher hosted by Prof. Otto J Wittner</i>	
	<i>Work on clustering user request upon similarity to optimize CDN performance.</i>	
Scholarship	Marie Curie ITN Funding	2015-2018
	<i>CleanSky ITN, funded by the Marie-Curie-Actions within the 7th Framework Programme of the European Union (EU FP7)</i>	
	Master program full scholarship	2012-2015
	<i>University of Science and Technology Beijing</i>	
Projects	Fairness and Privacy in Metaverse	Ministry of Science and Technology of China
	PI	2022-2023
	Contradictions and Disputes on Social Media	National Key R&D Program of China
	Sub-topic manager	2022-2025

Federated Learning for IoT

Huawei Research Center in Finland

The project design and prototype a federated learning system for IoT to enhance user security and privacy.
Role: *Leading researcher*

2020-2021

Where's My Data

Academy of Finland

The project investigates distributed data management in edge computing environments.
Role: *Leading Researcher*

2018-2019

Bright Clouds –Dark Clouds

Academy of Finland

Development of variable, distributed production for energy.
Role: *Researcher*

2015-2019

CleanSky ITN

Europe Union

CleanSky aims to develop innovative ideas in the emerging areas within the “eco-system” of cloud computing.
Collaboration: Nine university of industrial institutes in Europe, China and USA.
Role: *Researcher*

2015-2018

Books

- Guide to Metaverse (Chinese)
Editors: **P. Zhou***, L. Lee, P. Hui
Brief Book, PTPress
In press, 2022.09
- Springer Handbook on Metaverse
Editors: P. Hui, **P. Zhou***, L. Lee, T. Braud
Handbook, Springer Nature
In writing, 2023.09
- AI in Metaverse (Chinese)
Editors: **P. Zhou***, W. Zhang, H. Xie, P. Hui
Textbook, PTPress
In writing, 2023.04
- Collaborative Intelligence: How Humans and AI are Transforming our World
Chapter: AI and Autonomous Driving
P. Zhou, L. Zhang, L. LEE
MIT Press
In writing, 2023.07

Papers

- Are You Left Out? An Efficient and Fair Federated Learning for Personalized Profiles on Wearable Devices of Inferior Networking Conditions **UBICOMP'22**
P. Zhou*, **H. Xu**, L. Lee, P. Fang, and P. Hui
Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies, 2022
- Augmented Informative Cooperative Perception **TITS**
P. Zhou*, P. Kortoci, Y. Yau, T. Braud, X. Wang, B. Finley, L. Lee, S. Tarkoma, J. Kangasharju, P. Hui

- Federated Split GANs
P. Kortoçi, Y. Liang, **P. Zhou***, L. Lee, A. Mehrabi, P. Hui, S. Tarkoma, J. Crowcroft
ACM FedEdge@Mobicom Workshop 2022

FedEdge
- Unsupervised Video Hashing with Multi-granularity Contextualization and Multi-structure Preservation
Y. Hao, J. Duan, H. Zhang, B. Zhu, **P. Zhou**, X. He
ACM Multimedia, 2022

MM'22
- EdgeXAR: A 6-DoF Camera Multi-target Interaction Framework for MAR with User-friendly Latency Compensation
W. Zhang, S. Lin, F. Bijarbooneh, H. Cheng, T. Braud, **P. Zhou**, L. Lee, and P. Hui
Proceedings of the ACM on HCI (Engineering Interactive Computing Systems), 2022

EICS'22
- Spatial-Temporal Attention Network for Crime Prediction with Adaptive Graph Learning
M. Sun, **P. Zhou***, H. Tian, Y. Liao, H. Xie
International Conference on Artificial Neural Networks, 2022

ICANN'22
- All One Needs to Know about Metaverse: A Complete Survey on Technological Singularity, Virtual Ecosystem, and Research Agenda.
L. Lee, T. Braud, **P. Zhou**, L. Wang, D. Xu, Z. Lin, A. Kumar, C. Fernandez, and P. Hui.
Technical Report, 65 pages
- DRLE: Decentralized Reinforcement Learning at the Edge for Traffic Light Control
P. Zhou, X. Chen, Z. Liu, T. Braud, P. Hui and J. Kangasharju
IEEE Transactions on Intelligent Transportation 2021

TITS
- Edge-facilitated Augmented Vision in Vehicle-to-Everything Network
P. Zhou, T. Braud, A. Zavodovski, Z. Liu, F. Xian, P. Hui and J. Kangasharju
IEEE Transactions on Vehicular Technology 2020

TVT
- Multipath Computation Offloading for Mobile Augmented Reality
T. Braud, **P. Zhou**, J. Kangasharju and P. Hui
IEEE International Conference on Pervasive Computing and Communications
Acceptance rate: 14.2%

PERCOM'20
- Bricklayer: Resource Composition on the Spot Market
W. Wong, L. Corneo, A. Zavodovski, **P. Zhou**, N. Mohan and J. Kangasharju
IEEE International Conference on Communications

ICC'20
- DeCloud: Truthful Decentralized Double Auction for Edge Clouds
A. Zavodovski, S. Bayhan, N. Mohan, **P. Zhou**, W. Wong, J. Kangasharju
IEEE International Conference on Distributed Computing Systems

ICDCS'19
- Enhanced Augmented Reality Applications in Vehicle-to-Edge Networks
P. Zhou, W. Zhang, T. Braud, P. Hui and J. Kangasharju
IEEE Conference on Innovation in Clouds, Internet and Networks

ICIN'19
- ERL: Edge Based Reinforcement Learning for Optimized Urban Traffic Light Control
P. Zhou, T. Braud, A. Alhilal, P. Hui and J. Kangasharju
2019 SmartEdge@PERCOM Workshop

SmartEdge'19

- Augmented Reality Applications in Vehicle to Edge Networks
P. Zhou, W. Zhang, T. Braud, P. Hui and J. Kangasharju
2018 MECOMM@SIGCOMM Workshop MECOMM'18
- Anveshak: Placing Edge Servers In The Wild
N. Mohan, A. Zavodovski, **P. Zhou** and J. Kangasharju
2018 MECOMM@SIGCOMM Workshop MECOMM'18
- Managing Data in Computational Edge Clouds
N. Mohan, **P. Zhou**, K. Govindaraj, and J. Kangasharju
2017 MECOMM@SIGCOMM Workshop MECOMM'17
- Grouping Computational Data in Resource Caches of Edge-Fog Cloud
N. Mohan, **P. Zhou**, K. Govindaraj, and J. Kangasharju
2017 CrossCloud@EuroSys Workshop CrossCloud'17
- Profiling and Grouping Users to Edge Resources According to User Interest Similarity
P. Zhou and J. Kangasharju
2016 CAN@CoNEXT Workshop CAN'16

Under Review

- HideNseek: Federated Lottery Ticket via Server-side Pruning and Sign Supermask
A. Vallapuram, H. Xu, Y. Kwon, L. Lee, H. Xu, P. Hui, **P. Zhou***
[arXiv:2206.04385](#)
- Federated Reinforcement Learning empowered Adaptive Point Cloud Video Streaming
Y. Gao, Z. Liu, B. Han, P. Hui, **P Zhou***
[arXiv:2207.07394](#)
- FedACK: Federated Adversarial Contrastive Knowledge Distillation for Social Bot Detection cross Platforms, Linguals, and Models
Y. Yang, R. Yang, H. Peng, Y. Liao, **P Zhou***
- Celeritas: Fast Optimizer for Large Dataflow Graphs
H. Xu, Y. Liao, H. Xie, **P Zhou***
[arXiv:2208.00184](#)
- VTPPG: End-to-end Video-Transformed Persona Poem Generation
Z. Wang, **P Zhou**, Y. Shi, H. Peng, L. Lee,
- Transformer-based Keypoints Extraction Network For Fast and Memory-efficient Video Prediction
H. Li, Y. Hao, L. Lee, Y. Liao, H. Xie, **P Zhou***
- What is the Metaverse? An Immersive Cyberspace and Open Challenges
L. Lee, **P Zhou**, T. Braud, P. Hui
[arXiv:2206.03018](#)
- Towards User-Centered Metrics for Trustworthy AI in Immersive Cyberspace
P Zhou*, B. Finley, L. Lee, Y. Liao, H. Xie, P. Hui
[arXiv:2203.03718](#)

- 5G MEC Computation Handoff for Mobile Augmented Reality
P Zhou, B. Finley, X. Li, S. Tarkoma, J. Kangasharju, M. Ammar, P. Hui
arXiv:2101.00256
- STS: Spatiotemporal and Semantic Zero-inflated Crime Prediction
Y. Lu, **P Zhou***, Y. Liao, H. Xie
- Spatio-Temporal Deep Fusion Graph Convolutional Networks for Crime Prediction
B. Chen, **P Zhou***, Y. Liao, H. Xie

Talks	<ul style="list-style-type: none"> • Are you left out? Fair and Efficient FL for wearables Paper presentation at ACM UBIComp 2022. 	Cambridge (online), 2022
	<ul style="list-style-type: none"> • 5G-EDGE+Vehicle & Metaverse Invited talk at Huashan 5.5 G Professor Forum, organized by Huawei 	Xi'an (online), 2022
	<ul style="list-style-type: none"> • Roundtable: meet the challenge of metaverse Invited talk, Luoyi Science Inc. 	Online, 2022
	<ul style="list-style-type: none"> • AI from the perspective of Fairness Invited talk, AI Thrust Seminar at HKUST. 	HKUST (online), 2022
	<ul style="list-style-type: none"> • Edge Metaverse Talk at CyberToMeta workshop 	Hefei, 2022
	<ul style="list-style-type: none"> • From Cyberspace to Metaverse Invited talk, 4th Yangtze River Delta CIO Development Forum 	Hefei, 2021
	<ul style="list-style-type: none"> • Enhanced Augmented Reality Applications in Vehicle-to-Edge Networks Paper Presentation at ICIN 2019 	Paris, 2019
	<ul style="list-style-type: none"> • ERL: Edge Based Reinforcement Learning for Traffic Light Control Paper Presentation at SmartEdge 2019 (Percom) 	Kyoto, 2019
	<ul style="list-style-type: none"> • Augmented Reality Applications in Vehicle to Edge Networks Paper Presentation at MECOMM 2018 (SIGCOMM) 	Budapest, 2018
	<ul style="list-style-type: none"> • The era of Edge Introduction at Edge Hackathon 	Helsinki, 2017
	<ul style="list-style-type: none"> • Net Neutrality Invited talk at GI-Dagstuhl Seminar 16353 	Dagstuhl, 2016
	<ul style="list-style-type: none"> • Profiling and Grouping Users to Edge Resources Paper Presentation at CAN 2016 (CoNEXT) 	Irvine, California 2016
Courses	<ul style="list-style-type: none"> • Operating System Core course, Department of CS, EE, Cybersecurity 120 students https://lyh02.top/Operating-System-2022/ University of Science and Technology of China 	Fall, 2022

- Applied Predictive Model
Department of CS, EE, Cybersecurity
University of Science and Technology of China
Spring, 2023
- Guide for Metaverse
School of Finance
University of Science and Technology of China
MBA course, 2022
- Vehicular Metaverse
School of Business
University of Science and Technology of China
MBA course, 2022
- Internet of Vehicles
University of Helsinki
Guest lecture, 2021
- Networked Systems and Services
University of Helsinki
TA, 2018
- Networked Systems and Services
University of Helsinki
TA, 2017

Service

Conference

- MetaSys workshop
IEEE ISMAR 2022
co-Chair
- MetaBuild workshop
IEEE VR 2022
Organizer
- MetaTransport Special Session
IEEE ITSC 2022
Chair
- Cyberspace to Metaverse workshop
USTC, 2022
Chair
- Smart City Security workshop
University of Helsinki & CEACS, 2017
Chair
- Edge Computing Hackathon
CEACS, 2017
Chair
- AAAI 2023
Program Committee
- AAAI 2022
Program Committee
- IJCAI 2021
Program Committee
- DASC workshop @ IEEE ICDE 2022
Program Committee
- SoicalMeta workshop @ IEEE ICDCS 2022
Program Committee
- DDINS workshop @ IEEE ICC 2022
Program Committee
- Percrowd workshop @ IEEE Percom 2020
Program Committee
- DACS workshop @ IEEE ICDE 2020
Program Committee
- ACM MM'20, IJCAI'20, ISMAR'22.
External Reviewer

Journal

- IEEE Transactions on Wireless Communications Invited Reviewer
- IEEE Transactions on Intelligent Transportation Systems Invited Reviewer
- IEEE Network Magazine SI Editor, Invited Reviewer
- IET Communications Invited Reviewer
- IEEE Transactions on Cognitive Communications and Networking Invited Reviewer
- Springer Computing Frequent Reviewer
- China Communications Invited Reviewer
- MDPI Electronics Reviewer Board, SI Editor

Others

- Kotlinsyft, the mobile team of Openmined community. Developer
- CEACS (China Europe Association for Computer Science) Finland, 2017-now Chair

Tech & Skill

Programming : Java, C++, C, BASH, python, HTML5, \LaTeX

Develop : Linux Kernel, Raspberry pi, IEEE 802.11p, Android application

Language : Chinese (*native*), English (*business*, *GRE(320/340)*)

References

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University of Helsinki
jussi.kangasharju@helsinki.fi

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University of Helsinki
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