Pengyuan Zhou

Page: https://pengyuan-zhou.github.io/
Scholar: https://scholar.google.com/citations?user=6n-ELeoAAAAJ
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Research Interest *Distributed Learning, Connected Vehicles, Metaverse*

Education

University of Helsinki, Finland May, 2020
PhD, Computer Science
Supervisor: *Prof. Jussi Kangasharju*

University of Science and Technology Beijing, China January 2015
M.Sc, Electrical Engineering

University of Science and Technology Beijing, China July 2011
B.Sc, Electrical Engineering

Experience

University of Science and Technology of China 2021.09-now
Research Associate Professor
School of Cybersecurity

Hong Kong University of Science and Technology, Hong Kong 2021.01-06
Visiting Researcher, hosted by Prof.Pan Hui
Work on Federated Edge Learning.

University of Helsinki, Finland 2020-2021
Postdoc Researcher, advised by Prof.Pan Hui

Hong Kong University of Science and Technology, Hong Kong 2018.02-06
Visiting Researcher, hosted by Prof.Pan Hui
Work on Edge Computing powered Vehicle Network.

UNINETT, Norway 2017.02-06
Visiting Researcher hosted by Prof.Otto J Wittner
Work on clustering user request upon similarity to optimize CDN performance.

Scholarship

Marie Curie ITN Funding 2015-2018
*CleanSky ITN, funded by the Marie-Curie-Actions within
the 7th Framework Programme of the European Union (EU FP7)*

Master program full scholarship 2012-2015
University of Science and Technology Beijing

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   2020-2021
to enhance user security and privacy.
Role: *Leading researcher*

Where's My Data **Academy of Finland**

The project investigates distributed data management in edge   2018-2019
computing environments.
Role: *Leading Researcher*

Bright Clouds –Dark Clouds **Academy of Finland**

Development of variable, distributed production for energy.   2015-2019
Role: *Researcher*

CleanSky ITN **Europe Union**

CleanSky aims to develop innovative ideas in the emerging areas   2015-2018
within the "eco-system" of cloud computing.
Collaboration: Nine university of industrial institutes in Europe, China and USA.
Role: *Researcher*

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
  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

IEEE Transactions on Intelligent Transportation Systems 2022

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

- Unsupervised Video Hashing with Multi-granularity Contextualization and Multi-structure Preservation `MM'22`
  Y. Hao, J. Duan, H. Zhang, B. Zhu, **P. Zhou**, X. He
  ACM Multimedia, 2022

- EdgeXAR: A 6-DoF Camera Multi-target Interaction Framework for MAR with User-friendly Latency Compensation `EICS'22`
  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

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

- 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 `TITS`
  P. Zhou, X. Chen, Z. Liu, T. Braud, P. Hui and J. Kangasharju
  IEEE Transactions on Intelligent Transportation 2021

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

- Multipath Computation Offloading for Mobile Augmented Reality `PERCOM'20`
  T. Braud, **P. Zhou**, J. Kangasharju and P. Hui
  IEEE International Conference on Pervasive Computing and Communications
  Acceptance rate: 14.2%

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

- DeCloud: Truthful Decentralized Double Auction for Edge Clouds `ICDCS'19`
  A. Zavodovski, S. Bayhan, N. Mohan, **P.Zhou**, W. Wong, J. Kangasharju
  IEEE International Conference on Distributed Computing Systems

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

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

- Augmented Reality Applications in Vehicle to Edge Networks MECOMM'18
  P. Zhou, W. Zhang, T. Braud, P. Hui and J. Kangasharju
  2018 MECOMM@SIGCOMM Workshop

- Anveshak: Placing Edge Servers In The Wild MECOMM'18
  N. Mohan, A. Zavodovski, **P. Zhou** and J. Kangasharju
  2018 MECOMM@SIGCOMM Workshop

- Managing Data in Computational Edge Clouds MECOMM'17
  N. Mohan, **P. Zhou**, K. Govindaraj, and J. Kangasharju
  2017 MECOMM@SIGCOMM Workshop

- Grouping Computational Data in Resource Caches of Edge-Fog Cloud CrossCloud'17
  N. Mohan, **P. Zhou**, K. Govindaraj, and J. Kangasharju
  2017 CrossCloud@EuroSys Workshop

- Profiling and Grouping Users to Edge Resources According to User Interest Similarity CAN'16
  P. Zhou and J. Kangasharju
  2016 CAN@CoNEXT Workshop

Under Review

- HideNseek: Federated Lottery Ticket via Server-side Pruning and Sign Supermask
  A. Vallapuram, **P. Zhou***, Y. Kwon, L. Lee, H. Xu, P. Hui
  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

- Roundtable: meet the challenge of metaverse   Online, 2022
  Luoyi Science Inc.

- Edge Metaverse   Hefei, 2022
  CyberToMeta workshop

- From Cyberspace to Metaverse   Hefei, 2021
  4th Yangtze River Delta CIO Development Forum

- Enhanced Augmented Reality Applications in Vehicle-to-Edge Networks   Paris, 2019
  Paper Presentation at ICIN 2019

- ERL: Edge Based Reinforcement Learning for Traffic Light Control   Kyoto, 2019
  Paper Presentation at SmartEdge 2019 (Percom)

- Augmented Reality Applications in Vehicle to Edge Networks   Budapest, 2018
  Paper Presentation at MECOMM 2018 (SIGCOMM)

- The era of Edge   Helsinki, 2017
  Introduction at Edge Hackathon

- Net Neutrality   Dagstuhl, 2016
  Invited talk at GI-Dagstuhl Seminar 16353

- Profiling and Grouping Users to Edge Resources   Irvine, California 2016
  Paper Presentation at CAN 2016 (CoNEXT)

Courses

- Operating System   Course, 2022
  School of CyberSecurity
  University of Science and Technology of China

- Guide for Metaverse   MBA course, 2022
  School of Finance
  University of Science and Technology of China

- Vehicular Metaverse   MBA course, 2022
  School of Business
  University of Science and Technology of China

- Internet of Vehicles   Guest lecture, 2021
  University of Helsinki

- Networked Systems and Services   TA, 2018
  University of Helsinki

• 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 AAAI 2022 IJCAI 2021 DASC workshop @ IEEE ICDE 2022 SoicalMeta workshop @ IEEE ICDCS 2022 DDINS workshop @ IEEE ICC 2022 Percrowd workshop @ IEEE Percom 2020 DACS workshop @ IEEE ICDE 2020	Program Committee
• ACM MM'20, IJCAI'20, ISMAR'22.	External Reviewer

Journal

• IEEE Transactions on Intelligent Transportation Systems IEEE Network Magazine IET Communications IEEE TCCN Springer Computing China Communications	Reviewer

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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