

Arash Pourdamghani

Curriculum Vitae

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Research Interests

Networked Algorithms, Network Optimization, Demand-Aware Networks

Work Experiences

- 2023–Present **Associate Researcher**, *Research Group Digital Economy, Internet Ecosystem, and Internet Policy*, Weizenbaum Institute for the Networked Society, Berlin, Germany.
- 2021–Present **Research Assistant**, *Intelligent Networks*, TU Berlin, Berlin, Germany, supervised by Prof. Stefan Schmid.
- 2020–2021 **Research Assistant**, *Communication Technologies group*, University of Vienna, Vienna, Austria, supervised by Prof. Stefan Schmid.
- Summer 2018 **Research Intern**, *Computer-Aided Verification group*, IST Austria, Vienna, Austria, supervised by Prof. Krishnendu Chatterjee.
- Summer 2017 **Summer Undergraduate Research Programme**, Chinese University of Hong Kong, Hong Kong, China, supervised by Prof. James Cheng.
- Summer 2016 **Undergraduate Research Experience**, Sharif University of Technology, Tehran, Iran, supervised by Dr. Amin Fazli.

Education

- 2021–2025 **TU Berlin**, Berlin, Germany.
(expected) PhD in Computer Science, continuation from University of Vienna
- 2020–2021 **University of Vienna**, Vienna, Austria.
Direct PhD in Computer Science
- 2014–2019 **Sharif University of Technology**, Tehran, Iran.
BSc in Computer Engineering

Publications

In theoretical computer science, authors are sorted alphabetically by default: such publications are noted by *. Selected publications are highlighted by •.

LASLiN: A Learning-Augmented Peer-to-Peer Network,

Julien Dallot, Caio Alves Caldeira, **Arash Pourdamghani**, Olga Goussevskaia, and Stefan Schmid.
Under review

Rethinking Fronthaul Topologies for Cell-Free 6G Networks,

Max Franke, **Arash Pourdamghani**, Fabian Götsch, Stefan Schmid, and Giuseppe Caire.
Under review

•, * **Demand-Aware Multi-Source IP-Multicast: Minimal Congestion via Link Weight Optimization,**

Matthias Bentert, Max Franke, Darya Melnyk, **Arash Pourdamghani** and Stefan Schmid.
International Federation for Information Processing Networking Conference (IFIP NETWORKING25)

- ,* **SpiderDAN: Matching Augmentation in Demand-Aware Networks**,
Aleksander Figiel, Darya Melnyk, Andre Nichterlein, **Arash Pourdamghani** and Stefan Schmid.
SIAM Symposium on Algorithm Engineering and Experiments (ALENEX25)
- * **Invited Paper: Towards Demand-Aware Peer Selection With XOR-based Routing**,
Qingyun Ji, Darya Melnyk, **Arash Pourdamghani** and Stefan Schmid.
The 27th International Symposium on Stabilization, Safety, and Security of Distributed Systems (SSS25)
- Optimizing Fronthaul Quantization for Flexible User Load in Cell-Free Massive MIMO**,
Fabian Götsch, Max Franke, **Arash Pourdamghani**, Giuseppe Caire, and Stefan Schmid.
IEEE Globecom Workshop on Resilience in Next-Generation Wireless Communication Networks (Globecom25)
- **Hash & Adjust: Competitive Demand-Aware Consistent Hashing**,
Arash Pourdamghani, Chen Avin, Robert Sama, Maryam Shiran, and Stefan Schmid.
The International Conference on Principles of Distributed Systems (OPODIS24)
- * **Brief Announcement: Minimizing the Weighted Average Shortest Path Length in Demand-Aware Networks via Matching Augmentation**,
Aleksander Figiel, Darya Melnyk, Andre Nichterlein, **Arash Pourdamghani** and Stefan Schmid.
ACM Symposium on Parallelism in Algorithms and Architectures (SPAA24)
- * **DecentPeeR: A Self-Incentivised & Inclusive Decentralized Peer Review System**,
Johannes Gruendler, Darya Melnyk, **Arash Pourdamghani**, and Stefan Schmid.
Poster at IEEE International Conference on Blockchain and Cryptocurrency (ICBC24)
- **SeedTree: A Dynamically Optimal and Local Self-Adjusting Tree**,
Arash Pourdamghani, Chen Avin, Robert Sama, and Stefan Schmid.
IEEE Conference on Computer Communications (INFOCOM23)
- * **Self-Adjusting Partially Ordered Lists**,
Vamsi Addanki, Maciej Pacut, **Arash Pourdamghani**, Gabor Retvari, Stefan Schmid, and Juan Vanerio.
IEEE Conference on Computer Communications (INFOCOM23)
- Compressed Bundle Reporting for Reliable Bundle Transmission in Disruption-Tolerant Networking**,
Aida-Stefania Manole, Felix Flentge, Stefan Schmid, **Arash Pourdamghani**, Max Franke.
Short paper in 17th International Conference on Space Operations (SpaceOps23)
- ,* **The Augmentation-Speed Tradeoff for Consistent Network Updates**,
Monika Henzinger, Ami Paz, **Arash Pourdamghani**, and Stefan Schmid.
ACM SIGCOMM Symposium on SDN Research (SOSR22)
- **Software-Defined Reconfigurable Intelligent Surfaces: From Theory to End-to-End Implementation**,
Christos Liaskos, Lefteris Mamatas, **Arash Pourdamghani**, Ageliki Tsoliaridou, Sotiris Ioannidis, Andreas Pitsillides, Stefan Schmid and Ian Akyildiz.
Proceedings of the IEEE (PIEEE22)
- * **Hybrid Mining: Exploiting Blockchain's Computational Power for Distributed Problem Solving**,
Krishnendu Chatterjee, Amir Kafshdar Goharshady, and **Arash Pourdamghani**.
ACM Symposium on Applied Computing (SAC19)
- * **Probabilistic Smart Contracts: Secure Randomness on the Blockchain**,
Krishnendu Chatterjee, Amir Kafshdar Goharshady, and **Arash Pourdamghani**.
IEEE International Conference on Blockchain and Cryptocurrency (ICBC19)
- Fence Insertion in Loop-less Programs**,
Mohammad Taheri, **Arash Pourdamghani**, and Mohsen Lesani.
International Symposium on Distributed Computing (DISC19)

Awards

- Spring 2025 **Trilateral Seed Funding Initiative by TU Berlin, University of Oxford, and Siemens AG.**
- Spring 2024 **Student Travel Grant, Web4Good for WebSci 2024.**
- Fall 2020 **PhD Grant for ERC project self-adjusting networks, ERC.**
- Fall 2020 **Career Grant, FFG Austria.**
- Fall 2019 **MacCracken PhD Fellowship, New York University (NYU).**
- Spring 2019 **Student Travel Grant, ACM SIGAPP for SAC 2019.**
- Summer 2018 **2-month scholarship, The Austrian Agency for International Cooperation in Education & Research (OeAD-GmbH).**
- Summer 2013 **Silver Medal, Iranian National Olympiad in Informatics (INOI).**

Teaching

- 2024–Present AI/ML in Networked Systems Seminar (TU Berlin, Germany), *Lecturer*
- 2023–Present Advanced Topics in Networked and Distributed Systems Seminar (TU Berlin, Germany), *Lecturer*
- 2022–Present Algorithms for Networked Systems (TU Berlin, Germany), *Tutor*
- 2022–2025 Cryptocurrency and Blockchain Networks Seminar (TU Berlin, Germany), *Lecturer*
- 2024–2025 Networked Systems Security Seminar (TU Berlin, Germany), *Lecturer*
- 2024–2025 Blockchain Technology and Decentralized Applications (TU Berlin, Germany), *Tutor*
- 2024 Algorithms for Distributed Systems (TU Berlin, Germany), *Tutor*
- 2021 Network Protocols and Architectures (TU Berlin, Germany), *Tutor*
- 2016–2019 Data Structures and Algorithms (Sharif University of Technology), *Teaching Assistance*
- 2017–2019 Algorithmic Game Theory (Sharif University of Technology), *Teaching Assistance*
- 2018 Algorithms Design and Analysis (Sharif University of Technology), *Teaching Assistance*
- 2014–2016 Preparation Classes for National Olympiad in Informatics (Across Iran), *Lecturer*
- 2015 Fundamentals of Programming (Sharif University of Technology), *Teaching Assistance*

Selected Talks

- 2025 The DISCOGA Research Seminar
- 2025 Conference on Principles of Distributed Systems (OPODIS)
- 2024 ACM Symposium on Parallelism in Algorithms and Architectures (SPAA)
- 2023 IEEE International Conference on Computer Communications (INFOCOM)
- 2023 Dutch Seminar on Optimization
- 2023 Seminar Talk at Free University of Berlin
- 2022 The ACM SIGCOMM Symposium on SDN Research (SOSR)
- 2019 & 2023 Winter Seminar Series at Sharif University

Community Service

- PC** FC-CAAW'26, FC-CAAW'25, PODC'24 (Junior PC)
- Reviewer** TON'25, DLT'25, TON'24, SIROCCO'23, ITU J-FET on Intelligent Surfaces 2022, ACM Computing Surveys 2020
- Subreviewer** CCS 2025, SIROCCO 2025, SIGMETRICS 2025, HoTNets 2025, DISC 2024, PODC 2024, CCS 2024, SIGMETRICS 2024, DSN 2024, NSDI 2024, PODC 2023, SPAA 2023, NSDI 2023, ESA 2022, CoNEXT 2022, DISC 2022, AFT 2022

Thesis Supervision

- 2025 Sebastian Wojciechowski (BSc, TU Berlin)
Temperature-Based Cache Control for LLMs
- 2025 Luca Licherman (BSc, TU Berlin)
Temperature-Based Cache Control for LLMs
- 2025 Irem Gizer (BSc, TU Berlin)
Exploring Trade-offs in Structured P2P Message Dissemination Protocols
- 2025 Vera Wagner (BSc, TU Berlin)
Empirical Assessment of Advice Augmented Skip Graphs
- 2025 Baki Berkay Uzel (BSc, TU Berlin)
Resource-Optimized Blockchain-Based Peer Review System
- 2024 Maria Cole (BSc, TU Berlin)
A Sliding Window Approach to Designing Self-adjusting Networks
- 2024 Qingyun Ji (MSc, TU Berlin)
Decentralized and Demand-Aware Peer Selection Algorithms
- 2023 Johannes Gründler (BSc, TU Berlin)
Fair and Secure Blockchain-based Peer Review System
- 2023 Anton Jurß (BSc, TU Berlin)
Improving Self-Adjusting Networks by Reordering Communication Requests
- 2023 Nedyalko Stanchev (MSc, TU Berlin)
Fast and Efficient Algorithm for the Minimum Linear Arrangement Problem on Series Parallel Graphs
- 2022 Qingyun Ji (BSc, TU Berlin)
Frequency Distribution of Nash Equilibria in Public Goods Game

Research Internship Supervision

- 2021-2024 **TU Berlin**, Helia Yazdanyar, Maryam Shiran, Bahar Oveisgharan, Dorsa Majdi.
- 2020-2021 **University of Vienna**, Esra Ceylan, Marzieh Aliakbarpour, Siddhesh Kalekar, Loric Andre.

Skills

- Programming Python, C++, Java
- Languages English (advanced), Persian (native)