Arash Pourdamghani

Curriculum Vitae

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Research Interests

Network Optimization, Networked Algorithms, Blockchain Systems

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 **Research Intern**, *Chinese University of Hong Kong*, Hong Kong, China, supervised by Prof. James Cheng.

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 Göttsch, 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)

∗ **BSB: Towards Demand-Aware Peer Selection With XOR-based Routing**,
Qingyun Ji, Darya Melnyk, **Arash Pourdamghani** and Stefan Schmid.
Invited Paper at 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 Göttsch, Max Franke, **Arash Pourdamghani**, Giuseppe Caire, and Stefan Schmid.
IEEE Globecom Workshop on Resilience in Next-Generation Wireless Communication Networks (IEEE Globecom 2025)

● **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 Tsioliaridou, 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'25, PODC'24 (Junior PC)
Reviewer	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   Luca Lichterman (BSc, TU Berlin)
Temperature-Based Cache Control for LLMs

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)
TFast 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)