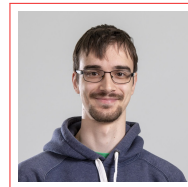


Pavel Chuprikov



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I am a researcher with a diverse international experience in programming languages, distributed systems, and optimization. Tackling research problems in a team, while handling multiple projects simultaneously, illustrates my daily routine.

Work Experience

Télécom Paris, Institut Polytechnique de Paris <i>Assistant Professor</i> Computer Science and Networks department (INFRES)	Palaiseau, France <i>October 2024–present</i>
Università della Svizzera Italiana <i>Lecturer</i> Computer Systems Institute	Lugano, Switzerland <i>September–December 2024</i>
Università della Svizzera italiana <i>Postdoc</i> Computer Systems Institute	Lugano, Switzerland <i>January 2020–September 2024</i>
IMDEA Networks Institute <i>Research assistant</i> Networked Systems Group	Madrid, Spain <i>February 2016–January 2020</i>
JetBrains <i>Software developer</i> HoTT and Dependent Types Group	St. Petersburg, Russia <i>September 2015–February 2016</i>
JetBrains <i>Software engineering intern</i> HoTT and Dependent Types Group	St. Petersburg, Russia <i>June–August 2015</i>
JetBrains <i>Software engineering intern</i> Group for Verification of Operational Transformation	St. Petersburg, Russia <i>July–September 2014</i>
Transas New Technologies <i>Software Engineering Intern</i> 3D visualization department	St. Petersburg, Russia <i>November 2011–September 2013</i>

Education

Oregon Programming Languages Summer School <i>Student</i>	Oregon, USA <i>June 2023–July 2023</i>
Steklov Institute of Mathematics at St. Petersburg Mathematical Logic Lab <i>PhD student</i> Thesis: Theoretical and empirical analysis of fundamental bottlenecks in networking and distributed computing	St. Petersburg, Russia <i>October 2015–October 2019</i>
School on Practice and Theory of Concurrent Computing <i>Student</i>	St. Petersburg, Russia <i>July 2017</i>
Bioinformatics Institute <i>Student, Algorithmic Bioinformatics</i>	St. Petersburg, Russia <i>September 2014–May 2015</i>
St. Petersburg Academic University Mathematics and Informatics Dept. <i>Master of Science student, Applied Mathematics and Physics</i> Thesis: Priority queueing with multiple packet characteristics	St. Petersburg, Russia <i>October 2013–June 2015</i>
ITMO University Computer Technology Dept. <i>Bachelor of Science student, Applied Mathematics and Computer Science</i> Thesis: Realistic rendering of shoreline waves in real-time	St. Petersburg, Russia <i>September 2009–June 2013</i>

Teaching and Supervision

Università della Svizzera Italiana

Lecturer, *Distributed Systems*

Lugano, Switzerland

September–December 2024

St. Petersburg Academic University

Teaching assistant, *Combinatorics and Graph Theory*

St. Petersburg, Russia

September 2014–January 2015

- 1×master thesis, 3×semester project @ ITMO University
- 3×bachelor theses @ Constructor University
- 4×PhD theses, 1×bachelor thesis @ USI Lugano
- 1×semester project @ HSE University

Other Activities

Community service.....

- Ad-hoc reviewer for ACM/IEEE Transactions on Networking, IEEE INFOCOM, IEEE ICNP, ESOP, ACM PODC
- Review committee member at OOPSLA 2023

Talks.....

- Optimizing Packet Classification @ Network Verification and Automation Seminar, Bertinoro, 2022
- Combinatorial Optimization Problems in Network Packet Classification @ Huawei ML and algorithm analysis conference, St. Petersburg, 2017

Publications

Conference proceedings.....

- J. Graf, V. Demianiuk, **P. Chuprikov**, S. Nikolenko, P. Eugster. *CGFE: Efficient Range Encoding for TCAMs*, IEEE INFOCOM 2025 (*accepted*)
- J. Graf, **P. Chuprikov**, P. Eugster., P. Jahnke. *FARM: Comprehensive Data Center Network Monitoring and Management*, IEEE ICDCS 2024
- A. Buckley, **P. Chuprikov**, R. Otoni, R. Soulé, R. Rand, P. Eugster. *An Algebraic Language for Specifying Quantum Networks*, ACM PLDI 2024
- M. Blöcher, N. Nedderhut, **P. Chuprikov**, R. Khalili, P. Eugster. *Train Once Apply Anywhere: Effective Scheduling for Network Function Chains Running on FUMES*, IEEE INFOCOM 2024
- A. Buckley, **P. Chuprikov**, R. Otoni, R. Rand, R. Soulé, P. Eugster. *Towards an algebraic specification of quantum networks*, QuNet@SIGCOMM 2023
- S. Mangipudi, **P. Chuprikov**, M. Viering, P. Eugster. *Generalized policy-based non-interference for efficient confidentiality-preservation*, ACM PLDI 2023
- P. Jahnke, V. Riesop, P.-L. Roman, **P. Chuprikov**, P. Eugster. *Live in the Express Lane*, USENIX ATC 2021
- **P. Chuprikov**, V. Demianiuk, S. Gorinsky. *PREDICAT: Efficient Packet Classification via Prefix Disjointness*, IEEE ICCCN 2021
- K. Kogan, A. Davydow, S. Nikolenko, **P. Chuprikov**, V. Demianiuk. *SRPT-based congestion control for flows with unknown sizes*, IFIP Networking 2021
- **P. Chuprikov**, K. Kogan. *How to network delay-sensitive applications*, IFIP Networking 2021
- V. Demianiuk, S. Nikolenko, **P. Chuprikov**, K. Kogan. *New Alternatives to Optimize Policy Classifiers*, IEEE ICNP 2018
- **P. Chuprikov**, A. Davydow, K. Kogan, S. Nikolenko, A. Sirotkin. *Formalizing Compute-Aggregate Problems in Cloud Computing*, SIROCCO 2018
- **P. Chuprikov**, K. Kogan, S. Nikolenko. *How to implement complex policies on existing network infrastructure*, SOSR 2018
- K. Kogan, S. Nikolenko, V. Demianiuk, **P. Chuprikov**, A. Davydow. *Personal insights on three research directions in networked systems*, COMSNETS 2018
- **P. Chuprikov**, K. Kogan, S. Nikolenko. *General ternary bit strings on commodity longest-prefix-match infrastructures*, IEEE ICNP 2017
- A. Davydow, **P. Chuprikov**, S. Nikolenko, K. Kogan. *Throughput Optimization with Latency Constraints*, INFOCOM 2017
- S. Sinchuk, **P. Chuprikov**, K. Solomatov. *Verified operational transformation for trees*, ITP 2016

- **P. Chuprikov**, S. Nikolenko, K. Kogan. *On Demand Elastic Capacity Planning for Service Auto-scaling*, INFOCOM 2016
- **P. Chuprikov**, S. Nikolenko, K. Kogan. *Priority Queuing with Multiple Packet Characteristics*, INFOCOM 2015

Journals.....

- **P. Chuprikov**, A. Davydow, K. Kogan, A. Sirotkin, S. Nikolenko. *Formalization and taxonomy of compute-aggregate problems for cloud computing applications*, Computer Networks, 2021
- A. Davydow, **P. Chuprikov**, S. Nikolenko, K.Kogan. *Competitive buffer management for packets with latency constraints*, Computer Networks, 2021
- V. Demianiuk, S. Nikolenko, **P. Chuprikov**, K. Kogan. *New Alternatives to Optimize Policy Classifiers*, IEEE/ACM Transactions on Networking, 2020
- **P. Chuprikov**, S. Nikolenko, K. Kogan. *Towards declarative self-adapting buffer management*, ACM SIGCOMM CCR, 2020
- **P. Chuprikov**, S. Nikolenko, A. Davydow, K. Kogan. *Priority Queueing for Packets with Two Characteristics*, IEEE/ACM Transactions on Networking, 2018

Magazines.....

- **P. Chuprikov**, P. Eugster, S. Mangipudi. *Security Policy as Code*, IEEE Security & Privacy 2025

Posters.....

- **P. Chuprikov**, A. Davydow, K. Kogan, S. I. Nikolenko, A. V. Sirotkin. *Planning in compute-aggregate problems as optimization problems on graphs*, IEEE ICNP 2017

Prizes, Awards, Fellowships

Research funding.....

- *Safe and Modular Control Plane-aware Programming of the Network Data Plane*, 110'000 CHF, FIR
- *Towards comprehensive network monitoring and management*, 50'000 CHF, Hasler foundation

Student competitions.....

- Yandex research support fellowship, 2013–2015
- 3rd degree award, ACM ICPC NEERC, 2011
- 3rd place, International HPC programming contest, 2013
- 3rd degree award, Putnam contest at St. Petersburg, 2013

Research interests

- Distributed systems
- Interactive theorem proving
- Packet classification
- Programming languages
- Multi-party session types
- Privacy-preserving data analytics
- Congestion control
- Online algorithms and competitive analysis
- Admission control and buffer management
- Programmable networks
- Quantum networks
- Resource allocation and scheduling

Skills

Technical.....

- *Data analytics systems*: Apache Spark, Apache Storm
- *Network*: SDN (P4, OpenFlow), OMNET++
- *Programming*: C++, Rust, Python, Scala, Haskell, Java
- *Algorithms*: online algorithms, combinatorial optimization
- *Security*: PHE, Intel SGX, security policy
- *Formal methods*: Coq, Agda, TLA+, type systems

Soft skills.....

- Logical rigor and attention to details
- Supervision of multiple concurrent projects
- Scientific research
- Team work including remote collaboration

Languages.....

- English (Fluent)
- Italian (Pre-intermediate)
- Russian (Native)
- German (Pre-intermediate)

Hobbies

- *Electrical engineering/embedded programming*: Sometimes I work on personal AVR- and STM-based projects.
- *Cycling*: I enjoy both long-range bike trips and short but intensive mountain trails.
- *Board games*: I spend exciting evenings working jointly with my friends towards glorious victory in strategy games.