Petr Kuznetsov

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Education

Ph. D.	Computer Science, Ecole Polytechnique Fédérale de Lausanne (EPFL) (nomination for the best EPFL thesis award)	2005
M. Sc.	Mathematics, *cum laude*, Saint-Petersburg Institute of Fine Mechanics and Optics (Technical University)	1997
B. Sc.	Mathematics, *cum laude*, Saint-Petersburg Institute of Fine Mechanics and Optics (Technical University)	1995

Research Interests

Distributed algorithms and systems

Synchronization and fault-tolerance

Consistency and availability in large-scale systems

Algebraic and combinatorial topology in computing

Professional Experience

2013–present

Professor. Department of Network and Computer Science (INFRES), Télécom ParisTech

2008–2013

Senior research scientist. Technische Universität Berlin/Deutsche Telekom Research Laboratories, Germany.

2005–2008

Post-doctoral researcher. Max Planck Institute for Software Systems, Germany.

2000–2005

Research assistant and (from 2001) Ph.D. student. Distributed Programming Lab, EPFL, Switzerland.

1997–1999

Systems engineer in networking and system integration. Business Computer Center, Saint-Petersburg, Russia.

1996–1997

Instructor in Novell Authorized Training Center, Saint-Petersburg, Russia.

1994–1996

Participant in Russian–Dutch research project "Nonlinear problems in resonance". January–February 1996 — guest researcher at the Department of Technical Mathematics and Informatics of Delft University of Technology, The Netherlands.

Supervised students

- Vitaly Aksenov, PhD student, INRIA Paris, 2016-present. Prospective thesis topic: "Optimally Concurrent Computing", co-supervised with Umut Acar (INRIA Paris/CMU).

- Thibault Rieutord, PhD student, Télécom ParisTech, 2015-present (expected to finish in late 2018). Thesis topic: "Mathematical Methods in Distributed Computing", funded by ANR-DFG joint project DISCMAT.

- Anna Malova, Master student, ENS Cachan, MPRI (Parisian Master of Research in Computer Science), 2016, now at Washington University School of Medicine in St Louis. Topic: "A Concurrency-Optimal Binary Search Tree".

- Srivatsan Ravi, PhD student, TU Berlin, 2010-2015, now at Purdue University, USA. Thesis: "On the cost of concurrency in transactional memory".

- Dan Alistarh (EPFL), intern at TU Berlin, 2010, now at Microsoft Research, UK.

- Michal Kapalka, IC Doctoral School student, EPFL, 2005, now at SICPA, Switzerland.

Professional Activities

- Member of the local organization committee of the 30th International Symposium on Distributed Computing (DISC 2016), Paris, France.

- Co-organizer of DSDN 2014, The First Workshop on the Distributed Software-Defined Networks, co-allocated with DISC 2015.

- Co-organizer of WTTM 2011, Third Workshop on the Theory of Transactional Memory, co-allocated with DISC 2011.

- Publicity chair of the ACM SIGACT-SIGOPS Symposium on Principles of Distributed Computing (2008–2009).

- Co-organizer of BFTW³ 2009, Workshop on Theory and Practice of Byzantine Fault Tolerance, co-allocated with DISC 2009.

- Program committee member: PODC 2006, ICPADS 2007, ICDCS 2008, SSS 2009, WRAS 2010, DISC 2010, DISC 2012, ICDCN 2013, ICSDCS 2014, PODC 2014, DISC 2015, OPODIS 2015, SSS 2016.

- Reviewing for conferences: PODC, STOC, DISC, OPODIS, FSTTCS, IPTPS, SSS, FORTE, CONCUR, SPAA.

- Reviewing for journals: Journal of the ACM (JACM), Distributed Computing (DC), Information and Computation (IC), The Computer Journal, IEEE Transactions on Parallel and Distributed Systems (TPDS), IEEE/ACM Transactions on Networking (ToN), Information Processing Letters (IPL), SIAM Journal on Computing (SICOMP), IEEE Transactions on Dependable and Secure Computing (TDSC).

Teaching

- Distributed computing through combinatorial topology (MITRO207), Télécom ParisTech, P4 2015/2016, 2016/2017

- Foundations of distributed computing (SLR206), Télécom ParisTech, P3 2015/2016, 2016/2017

- Seminar on Distributed Software Systems (SLR209), Télécom ParisTech, P4 2015/2016, 2016/2017

- Distributed Computing with Shared Memory, 2-18-2, Master Parisien de Recherche en Informatique (MPRI), 1st period 2015/2016, 2016/2017.

- Wandida online mini-courses on various topics in distributed computing: `http://wandida.com/`, 2015–present.

- Distributed Systems (INF346), Télécom ParisTech, Summer Terms 2013/2014, 2014/2015.

- Concurrent Systems (2-3), Master Parisien de Recherche en Informatique (MPRI), 1st period 2014/2015

- Robust Concurrent Computing (2-18-3), Master Parisien de Recherche en Informatique (MPRI), 2nd period 2013/2014

- Introduction to Operating Systems (INF841), Télécom ParisTech, Winter Term 2013.

- Network Protocols and Architectures (NPA), Technical University of Berlin, 2012, 2013

- Foundations of Distributed Systems (FDS), Technical University of Berlin, Summer Term 2012.

- Theory of Distributed Computing I: Algoroithms and Lower Bounds (TDC I), Technical University of Berlin, Summer Term 2011.

- Advanced Topics in Distributed Computing. Computer Science Department, University of Saarland, Winter term 2007/2008.

- Foundations of Distributed Computing. Computer Science Department, University of Saarland, Summer term 2007.

- Distributed Algorithms. School of Computer and Communication Sciences, EPFL, 2001-2005. Teaching assistant.

- Selected Topics in Distributed Algorithms. School of Computer and Communication Sciences, EPFL, 2002-2005. Teaching assistant.

Selected publications

[1] P. Kuznetsov, S. Ravi: Grasping the Gap Between Blocking and Non-Blocking Transactional Memories. In *DISC 2015*, to apear in *Journal of Parallel and Distributed Computing (JPDC*, 2017.

[2] S. Dubois, R. Guerraoui, P. Kuznetsov, F. Petit, Pierre Sens: The Weakest Failure Detector for Eventual Consistency. In *PODC 2015*, to appear in *Distributed Computing Journal (DC)*, 2017.

[3] V. Gramoli, P. Kuznetsov, S. Ravi: In the Search for Optimal Concurrency. In *SIROCCO 2016*: 143-158

[4] C. Delporte-Gallet, H. Fauconnier, E. Gafni, P. Kuznetsov: Set-Consensus Collections are Decidable. In *DISC 2016*.

[5] C. Delporte-Gallet, H. Fauconnier, E. Gafni, P. Kuznetsov: Wait-freedom with advice. *Distributed Computing Journal (DC)* 28(1): 3-19 (2015)

[6] E. Gafni, P. Kuznetsov, C. Manolescu: A generalized asynchronous computability theorem. In *PODC 2014*: 222-231

[7] R. Guerraoui, V. Hadzilacos, P. Kuznetsov, S. Toueg. The Weakest Failure Detectors to Solve Quittable Consensus and Nonblocking Atomic Commit. *SIAM J. Comput. (SICOMP)*, 41(6): 1343-1379, 2012.

[8] E. Gafni and P. Kuznetsov. On Set Consensus Numbers. *Distributed Computing Journal (DC)*, 24(3-4): 149-163, 2011.

[9] R. Guerraoui, F. Freiling, and P. Kouznetsov. The Failure Detector Abstraction (a survey). *ACM Computing Surveys*, 43(2), June 2011.

[10] H. Attiya, R. Guerraoui, D. Hendler, and P. Kuznetsov. The Cost of Obstruction-Free Implementations. *Journal of the ACM*, 56(4), June 2009.

[11] Petr Kuznetsov. Understanding Non-Uniform Failure Models. *Bulletin of the EATCS*, 106: 53-77 (2012)

External Funding

- DISCMAT: Mathematical Methods in Distributed Computing. ANR-DFG joint project. Accepted in 2015. `http://discmat.telecom-paristech.fr/`

- Orange, External Research Contract (CRE), "Application of Verification Methods in Control Plane Network Software", 2015-2016.

- Erasmus+ project on France-Russia scientific exchange. 2016.

- TransForm: Foundations of Transactional Memory (Marie Curie Initial Training Network), 2010-2015. `http://ics.forth.gr/carv/transform/`

- Euro-TM COST Action Proposal "Transactional Memories: Foundations, Algorithms, Tools, and Applications" (IC1001), 2011-2015. `http://www.eurotm.org/`

- DAAD WAP program (TU - IIT Patna exchange), 2012.

Certificates and Memberships

- Member of the ACM.

- Microsoft Certified System Engineer (MCSE).

- Nortel Networks Certified Support Specialist in Network Management and Switching.

- Nortel Networks Certified Engineer in VoIP technology.

Awards

- Finalist for the best EPFL Ph.D. thesis award, 2005.

- EPFL award for exceptional research contribution, 2004.

- Russian Federation Presidential Student Grant, 1995.

- Saint-Petersburg State University Young Researcher Grant, 1994.

- Participant in Saint-Petersburg student mathematical contests in 1992, 1993, 1994 (respectively, 3rd, 2nd and 1st places in the team score).

Personal

Languages: Russian (native), English (fluent), French (fluent), German (basics).

Marital status: Married+1.

Hobbies: Books, music, skiing, hiking, kayaking.