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AREAS OF INTEREST Data science, machine learning, artificial intelligence, optimization, and networks.

EDUCATION **Ph.D., Technical Sciences**, École Polytechnique Fédérale de Lausanne (EPFL), 2003
M.Sc. Electrical Engineering, University of Split, Croatia, 1998
B.Sc. Electrical Engineering, University of Split, Croatia, 1995

EXPERIENCE

London School of Economics, Department of Statistics
Professor, Chair in Data Science October 2016–

KAIST, Kim Jaechul Graduate School of AI, Seoul, Republic of Korea
Visiting Researcher January/February 2024

Meta, Core Data Science
Visiting Scientist April 2022–February 2024
June 2019–April 2021

Microsoft Research
Senior Researcher March 2010–September 2016
Researcher May 2005–March 2010
Associate Researcher January 2004–May 2005

University of Cambridge, Statistical Laboratory
Affiliated Lecturer September 2014–June 2016

University of Split, Department of Computer Science
Visiting Professor September 2005–June 2013

EPFL
Research Assistant September 1999–June 2003

Bell Laboratories, Mathematical Research Center, Murray Hill, New Jersey
Research Intern August 2001–October 2001

EPFL Pre-Doctoral School in Communication Systems
Graduate Student September 1998–June 1999

University of Split
Graduate Student & Lecturer September 1995–June 1998

AWARDS

2022 LSE Excellence in Education Award
2020 Facebook Research Award – Systems for ML
2018 Criteo Faculty Research Award
2018 Huawei Technologies Research Grant
2015 Microsoft Achievement Award
2010 ACM SIGMETRICS Rising Star Researcher Award
2007 IEEE IWQoS Best Student Paper Award
2005 ERCIM Cor Baayen Award
2005 IEEE INFOCOM Best Paper Award
2005 ACM SIGMETRICS Best Paper Award

2003 EPFL Best Ph.D. Thesis Nomination
2001 ITC-17 Best Student Paper Award
1999 EPFL Best Student Ph.D. Research Fellowship
1995 Best Student Award, University of Split

PUBLICATIONS **Books**

Milan Vojnović, *Contest Theory: Incentive Mechanisms and Ranking Methods*, Cambridge University Press, February 2016

Working Papers

Vojnović M. and Zhou K., “Dynamics and Inference for Voter Model Processes,” arXiv, <https://arxiv.org/abs/2211.13628v1>, November, 2022

Lee D. and Vojnović M., “Scheduling Jobs with Stochastic Holding Costs,” arXiv, <https://arxiv.org/abs/2105.13655>, September, 2022

Kim J. and Vojnović M., “Scheduling Servers with Stochastic Bilinear Rewards,” arXiv, <https://arxiv.org/abs/2112.06362>, June, 2022

Vojnović M. and Wang Y., “Sketching Stochastic Valuation Functions,” arXiv, <https://arxiv.org/abs/2202.00190>, February 2022

Vojnović M. and Yi J., “Greedy Bayes Adaptive Matching,” working paper, September, 2022

Vojnović M. and Wang Y., “Maximum Likelihood Estimation for the β -model for Random Hypergraphs with Full and Partial Design of Experiments,” September, 2022

Conference Papers and Journal Articles

Kim J., Vojnović M, and Yun. S., An Adaptive Approach for Infinitely Many-armed Bandits under Generalized Rotting Constraints, NeurIPS 2024

Haimovich D., Karamshuk D., Linder F., Tax N., and Vojnović M., On the Convergence of Loss and Uncertainty-based Active Learning Algorithms, NeurIPS 2024

Wang Y., Chen W. and Vojnović M., “Combinatorial Bandits for Maximum Value Reward Function under Maximum Value and Index Feedback,” ICLR 2024

Yi J. and Vojnović M., “Doubly Adversarial Federated Bandits,” arXiv, ICML 2023

Yi J. and Vojnović M., “On Regret-optimal Cooperative Nonstochastic Multi-armed Bandits,” accepted for AAMAS, 2023

Kim J., Vojnović M. and Yun S., “Rotting Infinitely Many-armed Bandits,” ICML 2022

Vojnović M., Yun S. and Zhou K., “Accelerated MM Algorithms for Inference of Ranking Scores from Comparison Data,” Operations Research, 2022

Haimovich D., Karamshuk D., Leeper T., Riabenco E. and Vojnović M., “Popularity Prediction for Social Media over Arbitrary Time Horizons,” VLDB 2022

Lee D., Vojnović M. and Yun S., “Test Score Algorithms for Budgeted Stochastic Utility Maximization,” INFORMS Journal on Optimization, 2022

Lee D. and Vojnović M., “Scheduling Jobs with Stochastic Holding Costs,” Advances in Neural Information Processing Systems, NeurIPS 2021

Sekar S., Vojnović M. and Yun S., “A Test Score-Based Approach to Stochastic Submodular Optimization,” Management Science, Vol 67, No 7, pp. 1075-1092, 2021

Sentenac F., Yi J., Calauzènes, Perchet V. and Vojnović M., “Pure Exploration and Regret Minimization in Matching Bandits,” ICML 2021

- Huang Z., Radunović B., Vojnović M. and Zhang Q., “Communication Complexity of Approximate Maximum Matching in the Message-Passing Model,” *Distributed Computing*, Vol 33, No 66, pp. 515-531, 2020
- Vojnović M., Yun S. and Zhou K., “Convergence Rates of Gradient Descent and MM Algorithms for Bradley-Terry Models,” *AISTATS 2020*
- Shah V., Gulikers L., Massoulié L. and Vojnović M., “Adaptive Matching for Expert Systems with Uncertain Task Types,” *Operations Research*, Vol 68, No 5, pp. 1403-1424, 2020
- Draief M., Kutzkov K., Scaman K. and Vojnović M., “KONG: Kernels for Ordered-Neighborhood Graphs,” *Proc. of Annual Conference on Neural Information Processing Systems (NIPS) (Spotlight Session)*, Montreal, Canada, December 2018
- Alistarh D., Grubic D., Li J., Tomioka R. and Vojnović M., “Communication-Efficient Stochastic Gradient Descent with Applications to Neural Networks,” *Proc. of Annual Conference of Neural Information Processing Systems (NIPS) (Spotlight Session)*, Long Beach, CA, December 2017
- Shah V., Gulikers L., Massoulié L. and Vojnović M., “Adaptive Matching for Expert Systems with Uncertain Task Types,” *Allerton Conference*, 2017
- Vojnović M., “Contest Theory,” *Communications of the ACM*, May 2017
- Alistarh D., Li J., Tomioka R. and Vojnović M., “Quantized Stochastic Gradient Descent,” *Proc. of the 9th NIPS Workshop on Optimisation for Machine Learning (OPT)*, Barcelona, Spain December 10, 2016
- Fogel F., d’Aspremont A. and Vojnović M., “Spectral Ranking using Seriation,” *Journal of Machine Learning Research (JMLR)*, Vol. 17, No. 1, January 2016, pages 3013–3057
- Vojnović M. and Yun S., “Parameter Estimation for Generalized Thurstone Choice Models,” *Proc. of the 33rd International Conference on Machine Learning (ICML)*, New York City, NY, USA, June 19–24, 2016, pages 498–506
- Rasley J., Karanasos K., Kandula S., Fonseca R., Vojnović M. and Rao S., “Efficient Queue Management for Cluster Scheduling,” *Proc. of the 11th European Conference on Computer Systems (Eurosys)*, London, UK, April 18–21, 2016
- Alistarh D., Iglesias J. and Vojnović M., “Streaming Min-Max Graph Partitioning,” *Proc. of Annual Conference on Neural Information Processing Systems (NIPS)*, Montreal, Canada, December 7–12, 2015
- Alistarh D., Gelashvili R. and Vojnović M., “Fast and Exact Majority Population Protocol,” *Proceedings of the 2015 ACM Symposium on Principles on Distributed Computing (PODC)*, pages 47-56, Donostia-San Sebastián, Spain, July 21–23, 2015
- Alistarh D., Gelashvili R. and Vojnović M., “Lock-Free Algorithms under Stochastic Schedulers,” *Proceedings of the 2015 ACM Symposium on Principles on Distributed Computing (PODC)*, pages 251-260, Donostia-San Sebastián, Spain, July 21–23, 2015
- Huang Z., Radunović B., Vojnović M. and Zhang Q., “Communication Complexity of Approximate Matching in Distributed Graphs,” *Proceedings of the thirty-second International Symposium on Theoretical Aspects of Computer Science (STACS)*, pages 460-473, Garching, Germany, March 4–7, 2015
- Zong B., Gkantsidis C. and Vojnović M., “Herding Small Streaming Queries,” *Proceedings of the ninth ACM International Conference on Distributed Event-Based Systems (DEBS)*, pages 46–57, Oslo, Norway, June 29–July 3, 2015
- Bourse F., Lelarge M. and Vojnović M., “Balanced Graph Edge Partition,” *Proceedings of the twentieth ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD)*, pages 1456–1465, New York, NY, August 24–27, 2014

- Fogel F., d'Aspremont A. and Vojnović M., "SerialRank: Spectral Ranking using Seriation," Proceedings of Advances in Neural Information Processing Systems (NIPS), pages 900-908, Montreal, Canada, December 8-13, 2014
- Bachrach Y., Syrgkanis V., Tardos É. and Vojnović M., "Strong Price of Anarchy, Utility Games and Coalitional Dynamics," Proceedings of the seventh International Symposium on Algorithmic Game Theory (STAGT), pages 218-230, Haifa, Israel, September 30-October 2, 2014
- Tsourakais C. E., Gkantsidis C., Radunović B. and Vojnović M., "Fennel: Streaming Graph Partitioning for Massive Scale Graphs," Proceedings of the seventh ACM International Conference on Web Search and Data Mining (WSDM), pages 33-342, New York, NY, February 24-28, 2014
- Bachrach Y., Syrgkanis V., and Vojnović M., "Incentives and Efficiency in Uncertain Collaborative Environments," Proceedings of the ninth International Conference on Web and Internet Economics (WINE), pages 26-39, Cambridge, MA, December 11-14, 2013
- Draief M. and Vojnović M., "Convergence Speed of Binary Interval Consensus," SIAM Journal on Control and Optimization, Vol 5, No. 3, pages 1087-1109, 2012
- Jung K., Kim B. Y. and Vojnović M., "Distributed Ranking in Networks with Limited Memory and Communication," Proceedings of the 2012 IEEE International Symposium on Information Theory (ISIT), pages 980-984, Cambridge, MA, July 1-16, 2012
- Liu Z., Radunović B. and Vojnović M., "Continuous Distributed Counting for Non-Monotonic Streams," Proceedings of the thirty-first ACM Symposium on Principles of Database Systems (PODS), pages 307-318, Scottsdale, AZ, May 20-24, 2012
- Draief M. and Vojnović M., "Bargaining Dynamics in Exchange Networks," Annual Allerton Conference on Communication, Control and Computing, 2010
- Vojnović M. and Proutiere A., "Hop Limited Flooding over Dynamic Networks," Proceedings of the thirtieth IEEE International Conference on Computer Communications (INFOCOM), pages 685-693, Shanghai, China, April 10-15, 2011
- Gunawardena D., Karagiannis T., Proutiere A., Santos-Neto E. and Vojnović M., "Scoop: Decentralized and Opportunistic Multicasting of Information Streams," Proceedings of the seventeenth Annual International Conference on Mobile Computing and Networking (MOBICOM), pages 169-180, Las Vegas, Nevada, September 19-23, 2011
- Nguyen T. and Vojnović M., "Weighted Proportional Allocation," Proceedings of the 2011 ACM SIGMETRICS International Conference on Measurement and Modeling of Computer Systems, pages 173-184, San Jose, CA, June 7-11, 2011
- Karagiannis T., Le Boudec J.-Y., and Vojnović M., "Power Law and Exponential Decay of Interconnect Times between Mobile Devices," IEEE Trans. on Mobile Computing, Vol. 9, No. 10, pages 1377-1390, 2010
- Vojnović M., Gupta V., Karagiannis T. and Gkantsidis C., "Sampling Strategies for Epidemic-Style Information Dissemination," IEEE/ACM Transactions on Networking, Vol. 18, No. 4, pages 1013-1025, 2010
- Hu L., Le Boudec J.-Y., and Vojnović M., "Optimal Channel Choice for Collaborative Ad-Hoc Dissemination," Proceedings of the twenty-ninth IEEE International Conference on Computer Communications (INFOCOM), pages 614-622, March 15-19, 2010
- Draief M. and Vojnović M., "Convergence Speed of Binary Interval Consensus," Proceedings of the twenty-ninth IEEE International Conference on Computer Communications (INFOCOM), pages 1792-1800, March 15-19, 2010
- Vojnović M., Cruise J., Gunawardena D. and Marbach P., "Ranking and Suggesting Popular Items," IEEE Trans. on Knowledge and Data Engineering, Vol. 21, No. 8, pages 1133-1146, 2009

- Robertson S., Vojnović M. and Weber I., "Rethinking the ESP Game," CHI Extended Abstracts, pages 3937–3942, 2009
- Gunawardena D., Karagiannis T., Proutiere A. and Vojnović M., "Characterizing Podcast Services: Publishing, Usage, and Dissemination," Proceedings of the ninth ACM SIGCOMM Internet Measurement Conference (IMC), pages 209–222, Chicago, Illinois, November 4–6, 2009
- Perron E., Vasudevan D. and Vojnović M., "Using Three States for Binary Consensus on Complete Graphs," Proceedings of the twenty-eight IEEE International Conference on Computer Communications (INFOCOM), pages 2527–2535, Rio de Janeiro, Brazil, April 19–25, 2009
- DiPalantino D. and Vojnović M., "Crowdsourcing and All-Pay Auctions," Proceedings of the tenth ACM Conference on Electronic Commerce (EC), pages 119–128, Stanford, California, July 6–10, 2009
- Karagiannis T. and Vojnović M., "Behavioural Profiles for Advanced Email Features," Proceedings of the eighteenth International Conference on World Wide Web (WWW), pages 711–720, Madrid, Spain, April 20–24, 2009
- Kesidis G., Hamadeh I., Jin O., Jiwassurat S. and Vojnović M., "A Model of the Spread of Randomly Scanning Internet Worms that Saturate Access Links," ACM Transactions on Modeling and Computer Simulation (TOMACS), Vol. 18, No. 2, 2008
- Massoulié L. and Vojnović M., "Coupon Replication Systems," IEEE/ACM Transactions on Networking, Vol. 16, No. 3, pages 603–616, 2008
- Vojnović M. and Ganesh A. J., "On the Race of Worms, Alerts, and Patches," IEEE/ACM Transactions on Networking, Vol. 16, No. 3, pages 603–616, 2008
- Suchanek F. M., Vojnović M. and Gunawardena D., "Social Tags: Meaning and Suggestions," Proceedings of the seventeenth ACM Conference on Information and Knowledge Management (CIKM), pages 223–232, Napa Valley, California, October 26–30, 2008
- Vojnović M., Gupta V., Karagiannis T. and Gkantsidis C., "Sampling Strategies for Epidemic-Style Information Dissemination," Proceedings of the twenty-seventh IEEE International Conference on Computer Communications (INFOCOM), pages 1678–1686, Phoenix, Arizona, April 13–18, 2008
- Liu S., Vojnović M. and Gunawardena D., "Competitive and Considerate Congestion Control for Bulk Data Transfers," Proceedings of the fifteenth IEEE International Workshop on Quality of Service (IWQoS), pages 1–9, Evanston, Illinois, June 21–22, 2007
- Karagiannis T., Le Boudec J.-Y. and Vojnović M., "Power Law and Exponential Decay of Inter Contact Times between Mobile Devices," Proceedings of the thirteenth Annual International Conference on Mobile Computing and Networking (MOBICOM), pages 183–194, Montreal, Canada, September 9–14, 2007
- Le Boudec J.-Y. and Vojnović M., "The Random Trip Model: Stability, Stationary Regime, and Perfect Simulation," IEEE/ACM Transactions on Networking, Vol. 16, No. 6, pages 1153–1166, 2006
- Altman E., Barman D., Tuffin B. and Vojnović M., "Parallel TCP Sockets: Simple Model, Throughput and Validation," Proceedings of the twenty-fifth IEEE International Conference on Computer Communications, Barcelona, Spain, April 23–29, 2006
- Gkantsidis C., Karagiannis T., Rodriguez P. and Vojnović M., "Planet Scale Software Updates," Proceedings of the ACM SIGCOMM 2006 Conference on Applications, Technologies, Architectures, and Protocols for Computer Communications (SIGCOMM), pages 423–434, Pisa, Italy, September 11–15, 2006
- Vojnović M. and Le Boudec J.-Y., "On the Long-Run Behaviour of Equation-Based Rate Control," IEEE/ACM Transactions on Networking, Vol. 13, No. 3, pages 568–581, 2005
- PalChaudhuri S., Le Boudec J.-Y. and Vojnović M., "Perfect Simulations for Random Trip Mo-

bility Models,” Proceedings of the thirty-eighth Annual Simulation Symposium, pages 72–79, San Diego, California, April 4–6, 2005

Key P., Massoulié L. and Vojnović M., “Farsighted Users Harness Network Time-Diversity,” Proceedings of the twenty-fourth Annual Joint Conference of the IEEE Computer and Communications Societies (INFOCOM), pages 2383–2394, Miami, Florida, March 13–17, 2005

Le Boudec J.-Y. and Vojnović M., “Perfect Simulation and Stationary of a Class of Mobility Models,” Proceedings of the twenty-fourth Annual Joint Conference of the IEEE Computer and Communications Societies (INFOCOM), pages 2743–2754, Miami, Florida, March 13–17, 2005

Massoulié L. and Vojnović M., “Coupon Replication Systems,” Proceedings of the International Conference on Measurements and Modeling of Computer Systems (SIGMETRICS), pages 2–13, Banff, Canada, June 6–10, 2005

Vojnović M. and Ganesh A. J., “On the Effectiveness of Automatic Patching,” Proceedings of the 2005 ACM Workshop on Rapid Malcode (WORM), pages 41–50, Fairfax, Virginia, November 11, 2005

Andrews M. and Vojnović M., “Scheduling Reserved Traffic in Input-Queued Switches: New Delay Bounds via Probabilistic Techniques,” IEEE Journal on Selected Areas in Communications, Vol. 21, No. 4, pages 595–605, 2003

Andrews M. and Vojnović M., “Scheduling Reserved Traffic in Input-Queued Switches: New Delay Bounds via Probabilistic Techniques,” Proceedings of the twenty-second Annual Joint Conference of the IEEE Computer and Communications Societies, San Francisco, California, March 30–April 3, 2003

Vojnović M. and Le Boudec J.-Y., “Bounds for Independent Regulated Inputs Multiplexed in a Service Curve Network Element,” IEEE Transactions on Communications, Vol. 51, No. 5, pages 735–740, 2003

Vojnović M. and Le Boudec J.-Y., “Stochastic Bound on Delay for Guaranteed Rate Nodes,” IEEE Communications Letters, Vol. 6, No. 10, pages 449–451, 2002

Vojnović M. and Le Boudec J.-Y., “Stochastic Analysis of Some Expedited Forwarding Networks,” Proceedings of the twenty-first Annual Joint Conference of the IEEE Computer and Communication Societies (INFOCOM), New York, USA, June 23–27, 2002

Vojnović M. and Le Boudec J.-Y., “On the Long-Run Behaviour of Equation-Based Rate Control,” Proceedings of the ACM SIGCOMM 2002 Conference on Applications, Technologies, Architecture, and Protocols for Computer Communication, pages 103–116, Pittsburgh, Pennsylvania, August 19–23, 2002

Vojnović M. and Le Boudec J.-Y., “Bounds for Independent Regulated Inputs Multiplexed in a Service Curve Network Element,” Proceedings of the Global Telecommunications Conference (GLOBECOM), pages 1857–1861, San Antonio, Texas, November 25–29, 2001

Vojnović M. and Rožić N., “An Evaluation of the ABR Explicit-Rate Allocation Interfering with the Guaranteed Services Traffic,” Computer Networks, Vol. 34, No. 1, pages 139–155, 2000

Vojnović M., Le Boudec, J.-Y., and Boutremans C., “Global Fairness of Additive-Increase and Multiplicative-Decrease with Heterogeneous Round-Trip Times,” Proceedings of the nineteenth Annual Joint Conference of the IEEE Computer and Communication Societies (INFOCOM), pages 1303–1312, Tel Aviv, Israel, March 26–30, 2000

Hubaux J.-P., Le Boudec J.-Y., Giordano S., Hamdi M., Blažević L., Buttyán L. and Vojnović M., “Towards Mobile Ad-Hoc WANS: Terminodes,” Proceedings of the 2000 IEEE Wireless Communications and Networking Conference (WCNC), pages 1052–1059, Chicago, Illinois, September 23–28, 2000

PATENTS

Apparatuses and Methods for Detecting Malware, Huawei Technologies Co., LTD., US patent application, No 86216338US04, November 2021

Efficient Queue Management for Cluster Scheduling, Microsoft Corporation, Redmond, patent application, April 2017

Quantized Stochastic Gradient Descent, Microsoft Corporation, Redmond, WA, patent application, May 2016

Decentralized Relaying Algorithm for Mobile Devices, Microsoft Corporation, Redmond, WA, Patent No. 8,886,731, granted on November 11, 2014

Allocating Tasks to Machines in Computing Clusters, Microsoft Corporation, Redmond, WA, Patent No. 9,695,009, granted on April 8, 2014

Optimal Query Assignment: Network Load Minimization, Microsoft Corporation, Redmond, WA, Patent filed on March 3, 2014

Ranking System, Microsoft Corporation Redmond, WA, Patent No. 8,478,762, granted on July 2, 2013

Graph Partitioning for Massive Scale Graphs, Microsoft Corporation, Redmond, WA, Patent filed on Apr. 29, 2013

Sampling Rules for Information Dissemination, Microsoft Corporation, Redmond, WA, Patent No. 8,081,581, granted on December 20, 2011

Modeling of Plurality of Contests at a Crowdsourcing Node, Microsoft Corporation, Redmond, WA, Patent No. 8,195,498, granted on June 5, 2012

Count Tracking in Distributed Environments, Microsoft Corporation, Redmond, WA, Patent filed on March 15, 2012

Ranking and Suggesting Candidate Objects, Microsoft Corporation, Redmond, WA, Patent No. 7,685,200, granted on March 23, 2010

Competitive and Considerate Congestion Control, Microsoft Corporation, Redmond, WA, Patent No. 7,649,841, granted on January 19, 2010

TECHNOLOGY TRANSFER

Main Technology Transfers

Popularity Prediction Methods for a Community Integrity Platform, Facebook, 2021

Network Stream Optimiser, Stream Processing Platform, Bing, supporting Cortana as one of main applications, 2014

Tag Recommendation System, Microsoft Live Service, 2008

4CP: Background Transport Control Protocol, congestion control module of Microsoft Vista (beta), 2006

Consultancy, Demos and Prototypes

“Office Delve Recommendation System,” consultancy and working with the product team, 2015

“On the Algorithms that Underpin our Cloud,” poster, MSR TechFest 2015, Microsoft, Redmond, WA; with Dan Alistarh and Christos Gkantsidis

“MSR Algorithms Virtual Center (VIRAL),” booth with demos, MSR TechFest 2014, Microsoft Redmond, WA; with Andrew Goldberg, Ravi Kanan, Yuval Peres, Madhu Sudan and Robert Tarjan

“Streaming Partitioning for Massive-Scale Graphs,” demo, MSR TechFest 2013, Microsoft, Redmond, WA; with Christos Gkantsidis

“Big Data Analytics and Infrastructure,” theme demo owner, MSR TechFest 2013, Microsoft, Redmond, WA - proposed the theme for the event, coordinated presentation of 10 demos from all across Microsoft Research

“Sampling Based Methods for Range Partition,” Cosmos, Bing Infrastructure Team, 2010; with Fei Xu and Jingren Zhou

“Ox: System for Large-Scale Information Dissemination in Mobile Networks,” demo, MSR TechFest 2009, Microsoft, Redmond, WA; with Thomas Karagiannis and Eliseu Santos-Neto

“TagBooster: A System for Ranking and Suggesting Popular Items,” demo, MSR TechFest 2007, Microsoft, Redmond, WA; with Dinan Gunawardena

“Farsighted Congestion Control,” demo, MSR TechFest 2006, Microsoft, Redmond, WA; with Peter Key and Laurent Massoulié

LECTURES

“On the Convergence of Loss and Uncertainty-Based Active Learning Algorithms,” Invited Seminar, Seoul National University, Seoul, Republic of Korea, February 15, 2024

“Learning to Schedule,” Invited Seminar, CS Colloquium, University of Warwick, UK, October 21, 2021

“Learning to Match in Online Platforms,” Invited Seminar, Bristol Data Science Seminars, University of Bristol, UK, February 27, 2020

“Optimisation for Inference and Machine Learning,” Plenary Talk, IMA and OR Society Conference on Mathematics of Operational Research, Aston University, Birmingham, UK, April 25-25, 2019

“Scalable Methods for Machine Learning Optimisation,” Invited Seminar, Statslab, University of Cambridge, UK, May 10, 2019

“Learning to Match in Online Platforms,” Invited Seminar, School of Science Technology, Athens University of Economics and Business, Athens, Greece, December 12, 2019

“Scalable Inference for Statistical Models of Ranking Data,” Invited Talk, Workshop on Challenges for Categorical Data Analysis, October 22-24, 2018, RWTH Aachen University, Germany

“Scalable Machine Learning for Big Data Analytics,” Invited Talk, Huawei European Research Symposium, Paris, France, January 24-25, 2018

“Thurstone Choice Model Inference,” Workshop on Next Generation Network Analytics, Royal Statistical Society, London, UK, January 4-5, 2018

“On a Portfolio Selection Problem using Individual Test Scores,” Invited Talk, Risk & Stochastics Conference, London, UK, April 20-21, 2017

“How to Hire a Team using Individual Test Scores?,” Invited Talk, LSE Maths Seminar on Combinatorics, Games and Optimisation, LSE, London, UK, January 12, 2017

“Communication Efficient Stochastic Gradient Descent,” Huawei Innovative Algorithmic and Mathematic Workshop on Next Generation Network Technology, Paris, France, November 7, 2016

“Talk by an EDIC Alumnus,” Invited Talk, EDIC - Open House, EPFL, Switzerland, March 21-22, 2016

“Majority Computation Problem,” Invited Keynote Talk, MSR Theory Day, Redmond, WA, USA, March 10th, 2016

“On Rating Skills and Hiring a Team,” Invited Talk, Telefonica Research, Barcelona, Spain, February 26th, 2016

“Utility Sharing and Social Welfare,” Invited Talk, LSE, London, UK, June 11, 2015

“Utility Sharing and Social Welfare,” Invited Talk, University of Cambridge, Department of Economics, Cambridge, UK, June 4, 2015

“Talk by an EDIC Alumnus,” Invited Talk, EDIC - Open House, EPFL, Lausanne, Switzerland, March 20–21, 2015

“A Spectral Algorithm for Ranking using Seriation,” Invited Talk, Machine Learning in Cambridge, Cambridge, UK, March 3, 2015

“Load Balancing Tasks with Overlapping Requirements,” Invited Talk, Workshop on Community Detection at Institut Henri Poincaré, Paris, France, February 26–27, 2015

“How to Divide Prize Money?,” Invited Talk, Trinity Mathematical Society, Cambridge, UK, February 2, 2015

“Crowdsourcing and All-Pay Auctions,” Invited Talk, Contemporary Economic Issues, University of East Anglia, Norwich, UK, November 2014

“Consensus - A Retrospective,” Invited Talk, Workshop on Performance and Control of Large-Scale Networks, European Institute for Statistics, Probability, Stochastic Operations Research and their Applications (EURANDOM), Eindhoven, Netherlands, June–July 2014

“Consensus - A Retrospective,” Invited Talk, University of Oxford, UK, June 2014

“Fennel: Streaming Graph Partitioning for Massive Scale Graphs,” Invited Talk, Workshop on Big Dynamic Distributed Data, VLDB 2013, Trento, Italy, 2013

“Balanced Graph Partitioning for Massive Scale Computations,” Invited Talk, LIDS Seminar, MIT, Cambridge, MA, USA, December 2013

“Balanced Graph Partitioning for Massive Scale Computations,” Invited Talk, University of Warwick, UK, December 2013

“Cooperation and Efficiency in Utility Maximization Games,” Invited Talk, Microsoft Research, Silicon Valley, Theory Seminar, October 2013

“Efficiency and Redistribution of Welfare,” Invited Talk, Hamilton Institute, Ireland, February 2013

“Continuous Distributed Counting for Non-Monotonic Streams,” Invited Talk, INTIMATE “Big Data In Digital Life” workshop, organised by C. Diot, S. Fdida, J. Kurose and P. Rodriguez, June 20–21, Paris, France

“Some Maths of Use in the Computer Systems World,” Invited Talk, Cambridge Centre for Analysis, University of Cambridge, October 2012

“Consensus,” Invited Talk, Lecture Series Algorithms and Complexity in Durham, University of Durham, Durham, UK, October 2012

“Sampling Based Range Partition Methods for Big Data Analytics,” Invited Talk, INQUEST Workshop, organised by M. Benedikt and D. Oletanu, University of Oxford, UK, September 2012

“Continuous Count Tracking for Distributed Non-Monotonic Streams,” Invited Talk, NI Shonan Meeting: Large-Scale Distributed Computation, organised by G. Cormode, S. Mutukrishnan and K. Yi, Shonan, Japan, January 2012

“Continuous Count Tracking for Distributed Non-Monotonic Streams,” Invited Talk, Tokyo University of Technology, Japan, January 2012

“Revenue of Auctions: Truthful vs. Non-Truthful Designs,” Invited Talk, Session: New Directions in Stochastic Games chaired by Alexandre Proutiere and Ramesh Johari, INFORMS, Stockholm, Sweden, July 2011

“Weighted Proportional Allocation,” Invited Talk, Microsoft Research Asia, Beijing, China 2011

“Mechanism Design,” Invited Talk, Summer Research Institute, EPFL, Switzerland, June 2011

“Computer Systems seen as Auctions,” Keynote Talk, ACM Sigmetrics 2010, New York City, NY, USA, June 14–18, 2010

“Mechanism Design,” Tutorial, Series: Microsoft Research Tutorial, Cambridge, UK, March 2010

“Bargaining Dynamics in Exchange networks,” Invited Talk, Allerton, IL, USA, September 2010

“Weighted Proportional Allocation,” Invited Talk, University of Cambridge, UK, 2010

“Weighted Proportional Allocation,” Invited Talk, Harvard University, MA, USA, 2009

“Crowdsourcing and All-Pay Auctions,” Invited Talk, University of California Berkeley, CA, USA, July 2009

“Crowdsourcing and All-Pay Auctions,” Invited Talk, Statslab Networks Seminar, University of Cambridge, UK, May 2009

“Binary Consensus Using Three States on Complete Graphs,” Invited Talk, Epidemic Spreading and Networks, The Institute of Mathematical Sciences, Imperial College, London, UK, October 2008

“Consensus with Limited Memory and Signaling,” Invited Talk, Statslab, University of Cambridge, UK, 2008

“Consensus with Limited Memory and Signaling,” Invited Talk, NET-COOP 2008, Paris, France

“Social Networks Overview,” Invited Talk, Unilever Spark Workshop, Norwich, United Kingdom, 2008

“Tagging done by YOU,” Tutorial, Series: Microsoft Research Tutorial, Cambridge, UK, 2008

“Power Law and Exponential Decay-Mobile Devices,” Invited Talk, Hynet Colloquium, University of Maryland, MD, USA, 2007

“Ranking and Suggesting Popular Items,” Invited Talk, Workshop on Mathematics of Communication Networks, ENS, Paris, France, 2007

“Ranking and Suggesting Popular Items,” Invited Talk, INFORMS, Eindhoven, Netherlands, 2007

“Coupon Replication Systems,” Invited Talk, INFORMS, Pittsburgh, PA, USA, 2006

“Random Trip Model,” Three Lecture Mini-Course, Charles University Prague, Czech Republic, 2006

“Farsighted Congestion Control,” Invited Talk, CSAIL, MIT, Cambridge, MA, USA, 2005

“Planet Scale Software Updates,” Invited Talk, Microsoft Research, Redmond, WA, USA, 2005

“Planet Scale Software Updates,” Invited Talk, TU Munich, Germany, 2005

“Random Trip Model,” Invited Talk, Max Plank Institute fur Informatik, Saarbrucken, Germany, 2005

“Random Trip Mobility Models,” Tutorial, ACM Mobicom 2006, with Jean-Yves Le Boudec, Los Angeles, CA, USA

“Software Updates,” Tutorial, IFIP Performance 2005, with Ayalvadi Ganesh, Juan-les-Pins, France, 2005

“Coupon Replication Systems,” Invited Talk, EPFL Summer Research Institute, Switzerland, 2004

“Random Trip Model,” Invited Talk, University of Cambridge, UK, 2004
“Farsighted Congestion Control,” Invited Talk, ARC-TCP Workshop, INRIA, Sophia-Antipolis, France, 2004
“Equation-Based Rate Control,” Invited Talk, IPAM Workshop on Large Scale Communication Networks: Topology, Routing, Traffic and Control, organised by D. Donoho, J. Doyle, F. P. Kelly, and W. Willinger, UCLA, Los Angeles, CA, USA, March 18–22, 2002
“Equation-Based Rate Control,” Invited Talk, Columbia University, New York City, NY, USA, 2001
“Equation-Based Rate Control,” Invited Talk, University of Massachusetts at Amherst, MA, USA, 2001

COURSES TAUGHT

ST443 Machine Learning and Data Mining, MSc in Data Science, LSE, lecturer, 2024/25-
ST456 Deep Learning, MSc in Data Science, LSE, lecturer, 2021/22-
ST510 Foundations of Machine Learning, PhD Course, LSE, lecturer, 2020/21-
ST449 Artificial Intelligence and Deep Learning, MSc in Data Science, LSE, lecturer, 2018/19-2020/21
ST446 Distributed Computing for Big Data, MSc in Data Science, LSE, lecturer, 2017/18-
ST445 Managing and Visualising Data, MSc in Data Science, LSE, lecturer, 2017/18
Contest Theory, Lent Term, Part III of the Mathematical Tripos, University of Cambridge, lecturer, 2013–2015
Networked Systems Architecture, University of Split, undergraduate study in computer science, lecturer, 2005–2013
Performance Evaluation, EPFL, master program, teaching assistant, 2002
Computer Networking, EPFL, undergraduate studies, teaching assistant, 2001
Java Programming, EPFL, undergraduate studies, 2000
Analogue and Digital Circuits, University of Split, undergraduate studies in electrical engineering, laboratory and theoretical problem solving exercises, 1995–1998
Antennas and Propagation, University of Split, undergraduate studies in electrical engineering, laboratory and theoretical problem solving exercises, 1995–1998
Numerical Methods in Electronics, University of Split, undergraduate studies in electrical engineering, laboratory and theoretical problem solving exercises, 1995–1998

SUPERVISIONS

Ph.D. Thesis advisor

- Jialin Yi, LSE, 2018–2023
- Yiliu Wang, LSE, 2018–2022
- Kaifang Zhou, LSE, 2017–2023

Ph.D. Thesis committee member

- Abheek Ghosh, supervised by Paul Goldberg and Edith Elkind, Oxford, 2024

- Luke Marris, Multiagent Training in N-Player General-Sum Games, supervised by Thore Graepel and Jun Wang, UCL, January, 2024
- Jee Hyun (Caleb) Park, Leveraging Structural Properties of Product-Level Data of In-Store Field Experiments and Combinatorial Auctions, supervised by Gah-Yi Band and Jeremie Gallien, London Business School, December, 2023
- Tianlin Xu, Generative Adversarial Networks for Sequential Learning, supervised by Wicher Bergsma, LSE, London, UK, May, 2022
- Rico Blaser, Random Rotations in Machine Learning, supervised by Piotr Fryzlewicz, LSE, London, UK, December 2021
- Lucas Maystre, Efficient Learning from Comparisons, supervised by Matthias Grossglauser, EPFL, Lausanne, Switzerland, April 2018
- Remi Varloot, Dynamic Network Formation, École Normale Supérieure, supervised by Laurent Massoulié, Paris, France, June 2018
- Fajwel Fogel, Convex and Spectral Relaxations for Phase Retrieval, Seriation and Ranking, supervised by Alexandre d'Aspremont and Francis Bach, École Polytechnique, Paris, France, September 2015; reader
- Michal Ficek, Tracking Users in Mobile Networks: Data Acquisition, Methods and their Limits, supervised by Lukas Kencl, Czech Technical University in Prague, Czech Republic, June 2013

Post-docs

- Dabeen Lee, KAIST, 2021-2022
now Assistant Professor at KAIST
- Virag Shah, University of Texas at Austin, 2016–2017
now with Uber
- Se-Young Yun, KAIST, 2015–2016
was a post-doc with Los Alamos National Laboratory, Los Alamos, New Mexico, now Associate Professor at KAIST
- Dan Alistarh, EPFL, 2014–2015
was a Researcher with MSR, now Professor at IST Austria

Interns

- Jung-Hun Kim, KAIST, South Korea, 2021
- Remi Jezequel, École Normale Supérieure, 2017
- Lucas Maystre, EPFL, 2016
- Jerry Li, MIT, 2016
- Hyun Jik Kim, University of Cambridge, 2015
- Gautam Kamath, MIT, 2015
- Fajwel Fogel, École Normale Supérieure, 2014
- Rati Gelashvili, MIT, 2014
- Jennifer Iglesias, CMU, 2014
- Florian Bourse, École Normale Supérieure, 2013
- Nan Li, University of Santa Barbara, 2013
- Bo Zong, University of Santa Barbara, 2013
- Charalampos Tsourakakis, CMU, 2012
- Alan Roytman, UCLA, 2012

- Zengfeng Huang, Hong Kong University of Science and Technology, 2012
- Zhenming Liu, Harvard University, 2011
- Vasilis Syrgkanis, Cornell University, 2011
- Jinshan Zhang, University of Liverpool, UK, 2011
- Amin Karabasi, EPFL, 2010
- Thanh Nguyen, Cornell University, 2009
- Dominic DiPalantino, Stanford University, 2008
- Elizeu Santos-Neto, University of British Columbia, 2008
- Dinkar Vasudevan, EPFL, 2008
- Fabian Suchanek, MPI, 2007
- James Cruise, University of Cambridge, 2007
- Varun Gupta, CMU, 2006
- Thomas Karagiannis, University of Riverside, 2006
- Shao Liu, UIUC, 2005

Part III Master Program Essays

- Aya Ahmed, “Allocating Tasks to Workers in Crowdsourcing Services,” 2015
- Adam Chudziak, “Statistical Inference and Optimal Auction Design,” 2015
- Benjamin Dubois, “Fair Allocation of Multi-Type Resources,” 2015
- Fikri Pitsuwan, “Statistical Inference and Optimal Auction Design,” 2015
- George Bignall, “Tug of War,” 2014

PROFESSIONAL SERVICE

Program Committee Activities

- Area vice-chair for Distributed, Parallel and P2P Data Management, IEEE ICDE 2019
- Co-chair, Workshop on Machine Learning and User Decision Making, co-organise with Massoulié L., Paris, Paris, France, May 23-24, 2019
- Chair, Workshop on Data Science Theory and Practice, LSE, London, March 27-28, 2018
- Member, Performance 2018
- Member, Program Committee, ACM SIGMETRICS 2017
- Member, Program Committee, ACM SIGMETRICS 2016
- Member, Program Committee, ACM SIGMETRICS 2015
- Chair, Workshop on Algorithms and Data Science, Microsoft Research, Cambridge, UK, May 15, 2014; keynote speaker: Robert Tarjan
- Chair, Workshop on Big Data Analytics, Microsoft Research, Cambridge, UK, May 23-24, 2013; co-organised with Artur Czumaj and Jingren Zhou; keynote speakers: Surajit Chaudhuri, Sanjeev Khanna, and Gerhard Weikum
- Member, Program Committee, ACM SIGMETRICS 2014
- Member, Program Committee, ACM SIGMETRICS 2013
- Member, External Review Committee—Cloud Computing and Next-Generation Distributed Query Processing, ACM SIGMOD 2013
- Member, Program Committee, ACM SIGMETRICS 2012

- Member, Program Committee, ACM Electronic Commerce 2011
- Member, Program Committee, IFIP Performance 2011
- Member, Program Committee, ACM SIGMETRICS 2011
- Member, Program Committee, WWW 2011
- Member, Program Committee, IEEE INFOCOM 2011
- Chair, Workshop on the Economics of Networks, Systems, and Computation (NETECON), 2010; co-organised with Mike Dahlin
- Chair, Workshop on the Future of Social Networking: Experts from Industry and Academia, Cambridge, UK, Nov 18th, 2010; co-organized with Jon Crowcroft, Pietro Lio, Neil Walton, and Eiko Yoneki
- Member, Program Committee, IEEE INFOCOM 2010
- Member, Program Committee, WWW 2010
- Member, Program Committee, IEEE INFOCOM 2009
- Member, Program Committee, WWW 2009
- Member, Program Committee, IEEE INFOCOM 2008
- Chair, Workshop on Online Social Networks, Microsoft Research, Cambridge, UK, 2007; co-organised with Thomas Karagiannis, Peter Key, and Bala Krishnamurthy
- Member, Program Committee, IEEE INFOCOM 2007
- Member, Program Committee, ACM SIGCOMM 2007
- Member, Program Committee, IEEE INFOCOM 2006
- Chair, InterPerf 2006, ValueTools 2006; co-organised with Sean Collins

Steering Committees

- NetEcon - Workshop on the Economics of Networks, Systems and Computation, 2008–
- Workshop on Online Social Networks (WOSN), 2008–2011
- Incentive-Based Computing (IBC), 2006

Other Panels

- Member, Senior Leadership Team, Microsoft Research Algorithms Virtual Center (VIRAL), 2013-2016; other members included Nikhil Devanur, Andrew Goldberg, Ravi Kannan, Robert Kleinberg, Thomas Moscibroda, Yuval Peres, Robert Schapire, Madhu Sudan and Robert Tarjan
- Evaluator, Horizon 2020, European Commission, Brussels, Belgium, June 12-22, 2017
- Evaluator, INRIA projects under the theme “Networks and Telecommunications,” March 22–24, 2016, Paris, France
- Evaluator, FP7, European Commission, Brussels, Belgium, December 7–11, 2009

**OTHER
ACTIVITIES**

Lecture Series Organised

- Lecture series: *Big Data Analytics*, MSR, Cambridge, UK, 2012
Speakers: Graham Cormode (AT&T Research), Tugkan Batu (LSE), Ely Porat (Bar-Ilan University), Tom Friedetzky (Durham University), Alexandre d'Aspremont (Ecole Polytechnique, Paris), Nicolo Cesa-Bianchi (University of Milan) and Michael Benedikt (Oxford University)
- Lecture series: *Algorithms and Economics*, MSR, Cambridge, UK, 2011
Speakers: Kostas Bimpikis (Microsoft Research, New England), Paul Goldberg (University of Liverpool), Michael Kearns (University of Pennsylvania), Robert Mataescu (Microsoft Research), Romans Panes (University of Rochester), Harald Raecke (University of Warwick), Peyton Young (University of Oxford), Jenn Wortman Vaughan (UCLA), Richard Weber (University of Cambridge)