

# Patrick Loiseau

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## Research Interests

My research interests revolve around *game theory* and *statistical learning* and their interactions, in particular in the context of *security*, *privacy* and *ethics of online systems and algorithms*. I like to do interdisciplinary research and to work on problems that have both fundamental theoretical aspects and important practical applications. My main current interests are in algorithmic transparency, fairness and discrimination (in particular in online advertising); game theory for security (adversarial learning, resource allocation, Blotto games); learning and privacy; and interactions between game theory and learning (learning in games, repeated games, using the solution of games to analyze/design learning algorithms). I also worked on causal methods and applications to networking, cyberinsurance, scheduling and pricing in clouds and smart grids, large deviations and applications to networking and to medicine, long-range dependence and heavy-tails, and statistical estimation under sampling.

## Education

Qualification aux fonctions de Professeur des Universités, Sections 26 et 27 2017

**Université Pierre et Marie Curie (Paris 6)**, Paris, France Dec. 2016

Habilitation à diriger des recherches (HDR)

Thesis: *Combining game theory and statistical learning for security, privacy and network systems*

Committee: Eitan Altman (reviewer), Tamer Başar (reviewer), Gérard Biau, Rainer Böhme (reviewer), Bruno Gaujal, Refik Molva, Vianney Perchet

**Université Pierre et Marie Curie (Paris 6) / École Polytechnique**, Paris, France July 2010

M.Sc. Degree in Mathematics – *Probability and random models*

*First class honors: “mention très bien”*

Thesis: *Large deviations for mixing processes*

**École Normale Supérieure de Lyon**, Lyon, France Dec. 2009

Ph.D. in Computer Science, prepared at LIP lab., within the Inria RESO team

Thesis: *Contributions to the Analysis of Scaling Laws and Quality of Service in Networks: Experimental and Theoretical Aspects*

Advisors: Paulo Gonçalves, Pascale Vicat-Blanc Primet

Committee: Christophe Diot, Daniel Kofman, Jean-Yves Le Boudec (reviewer), Rudolf Riedi (reviewer), Philippe Robert (reviewer)

**École Normale Supérieure de Lyon**, Lyon, France 2002 – 2006

“Elève normalien”: undergraduate and graduate studies at the physics department

M.Sc. Degree in Physics – *Non linear and statistical physics* (July 2006)

Thesis: *Complex wavelets for the analysis of scaling phenomena*

Degree of Professeur-Agrégé in Physics (July 2005)

B.Sc. (“licence”) Degree in Physics (July 2003)

**Lycée Marcelin Berthelot**, Saint-Maur des Fossés, France 2000 – 2002  
 French preparatory classes with physics and chemistry majors (classes préparatoires PCSI and PC\*)  
 Admission to École Normale Supérieure de Lyon

## Employment

**Inria** Grenoble Rhône-Alpes, Grenoble, France Nov. 2018 – present  
 Research scientist (CRCN) in the POLARIS team (a joint Inria/LIG team)  
 Also member of the Laboratoire d'Informatique de Grenoble (LIG)

**Univ. Grenoble Alpes**, Grenoble, France Oct. 2017 – Oct. 2018  
 Holder of a Chair of Excellence IDEX UGA at the LIG lab., within the POLARIS team  
 Chair title: *HumanLearn: Human-aware learning in the digital society*

**EURECOM**, Sophia-Antipolis, France Nov. 2011 – Aug. 2017  
 Assistant Professor in the Data Science department (*first class* from July 2015)  
 (Previously in the former Networking and Security department until Jan. 2016)

**University of California**, Santa Cruz, CA, USA Dec. 2010 – Oct. 2011  
 Post-doctoral scholar in Basking Engineering school, working with Prof. John Musacchio  
 Research topic: *Game theory and application to network economics*

**Inria Paris-Rocquencourt**, Le Chesnay, France Jan. 2010 – Nov. 2010  
 Post-doctoral fellow in Sisyphe team, working with Julien Barral and Michel Sorine  
 Research topic: *Multi-scale analysis of heart-rate variability: estimation and control-theoretic modeling*

**École Normale Supérieure de Lyon**, Lyon, France Sept. 2006 – Dec. 2009  
 Doctoral fellow at LIP lab. in Inria RESO team, supervised by Paulo Gonçalves and Pascale Vicat-Blanc  
 Research topic: *Analysis and modeling of network traffic and performance: from theory to practice*

**École Normale Supérieure de Lyon**, Lyon, France Sept. 2002 – Aug. 2006  
 “Elève fonctionnaire stagiaire”

## Visiting positions

**Max Planck Institute for Software Systems**, Saarbrücken, Germany April 2016 – present  
 Visiting researcher, hosted by Prof. Krishna Gummadi  
*Funded by a Humboldt Research Fellowship for experienced researchers*

**Max Planck Institute for Software Systems**, Saarbrücken, Germany July 2014 – Sept. 2014  
 Visiting researcher, hosted by Prof. Krishna Gummadi

**University of California**, Berkeley, CA, USA July 2012 – Aug. 2012  
 Visiting researcher in the EECS department, hosted by Prof. Jean Walrand

**University of California**, Berkeley, CA, USA Dec. 2010 – Oct. 2011  
 Visiting member of the Network Economics Group, hosted by Prof. Jean Walrand

**University of Waterloo**, Waterloo, ON, Canada Oct. 2010  
 Visiting researcher in the ECE department, hosted by Prof. Ravi Mazumdar

## Internships

**École Normale Supérieure de Lyon**, Lyon, France Apr. 2006 – July 2006  
 Research Intern in the Physics lab., supervised by Patrice Abry, Pierre Borgnat and Paulo Gonçalves  
 Research topic: *Complex wavelets for the analysis of scaling phenomena*

**École Normale Supérieure de Lyon**, Lyon, France May 2004 – July 2004  
 Research Intern in the Physics lab., supervised by P. Abry, P. Flandrin and E. Pereira de Souza Neto  
 Research topic: *Application of the Empirical Mode Decomposition to the study of the heart beat rate*

**École Normale Supérieure de Lyon**, Lyon, France June 2003 – July 2003  
 Research Intern in the Chemistry lab., supervised by Vincent Krakoviak  
 Research topic: *Numerical study of the pressure in a random porous matrix via Monte-Carlo simulations*

## Teaching experience

**Univ. Grenoble Alpes**, Grenoble, France

*Inf202: Modélisation des structures informatiques: aspects formels* Spring 2018  
 (“Formal aspects of computer structures”)  
 Responsible for the teaching unit, lectures (15h) and tutorials (TD, 30h), coordination of a team of 6 teaching assistants, undergraduate level (L1)

**EURECOM**, Sophia-Antipolis, France

*Statistical data analysis* Fall 2013–16  
 Instructor, graduate course (short: 21 hours/year)  
*Game Theory* Fall 2013–16  
 Instructor, graduate course (short: 21 hours/year)  
*Network Economics* Fall 2012–16  
 Instructor, graduate course (short: 21 hours/year)  
*Performance Evaluation of Computer Systems* Spring 2012 and 2013  
 Instructor, graduate course (long: 42 hours/year)

**University of California**, Santa Cruz, CA, USA

ISM207: *Random Process Models in Engineering* Spring 2011  
 Guest lecturer (3 hours), graduate course (instructor: Prof. Musacchio), TIM program

**École Normale Supérieure de Lyon**, Lyon, France

*Network traffic models* Spring 2010  
 Guest lecturer (4 hours), M2 graduate course (instructors: C. Touati and P. Gonçalves), CS department

**Université de Versailles Saint-Quentin-en-Yvelines**, Versailles, France

*Introduction to probability* Fall 2010  
 Tutorials (36 hours), L2 undergraduate level (instructor: A. Rouault), Mathematics department

**École Normale Supérieure de Lyon**, Lyon, France

Teaching assistant (“moniteur”) in the physics and CS departments (64 hours/year) 2006 – 2009

*Electromagnetic waves and telecommunications*  
 Tutorials, graduate level (preparatory class to “agrégation” in physics)

*Introduction to signal processing*

Lab. sessions, bachelor level (L3), physics program

*Principles of hydrodynamics, linear acoustics and shock waves*

Tutorials, graduate level (preparatory class to “agrégation” in physics)

*Computer architecture, systems and networks*

Tutorials, bachelor level (L3), fundamental CS program

**MediPlus Lyon**, Lyon, France

Part-time teaching for first year medicine and pharmacy students (total 196 hours) 2006 – 2009

*Basics of physics and biophysics*

Lectures and tutorials, medicine program

*Basics of general mathematics and statistics*

Lectures and tutorials, pharmacy program

## Professional service, scientific responsibilities and leadership

### Teaching and internal responsibilities

Responsible for the networking track of the engineering studies at EURECOM (2014-17)

Member of the restricted committee for reflection on EURECOM’s long-term strategy (2014-16)

### Steering committees

Chair of the steering committee of NetEcon (since 2013)

Creator and chair of the steering committee of [sophia-networking.org](http://sophia-networking.org) (2013-17)

Member of the scientific council of the Labex UCN@Sophia (2015-17)

Member of the steering committee of the “réseau thématique 2 (architecture et gestion)” of Institut Mines-Telecom (2014-17)

### Conference organization

Creator and lead organizer of the UCN@Sophia Labex seminar (a bimonthly seminar, 2013-17)

Member of the scientific programme committee of the BMW summer school 2017

Registration chair of ACM SIGMETRICS 2016

Co-organizer, seminar on modeling, optimization and control in wireless networks, Paris 2015

PC co-chair of NetEcon 2015 (with Aaron Roth and Adam Wierman)

PC co-chair of W-PIN+NetEcon 2014 (with John Chuang)

PC co-chair of W-PIN+NetEcon 2013 (with David Parkes and Jean Walrand)

Registration chair of ACM SIGMETRICS 2013

PC co-chair of W-PIN 2012 (with Jean Walrand)

### Editorial activities

Associate editor, IEEE TBD (since 2018)

Associate editor, ACM TOIT (since 2015)

Guest editor, ACM TOIT special issue on economics of security and privacy (2016)

Guest editor, ACM TOIT special issue on pricing and incentives in networks and systems (2013)

**TPCs**

2019: ICML, SIGMETRICS  
 2018: NIPS, ICML, NetEcon, NetGCoop, WiOpt, GameNets  
 2017: NIPS, NetEcon, WiOpt (member of the Advisory TPC), ICPP, ICQT  
 2016: WWW (demo track), FC, ITC, NetGCoop, SDP  
 2015: WWW (demo track), SDP  
 2014: SIGMETRICS, NetGCoop, SDP  
 2013: W-PIN+NetEcon, SDP, ICQT  
 2012: GameSec, W-PIN  
 2009: CFIP (shadow)

**Invited referee for journals and conferences (each listed only once)**

Communications of the ACM, Dynamic Games and Applications, WINE 2018, WWW 2018, IEEE Transactions on Signal Processing, ACM Transactions on Privacy and Security, IEEE Transactions on Information Forensics and Security, ACM Transactions on the Web, IEEE Networks, IEEE Transactions on Dependable and Secure Computing, ACM Transactions on Information and System Security, Operation Research, IEEE/ACM Transactions on Networking, International Journal of Information Security, ISAAC 2015, IEEE INFOCOM 2013, Computer Communications journal, IEEE Transactions on Communications, Computer Networks Journal, IEEE Communication Letters, Stochastic Models, ACM SigComm CCR, 20th ITC Specialist Seminar on Network Virtualization - Concepts and Performance, CFIP 2009

**Evaluation of PhD dissertations**

Committee member for the PhD of Antoine Rault (Inria Rennes, 2016)  
 Reviewer and committee member for the PhD of Áron Lászka (Budapest University of Technology and Economics, 2014)  
 Member of the mid-term evaluation committee for 7 PhD students at EURECOM (2013-17)

**Panel member for grant proposal selection**

Expert for the F.R.S.-FNRS, Belgium (2016)  
 Member of the selection committee for the “Future & Ruptures” program from IMT (2014)  
 External reviewer for the Informatics and Mathematics Panel of the Academic Research Council, Ministry of Education, Singapore (2014)

**Miscellaneous scientific evaluation tasks**

Member of the working group for the creation of the Inria team NEO

**Honors and awards**

Best Paper Award nominee at FAT* (for paper [24] by T. Speicher, M. Ali, G. Venkatadri, F. Nunes Ribeiro, G. Arvanitakis, F. Benevenuto, K. P. Gummadi, P. Loiseau, and A. Mislove)	2018
Best Paper Award Runner-up at IEEE/ACM ASONAM (for paper [27] by A. Andreou, O. Goga, and P. Loiseau)	2017

ANR Tremplin-ERC grant (Award for researchers who were well evaluated at the second stage of ERC but did not obtain funding)	2016
Humboldt Research Fellowship for experienced researchers (Alexander von Humboldt Foundation) (Highly competitive; maximum initial award of 18 months, extended in the context of parental support)	2016
Data Transparency lab research grant (top 11% of the projects) (for a project as co-PI with Oana Goga)	2016
Symantec research faculty gift	2015
Data Transparency lab travel grant (top 30% of the projects) (for a project as co-PI with Oana Goga)	2015
Best Paper Award Runner-up at IFIP Performance (for paper [41] by P. Loiseau, P. Gonçalves, J. Barral, and P. Vicat-Blanc Primet)	2010
ERCIM Alain Bensoussan European Post-doctoral fellowship (declined)	2010
Best Student Demonstration Award at ACM SIGMETRICS/Performance (for demo [58] by P. Loiseau, R. Guillier, O. Goga, M. Imbert, P. Gonçalves, and P. Vicat-Blanc Primet)	2009
PhD fellowship and teaching assistanship from École Normale Supérieure de Lyon	2006

## Advising experience

### Postdocs

George Arvanitakis (Jan.–Oct. 2018, now researcher at Huawei Paris lab.)

Topic: Learning and game theory

Michela Chessa (Sept. 2013–Aug. 2015, now assist. Prof at Université Côte d’Azur, GREDEG)

Topic: Game theory and economics of personal data

Output: [2, 3, 32, 33, 44, 53, 54, 56].

### PhD students

Benjamin Roussillon (Since Oct. 2018, co-advised with Panayotis Mertikopoulos from CNRS, LIG)

Topic: Game theory and adversarial learning

Vitalii Emelianov (Since Sept. 2018, co-advised with Nicolas Gast from Inria Grenoble)

Topic: Fairness in algorithmic decision making

Dong Quan Vu (Since Jan. 2017, Cifre with Nokia Bell Labs, industrial advisor: Alonso Silva)

Topic: Learning in Blotto games and applications to modeling attention in social networks

Output: [21, 22]

Athanasios Andreou (Since Oct. 2015, co-advised with Oana Goga from CNRS, LIG)

Topic: Bringing transparency to personalized services through statistical inference

Output: [27] (best paper award runner-up), [23, 25]

Xiaohu Wu (Nov. 2012–Feb. 2016, PhD Telecom ParisTech, postdoc at Aalto University, now researcher at Fondazione Bruno Kessler)

Topic: Techniques for Scheduling and Pricing in Cloud Computing

PhD Telecom ParisTech successfully defended on Feb. 16, 2016

Output: [4, 5, 26, 29]

Hadrien Hours (Nov. 2011–Sep. 2015, PhD Telecom ParisTech, co-advised with Ernst Biersack, postdoc at ENS Lyon, now data scientist at Booking.com)

Topic: A causal approach to the study of telecommunication networks

PhD Telecom ParisTech successfully defended on Sept 16, 2016

Output: [9, 10, 31, 45, 46]

Amine Lahouel (Sept. 2016–Nov. 2018, Cifre with SAP, industrial advisor: Michele Bezzi)

Topic: Data anonymity / utility tradeoff in big data applications

Alberto Benegiamo (Nov. 2013–Aug. 2015, co-advised with Giovanni Neglia from Inria, now Software and System Developer - Derivatives Markets at London Stock Exchange Group)

Topic: Mathematical tools for smart grids

Output: [28]

## Interns

Etienne, Vareille (L3 student at ENS Lyon, intern at LIG in June-July 2018, co-advised with Nicolas Gast)

Nicolas Charpenay (M1 student at ENS Paris Saclay, intern at LIG in April-Aug. 2018)

Eman Al-Shaour (M1 student at Univ. Grenoble Alpes, intern at LIG in March.-July 2018, co-advised with George Arvanitakis)

Benjamin Roussillon (M2 student at ENSIMAG, intern at LIG in Feb.-July 2018)

Output: Co-laureate of the best MSc thesis award in OR (Prix du mémoire de Master en RO/AD) from ROADEF

Vitalii Emelianov (M2 student at Univ. Grenoble Alpes, intern at LIG in Feb.-July 2018)

Sarath A. Y. (PhD student at IISC, intern at LIG in Feb.-July 2018)

George Arvanitakis (PhD student at EURECOM, intern at MPI-SWS in June-Dec. 2017, now postdoc at LIG)

Output: [24]

Stéphane Pouget (L3 student at ENS Lyon, intern at MPI-SWS in June-July 2017)

Yannick Terme (Eng. EURECOM/Telecom ParisTech, intern at MPI-SWS in July-August 2016, now student at ENSAE)

Nina Grgić-Hlača (M.A. University of Zagreb, intern at EURECOM in Feb.-July 2016 with an ERASMUS+ grant, now PhD student at MPI-SWS)

Vijay Kamble (Ph.D. UC Berkeley, intern at EURECOM in April-May 2015, postdoc at Stanford, now assistant Professor at UIC)

Output: [1, 55]

Athanasios Andreou (M.Sc. EURECOM, intern at MPI-SWS in Feb.-Sept. 2015, co-advised with Oana Goga and Krishna Gummadi, now Ph.D. student at EURECOM)

Output: initial work on [27], won a grant “thèse d’excellence” from institut Mines-Telecom to do a PhD at EURECOM

Yifan Pi (B.Sc. Tsinghua University, intern at EURECOM during summer 2013, now software engineer at Google)

## Student projects

Supervision of 14 “semester projects” of Master students at EURECOM in 2012-17

## Research funding

<b>IDEX UGA IRS</b>	2018 – 2021
<i>AdvLearn: Classification in the presence of adversarial data: models and solutions</i> (€ 50k)	
Patrick Loiseau (PI), Panayotis Mertikopoulos (co-PI)	
<b>DGA</b> , doctoral grant	2018 – 2021
<i>Classification en présence de données adverses : modèles et solutions</i> (€ 59k)	
Patrick Loiseau (PI), Panayotis Mertikopoulos (co-PI)	
<b>ANR Tremplin-ERC</b>	2017 – 2019
<i>CONNECTED: Towards secure and private personal-data-based online services in the networked world</i> (€ 150k)	
Patrick Loiseau (PI)	
<b>Cifre contract with Nokia Bell Labs</b>	2016 – 2019
<i>Learning in Blotto Games and Applications to Modeling Attention in Social Networks</i> (€ 45k + support of one PhD student)	
Patrick Loiseau (co-PI), Alonso Silva (co-PI at Nokia Bell Labs)	
<b>Cifre contract with SAP Research</b>	2016 – 2019
<i>Approche de l'anonymisation des données en fonction du niveau de risque associé</i> (€ 45k + support of one PhD student)	
Patrick Loiseau (co-PI), Michele Bezzi (co-PI at SAP Research)	
<b>Data Transparency lab research grant</b>	2016 – 2017
<i>TranspAd: A Collaborative Tool to Bring Transparency to Targeted Advertising</i> (€ 50k)	
Patrick Loiseau (co-PI), Oana Goga (co-PI)	
<b>Institut Mines-Telecom Futur&amp;Ruptures program</b> , doctoral support grant	2015 – 2018
<i>TRANSPA: Bringing transparency to personalized services through statistical inference</i> (€ 108k)	
Patrick Loiseau (PI)	
<b>France-Berkeley fund</b>	2014 – 2016
<i>Multi-armed bandit games and applications</i> (\$ 10k)	
Patrick Loiseau (PI), Jean Walrand (PI)	
<b>Symantec research faculty gift</b>	2015
<i>Cyber insurance</i> (\$ 30k)	
Patrick Loiseau (PI)	
<b>Institut Mines-Telecom Futur&amp;Ruptures program</b> , post-doctoral support grant	2015
<i>MONET: MONETization of personal data in social networks: A game-theoretic approach</i> (€ 30k)	
Patrick Loiseau (PI)	
<b>Labex UCN@Sophia</b> , post-doctoral support grant	2013 – 2015
<i>PRIMO: PRIVate data MONetization: a public good approach using cooperative game theory</i> (€ 90k)	
Patrick Loiseau (PI)	
<b>Labex UCN@Sophia</b> , doctoral support grant	2013 – 2016
<i>Mathematical tools for the smart grid</i> (€ 105k)	
Patrick Loiseau (co-PI), Giovanni Neglia (co-PI)	
<b>Institut Mines-Telecom Futur&amp;Ruptures program</b> , doctoral support grant	2012 – 2015
<i>Robust pricing of cloud resources through mean-field games</i> (€ 121k)	
Patrick Loiseau (PI)	



## Publications

My publications are available at <http://lig-membres.imag.fr/loiseapa/publications.html>.

### Preprints

(Excluding papers submitted to conferences with anonymous submissions.)

- [1] Vijay Kamble, **Patrick Loiseau**, and Jean Walrand. Repeated games with vector losses: A set-valued dynamic programming approach, 2017. (Preprint. Available as arXiv:1603.04981.).
- [2] Michela Chessa and **Patrick Loiseau**. On non-monetary incentives for the provision of public goods, 2017. (Preprint. Available at <https://ideas.repec.org/p/gre/wpaper/2017-24.html>).
- [3] Michela Chessa and **Patrick Loiseau**. A cooperative game-theoretic approach to quantify the value of personal data in networks, 2017. (Preprint. Available at <https://ideas.repec.org/p/gre/wpaper/2017-24.html>).
- [4] Xiaohu Wu and **Patrick Loiseau**. Algorithms for scheduling malleable tasks, 2017. (Preprint. Available as arXiv:1501.04343.).
- [5] Xiaohu Wu and **Patrick Loiseau**. Simple algorithms for scheduling moldable tasks, 2017. (Preprint. Available as arXiv:1609.08588.).

### Articles in journals

- [6] Alberto Benegiamo, **Patrick Loiseau**, and Giovanni Neglia. Dissecting demand response mechanisms: The role of consumption forecasts and personalized offers. *Sustainable Energy, Grids and Networks*, 16:156–166, December 2018.
- [7] LEMONIA Dritisoula, **Patrick Loiseau**, and John Musacchio. A game-theoretic analysis of adversarial classification. *IEEE Transactions on Information Forensics and Security*, 12(12):3094–3109, December 2017.
- [8] Raimo Kantola, Hammad Kabir, and **Patrick Loiseau**. Cooperation and End-to-End in the Internet. *International Journal of Communication Systems*, 30(12):e3268, August 2017.
- [9] Hadrien Hours, Ernst Biersack, **Patrick Loiseau**, Alessandro Finamore, and Marco Mellia. A Study of the Impact of DNS Resolvers on CDN Performance Using a Causal Approach. *Computer Networks, Special issue on “Traffic and Performance in the Big Data Era”*, 109, Part 2:200 – 210, 2016.
- [10] Hadrien Hours, Ernst Biersack, and **Patrick Loiseau**. A causal approach to the study of TCP performance. *ACM Transactions on Intelligent Systems and Technology, Special Issue on “Causal Discovery and Inference” (K. Zhang, J. Li, E. Bareinboim, B. Schölkopf, and J. Pearl, editors)*, 7(2):25:1–25:25, January 2016.
- [11] **Patrick Loiseau**, Galina Schwartz, John Musacchio, Saurabh Amin, and S. Shankar Sastry. Incentive mechanisms for internet congestion management: Fixed-budget rebate *versus* time-of-day pricing. *IEEE/ACM Transactions on Networking*, 22(2):647–661, 2014.
- [12] **Patrick Loiseau**, Claire Médigue, Paulo Gonçalves, Najmeddine Attia, Stéphane Seuret, François Cottin, Denis Chemla, Michel Sorine, and Julien Barral. Large deviations estimates for the multiscale analysis of heart rate variability. *Physica A*, 391(22):5658–5671, November 2012.
- [13] Paulo Gonçalves, Shubhabrata Roy, Thomas Begin, and **Patrick Loiseau**. Dynamic resource management in clouds: A probabilistic approach. *IEICE Transactions on Communications, special section on Networking Technologies for Cloud Services*, E95-B(8):2522–2529, 2012. (Invited paper).
- [14] Julien Barral and **Patrick Loiseau**. Large deviations for the local fluctuations of random walks. *Stochastic Processes and their Applications*, 121(10):2272–2302, 2011.

- [15] **Patrick Loiseau**, Paulo Gonçalves, and Pascale Vicat-Blanc Primet. A long-range dependent model for network traffic with flow-scale correlations. *Stochastic Models*, 27:333–361, 2011.
- [16] Edmundo Pereira de Souza Neto, Elmer Andrés Fernández, Patrice Abry, Béatrice Cuzine, **Patrick Loiseau**, Christian Baude, Jean Frutoso, Claude Gharib, and Xavier Martin. Application of cardiac autonomous indices in the study of neurogenic erectile dysfunction. *Urologia Internationalis*, 86(3):290–297, 2011.
- [17] **Patrick Loiseau**, Paulo Gonçalves, Guillaume Dewaele, Pierre Borgnat, Patrice Abry, and Pascale Vicat-Blanc Primet. Investigating self-similarity and heavy-tailed distributions on a large scale experimental facility. *IEEE/ACM Transactions on Networking*, 18(4):1261–1274, August 2010.
- [18] Edmundo Pereira de Souza Neto, Patrice Abry, **Patrick Loiseau**, Jean-Christophe Cejka, Marc-Antoine Custaud, Jean Frutoso, Claude Gharib, and Patrick Flandrin. Empirical mode decomposition to assess cardiovascular autonomic control in rats. *Fundamental & Clinical Pharmacology*, 21(5):481–496, October 2007.

#### Articles in international refereed conferences

- [19] Abhijnan Chakraborty, Gourab K Patro, Niloy Ganguly, Krishna P. Gummadi, and **Patrick Loiseau**. Equality of Voice: Towards Fair Representation in Crowdsourced Top-K Recommendations. In *Proceedings of the ACM Conference on Fairness, Accountability, and Transparency (FAT\*)*, January 2019.
- [20] Mohsen Minaei, Mainack Mondal, **Patrick Loiseau**, Krishna Gummadi, and Aniket Kate. Lethe: Conceal content deletion from persistent observers. In *Proceedings of the 19th Privacy Enhancing Technologies Symposium (PETS)*, July 2019.
- [21] Dong Quan Vu, **Patrick Loiseau**, and Alonso Silva. Efficient computation of approximate equilibria in discrete Colonel Blotto games. In *Proceedings of the 27th International Joint Conference on Artificial Intelligence and the 23rd European Conference on Artificial Intelligence (IJCAI-ECAI)*, July 2018.
- [22] Dong Quan Vu, **Patrick Loiseau**, and Alonso Silva. A simple and efficient algorithm to compute epsilon-equilibria of discrete Colonel Blotto games. In *Proceedings of the International Conference on Autonomous Agents and Multiagent Systems (AAMAS)*, July 2018. (Accepted as poster with extended abstract, the full version appeared in IJCAI-ECAI 2018.).
- [23] Giridhari Venkatadri, Athanasios Andreou, Yabing Liu, Alan Mislove, Krishna P. Gummadi, **Patrick Loiseau**, and Oana Goga. Privacy Risks with Facebook’s PII-based Targeting: Auditing a Data Broker’s Advertising Interface. In *Proceedings of the 39th IEEE Symposium on Security and Privacy (S&P)*, May 2018.
- [24] Till Speicher, Muhammad Ali, Giridhari Venkatadri, Filipe Nunes Ribeiro, George Arvanitakis, Fabrício Benevenuto, Krishna P. Gummadi, **Patrick Loiseau**, and Alan Mislove. On the potential for discrimination in online targeted advertising. In *Proceedings of the Conference on Fairness, Accountability, and Transparency (FAT\*)*, February 2018. **Best Paper Award nominee**.
- [25] Athanasios Andreou, Giridhari Venkatadri, Oana Goga, Krishna P. Gummadi, **Patrick Loiseau**, and Alan Mislove. Investigating ad transparency mechanisms in social media: A case study of facebook’s explanations. In *Proceedings of the Network and Distributed System Security Symposium (NDSS)*, February 2018.
- [26] Xiaohu Wu, **Patrick Loiseau**, and Esa Hyytia. Towards designing cost-optimal policies to utilize iaas clouds with online learning. In *Proceedings of the 2017 IEEE International Conference on Cloud and Autonomic Computing (ICCAAC)*, September 2017.
- [27] Athanasios Andreou, Oana Goga, and **Patrick Loiseau**. Identity vs. attribute disclosure risks for users with multiple social profiles. In *Proceedings of the 2017 IEEE/ACM International Conference*

- on *Advances in Social Networks Analysis and Mining (ASONAM)*, August 2017. **Best Paper Award Runner-up.**
- [28] Alberto Benegiamo, **Patrick Loiseau**, and Giovanni Neglia. Dissecting demand response mechanisms: the role of consumption forecasts and personalized offers. In *Proceedings of the American Control Conference (ACC)*, July 2016.
  - [29] Xiaohu Wu and **Patrick Loiseau**. Algorithms for scheduling deadline-sensitive malleable tasks. In *Proceedings of the 53rd Annual Allerton Conference on Communication, Control, and Computing (Allerton)*, September 2015.
  - [30] Oana Goga, **Patrick Loiseau**, Robin Sommer, Renata Teixeira, and Krishna Gummadi. On the reliability of profile matching across large online social networks. In *Proceedings of the 21st ACM SIGKDD conference on Knowledge Discovery and Data Mining (KDD)*, August 2015.
  - [31] Hadrien Hours, Ernst Biersack, **Patrick Loiseau**, Alessandro Finamore, and Marco Mellia. A study of the impact of DNS resolvers on performance using a causal approach. In *Proceedings of the 27th International Teletraffic Congress (ITC)*, September 2015. (**Selected for submission of an extended version to Computer Networks special issue on "Traffic and Performance in the Big Data Era"**).
  - [32] Michela Chessa, Jens Grossklags, and **Patrick Loiseau**. A game-theoretic study on non-monetary incentives in data analytics projects with privacy implications. In *Proceedings of the 28th IEEE Computer Security Foundations Symposium (CSF)*, July 2015.
  - [33] Michela Chessa, Jens Grossklags, and **Patrick Loiseau**. A short paper on the incentives to share private information for population estimates. In *Proceedings of the 19th International Conference Financial Cryptography and Data Security (FC)*, January 2015. (Short paper).
  - [34] Galina Schwartz, **Patrick Loiseau**, and S. Shankar Sastry. The heterogeneous colonel blotto game. In *Proceedings of the International conference on network games, control and optimization (NETG-COOP)*, October 2014.
  - [35] Stratis Ioannidis and **Patrick Loiseau**. Linear regression as a non-cooperative game. In *Proceedings of the 9th conference on Web and Internet Economics (WINE)*, December 2013.
  - [36] Lemonnia Dritsoula, **Patrick Loiseau**, and John Musacchio. A game-theoretical approach for finding optimal strategies in an intruder classification game. In *Proceedings of the 51st IEEE Conference on Decision and Control (CDC)*, December 2012.
  - [37] Lemonnia Dritsoula, **Patrick Loiseau**, and John Musacchio. Computing the nash equilibria of intruder classification games. In *Proceedings of the third Conference on Decision and Game Theory for Security (GameSec)*, November 2012. (Full paper).
  - [38] **Patrick Loiseau**, Galina Schwartz, John Musacchio, Saurabh Amin, and S. Shankar Sastry. Congestion pricing using a raffle-based scheme. In *Proceedings of the International conference on network games, control and optimization (NETGCOOP)*, October 2011.
  - [39] Oana Goga, **Patrick Loiseau**, and Paulo Gonçalves. On the impact of the flow-size distribution's tail index on network performance with TCP connections. In *Proceedings of the 29th International Symposium on Computer Performance, Modeling, Measurements and Evaluation (IFIP Performance)*, October 2011.
  - [40] **Patrick Loiseau**, Galina Schwartz, John Musacchio, and Saurabh Amin. Incentive schemes for internet congestion management: Raffles versus time-of-day pricing. In *Proceedings of the 49th Annual Allerton Conference on Communication, Control, and Computing (Allerton)*, September 2011.
  - [41] **Patrick Loiseau**, Paulo Gonçalves, Julien Barral, and Pascale Vicat-Blanc Primet. Modeling TCP throughput: an elaborated large-deviations-based model and its empirical validation. In *Proceedings of the 28th International Symposium on Computer Performance, Modeling, Measurements and Evaluation (IFIP Performance)*, November 2010. **Best Paper Award Runner-up.**

- [42] **Patrick Loiseau**, Paulo Gonçalves, Stéphane Girard, Florence Forbes, and Pascale Vicat-Blanc Primet. Maximum likelihood estimation of the flow size distribution tail index from sampled packet data. In *Proceedings of the eleventh international joint conference on Measurement and modeling of computer systems (ACM SIGMETRICS / Performance)*, June 2009.
- [43] **Patrick Loiseau**, Paulo Gonçalves, Romaric Guillier, Matthieu Imbert, Yuetsu Kodama, and Pascale Vicat-Blanc Primet. Metroflux: A high performance system for analyzing flow at very fine-grain. In *Proceedings of the 5th International Conference on Testbeds and Research Infrastructures for the Development of Networks and Communities (TridentCom)*, April 2009.

#### Articles in international/national refereed workshops

- [44] Michela Chessa and **Patrick Loiseau**. A cooperative game-theoretic approach to quantify the value of personal data in networks. In *Proceedings of the 12th Workshop on the Economics of Networks, Systems and Computation (NetEcon)*, June 2017.
- [45] Hadrien Hours, Ernst Biersack, and **Patrick Loiseau**. Causal study of network performance. In *Proceedings of the 17ème Rencontres Francophones sur les Aspects Algorithmiques de Télécommunications (AlgoTel)*, June 2014.
- [46] Hadrien Hours, Ernst Biersack, and **Patrick Loiseau**. A causal study of an emulated network. In *10ème Atelier en Evaluation de Performances (AEP10)*, June 2014.
- [47] **Patrick Loiseau**, Paulo Gonçalves, and Pascale Vicat-Blanc Primet. How TCP can kill self-similarity. In *Euro-NF workshop: Traffic Engineering and Dependability in the Network of the Future*, September 2008.
- [48] **Patrick Loiseau**, Paulo Gonçalves, Yuetsu Kodama, and Pascale Vicat-Blanc Primet. Metroflux: A fully operational high speed metrology platform. In *Euro-NF workshop: New trends in modeling, quantitative methods and measurements, in cooperation with NET-COOP*, September 2008.
- [49] **Patrick Loiseau**, Paulo Gonçalves, Guillaume Dewaele, Pierre Borgnat, Patrice Abry, and Pascale Vicat-Blanc Primet. Vérification du lien entre auto-similarité et distributions à queues lourdes sur un dispositif grande échelle. In *9ème Atelier en Evaluation de Performances (AEP9)*, June 2008.
- [50] **Patrick Loiseau**, Paulo Gonçalves, and Pascale Vicat-Blanc Primet. A comparative study of different heavy tail index estimators of the flow size from sampled data. In *Proceedings of the MetroGrid Workshop, within the framework of GridNets International Conference*, October 2007.

#### Communications in conferences without proceedings

- [51] Dong Quan Vu, **Patrick Loiseau**, and Alonso Silva. Approximate equilibria of the Colonel Blotto game. In *the 14th European meeting on game theory (SING14)*, July 2018. (1-page abstract).
- [52] Dong Quan Vu, **Patrick Loiseau**, and Alonso Silva. Approximate equilibria of Blotto-type games. In *Journée SMAI-MODE*, March 2018.
- [53] Michela Chessa, Jens Grossklags, and **Patrick Loiseau**. On non-monetary incentives for the provision of public goods. In *the 13th European meeting on game theory (SING13)*, July 2017. (1-page abstract).
- [54] Michela Chessa, Jens Grossklags, and **Patrick Loiseau**. A game-theoretic study on non-monetary incentives in data analytics projects with privacy implications. In *8e édition de l'Atelier sur la Protection de la Vie Privée (APVP)*, June 2017.
- [55] Vijay Kamble, **Patrick Loiseau**, and Jean Walrand. Regret-optimal strategies for playing discounted repeated games. In *27th International Conference on Game Theory in Stony Brook*, July 2016. (1-page abstract).

- [56] Michela Chessa and **Patrick Loiseau**. The impact of the graph structure on a public good provision game: a cooperative approach with applications to personal data release on social networks. In *the 11th European meeting on game theory (SING11-GTM2015)*, July 2015. (1-page abstract).
- [57] **Patrick Loiseau**, Paulo Gonçalves, Romaric Guillier, Matthieu Imbert, Oana Goga, Yuetsu Kodama, and Pascale Vicat-Blanc Primet. *Metroflux*: a high performance system for very fine-grain flow analysis. In *Grid'5000 Spring School*, April 2009.

### Software Demonstrations

- [58] **Patrick Loiseau**, Romaric Guillier, Oana Goga, Matthieu Imbert, Paulo Gonçalves, and Pascale Vicat-Blanc Primet. Automated traffic measurements and analysis in Grid5000, June 2009. ACM SIGMETRICS / Performance demonstration contest (**Best Student Demonstration Award**).

### Edited volumes

- [59] **Patrick Loiseau**, Aaron Roth, and Adam Wierman. The 10th Workshop on the Economics of Networks, Systems and Computation (NetEcon 2015). *ACM Performance Evaluation Review*, 43(3):47–48, December 2015. (Guest editorial).
- [60] John Chuang and **Patrick Loiseau**. The joint Workshop on Pricing and Incentives in Networks and Systems (W-PIN+NetEcon 2014). *ACM Performance Evaluation Review*, 42(3):2–3, December 2014. (Guest editorial).
- [61] Costas Courcoubetis, Roch Guérin, **Patrick Loiseau**, David Parkes, Jean Walrand, and Adam Wierman. Special Issue on Pricing and Incentives in Networks and Systems: Guest Editors' Introduction. *ACM Transactions on Internet Technology*, 14(2–3):8:1–8:3, October 2014. (Guest editorial).
- [62] **Patrick Loiseau**, David Parkes, and Jean Walrand. The joint Workshop on Pricing and Incentives in Networks and Systems (W-PIN+NetEcon 2013). *ACM Performance Evaluation Review*, 41(4):2–3, March 2014. (Guest editorial).
- [63] **Patrick Loiseau** and Jean Walrand. The first Workshop on Pricing and Incentives in Networks (W-PIN 2012). *ACM Performance Evaluation Review*, 40(2):12–13, September 2012. (Guest editorial).

### Dissertations

- [64] **Patrick Loiseau**. *Combining game theory and statistical learning for security, privacy and network systems*. HDR thesis, UPMC, December 2016.
- [65] **Patrick Loiseau**. *Contributions to the Analysis of Scaling Laws and Quality of Service in Networks: Experimental and Theoretical Aspects*. PhD thesis, ENS Lyon, December 2009.

## Software

**AdAnalyst**: A Chrome extension that provides aggregate statistics and various insights and visualizations about the ads a user receives on Facebook.  
Available at <http://adanalyst.mpi-sws.org/>.

## Invited talks / Keynotes / Guest lectures

- |   |            |
|---|------------|
| DS3 Data Science Summer School, Paris, France<br><i>Transparency, fairness, and privacy challenges in social media targeted advertising</i>             | June 2018  |
| Workshop Data Science in the Alps, Grenoble, France<br><i>Transparency, Fairness, and Privacy challenges with targeted advertising in social medias</i> | March 2018 |

Columbia University (CS seminar), New-York, NY, USA <i>Transparency, Fairness, and Privacy challenges with targeted advertising in social medias</i>	February 2018
Festival Transfo (mini-conférence grand public), Grenoble, France <i>Algorithmes et société: transparence de la publicité en ligne</i>	January 2018
Journée du pôle MSTIC de l'UGA (plenary talk), Grenoble, France <i>Human-aware learning for the digital society: a game-theoretic perspective</i>	December 2017
Privaski, Corrençon-en-Vercors, France <i>Learning from personal data provided by privacy-conscious users: a game-theoretic approach</i>	March 2017
ENS Lyon (SIESTE seminar), Lyon, France <i>Learning from strategic data: a game-theoretic perspective</i>	October 2016
MPI-SWS, Saarbrücken, Germany <i>Classification from strategic data: a game-theoretic perspective</i>	April 2016
11ème Atelier en Evaluation de Performances (keynote), Toulouse, France <i>Strategic resource allocation in adversarial environments</i>	March 2016
Harvard University (EconCS seminar), Cambridge, MA, USA <i>Classification from strategic data: a game-theoretic perspective</i>	November 2015
MIT (Special Henry L. Pierce laboratory seminar), Cambridge, MA, USA <i>Classification from strategic data: a game-theoretic perspective</i>	November 2015
Northeastern University (ECE department seminar), Boston, MA, USA <i>Classification from strategic data: a game-theoretic perspective</i>	November 2015
MIT Media Lab (Data Transparency Lab conference), Cambridge, MA, USA <i>Bringing Transparency to Targeted Advertising</i>	November 2015
LRI, Université Paris-Sud (Séminaire d'algorithmique et de complexité du plateau de Saclay), Saclay, France <i>Learning to classify from strategic data</i>	October 2015
UCLA, IPAM Graduate Summer School: Games and Contracts for Cyber-Physical Security (invited lecture), Los Angeles, CA, USA <i>Learning with Strategic Agents: From Adversarial Learning to Game-Theoretic Statistics</i>	July 2015
Inria Grenoble (In'tech seminar), Grenoble, France <i>On the impact of game theory in security</i>	June 2015
ACM SIGMETRICS (invited tutorial), Portland, OR, USA <i>Learning with Strategic Agents: From Adversarial Learning to Game-Theoretic Statistics</i>	June 2015
LINCS (LINCS seminar), Paris, France <i>Game-theoretic statistics: Learning from data generated by strategic agents</i>	March 2015
Institut Henri Poincaré (Paris game theory seminar), Paris, France <i>Game-theoretic statistics: Learning from data generated by strategic agents</i>	March 2015
Data transparency lab (DTL) kickoff workshop, Telefonica, Barcelona, Spain <i>Game theory and statistics for data transparency: 3 directions</i>	November 2014
AlgoGT, Saint Nizier du Moucherotte, France <i>Classification games</i>	July 2013

Campus SophiaTech (SophiaTech networks seminar), Sophia-Antipolis, France <i>A Robust Incentive Mechanism for Congestion Management</i>	April 2013
Mines ParisTech (Séminaire du CMA), Sophia-Antipolis, France <i>Incentive Mechanisms for Decongestion: Fixed-Budget Rebate versus Time-of-Day Pricing</i>	March 2013
UC Berkeley (TRUST seminar), Berkeley, USA <i>Incentive mechanisms for congestion management</i>	August 2012
RESCOM summer school (invited lecture), Vittel, France <i>Game theory for network security and privacy</i>	June 2012
Supélec, Gif-sur-Yvette, France <i>Large games for Internet congestion management</i>	February 2012
INRIA Paris-Rocquencourt (RAP seminar), Le Chesnay, France <i>Large games for Internet congestion management</i>	February 2012
UCLA (EE department), Los Angeles, CA, USA <i>Raffle-based Incentive Schemes for Congestion Management</i>	October 2011
Caltech (RSRG Seminars), Pasadena, CA, USA <i>Raffle-based Incentive Schemes for Congestion Management</i>	October 2011
Orange Labs (France Telecom), Sophia-Antipolis, France <i>TCP traffic modeling using an almost-sure large-deviations result</i>	March 2011
University of Nice, Laboratoire J.A. Dieudonné (Séminaire de Probabilités et Statistiques), Nice, France <i>Principe de grandes déviations presque-sur et applications</i>	March 2011
Alcatel-Lucent Bell Laboratories (Mathematics of Networks and Communications Research Department), Murray Hill, NJ, USA <i>Almost-sure large deviations and application to TCP traffic</i>	March 2011
University of Waterloo (Department of Electrical and Computer Engineering invited seminar), Waterloo, Canada <i>Large deviations and application to fine TCP modeling</i>	October 2010
UC Berkeley (Networking, Communications and DSP seminars), Berkeley, CA, USA <i>Large deviations and application to fine TCP modeling</i>	September 2010
Caltech (RSRG Seminars), Pasadena, CA, USA <i>Large deviations and application to fine TCP modeling</i>	September 2010
Politecnico di Torino (Telecommunication Network Group), Torino, Italy <i>Heavy-tails and correlations in network traffic</i>	May 2010
INRIA Paris-Rocquencourt (RAP seminar), Le Chesnay, France <i>Large deviations and application to TCP performance</i>	November 2009

## Press coverage

*Tout ce que Facebook sait de moi (et de vous)*, Le Figaro, April 10, 2018.

“*Why am I seeing this ad*” explanations on Facebook are incomplete and misleading, a study says, Quartz, April 06, 2018.

*Does Facebook's Ad Tool Mislead Voters?* Bloomberg Businessweek, March 26, 2018.

*To understand digital advertising, study its algorithms.* The Economist, March 22, 2018.

*'It might work too well': the dark art of political advertising online.* The Guardian, March 19, 2018.

*Is Facebook being honest with you about how it targets ads?* Australian Broadcasting Corporation, March 18, 2018.

*We still have no idea what really happens on Facebook.* The Verge, March 15, 2018.

*Researchers Discovered Data Leak In Facebook's Ad Software.* Fast Company, March 6, 2018.

*Facebook bug could have exposed your phone number to marketers.* Naked Security, Jan. 9, 2018.

*Facebook bug let advertisers find users' phone numbers.* The Telegraph, Jan. 9, 2018.

*Une faille dans Facebook laissait les annonceurs récupérer nos numéros de téléphone.* Siècle digital, Jan. 8, 2018.

*Facebook Bug Could Let Advertisers Get Your Phone Number.* WIRED, Jan. 7, 2018.

*Algorithms Are Getting Better at Matching Your Different Social Media Profiles. But they're still pretty lousy at it.* MOTHERBOARD, June 10, 2015.

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