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DI/TREC
Ecole Normale Supérieure
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WORK EXPERIENCE

- ◇ **Ecole Normale Supérieure (ENS)**, Paris, *Sept. 2004-present*.
Researcher and associate professor (in François Baccelli's group, INRIA TREC).
Research activities:
 - Performance modeling of communications networks.
 - Wireless networking.
 - Dynamic resource allocation / scheduling in wired and wireless networks.Teaching: Courses on Mathematical modeling of communication networks, and on Information theory.

- ◇ **France Telecom R&D**, Issy-les-Moulineaux, *2000-present*.
Research engineer (in Jim Roberts' traffic modeling group).
 - Engineering studies for Orange (division for mobile communications at France Telecom) and other business units at France Telecom.
 - Expertise in GPRS, UMTS(/HSDPA) networks and in WLAN and WiMax technologies.
 - Participation to the definition of new WLAN standards (IEEE802.11n).

- ◇ **Ecole Nationale Supérieure des Telecommunications (ENST)**, Paris, *Sept. 2004-present*.
Teaching: A course on queueing theory.

- ◇ **French Ministry of Foreign Affairs**, Paris, *1998-1999*.
Dept. of Wireless Communications.
 - Supervised the deployment and the management of a worldwide satellite network, and of a private IP network in Europe.
 - Developed and deployed an IP-multicast diffusion tool.

- ◇ **European Molecular Biology Lab. (EMBL)**, Heidelberg, Germany, *1997*.
Long internship.
 - Image processing: singularity detection and tracking via wavelet decomposition. Theoretical and practical development of a tool able to detect, to count and to track fluorescent particles in digital pictures.

PROFESSIONAL

ACTIVITIES

- ◇ Co-chair with Sem Borst (Bell labs) of RAWNET 2005 and 2006, the first and second workshops on Resource Allocation in Wireless NETWORKS, in conjunction with IEEE WiOpt (<http://www.rawnet.org>).
- ◇ Member of the Program Committee of IEEE Globecom 2002, ITC Specialist seminar on Internet Traffic Engineering and Traffic Management 2002, ITC specialist seminar on Performance Evaluation of Wireless and Mobile Systems 2003, IEEE Infocom 2005-2006-2007.
- ◇ European Network of Excellence: EuroNgI (<http://www.eurongi.org>), leader of the Workpackage on QoS in multiservice wireless networks.

EDUCATION

- ◇ **Ecole Polytechnique**, Palaiseau, France.
Ph.D. in Applied Mathematics, november 2003.
Thesis: Insensitivity and Stochastic orders in Queueing networks - Application to communication network modeling at flow level.
Advisor: François Baccelli. *Thesis committee*: Eitan Altman, Frank Kelly, Takis Konstantopoulos, Laurent Massoulié, Philippe Robert, James Roberts.
Please visit <http://www.polytechnique.edu/> for a description of Ecole Polytechnique.
- ◇ **ENST**, Paris, France.
Sept. 1996 - June 1998.
Engineering degree, Specialization: Network Engineering.
Please visit <http://www.enst.fr/en> for a description of ENST.
- ◇ **ENS**, Paris, France. *Sept. 1992 - June 1996*.
"Magistere" in Mathematics (Post-graduate equivalent) and DEA (equivalent to MSc) in Probability and Applications from the University Pierre et Marie Curie (Paris): MSc thesis with J.F. Le Gall on large deviations on the super Brownian motion.
Research activities with L. Desvillettes on Boltzmann differential equations: regularization of the solutions.
Please visit http://www.ens.fr/index_en.php for a description of ENS.

HONORS

AND AWARDS

- ◇ Ranked in top 23 nationally (in France) to get into the Physical and Chemistry program at Ecole Normale Supérieure, Paris.
- ◇ Awarded-merit based scholarship for 2 years from "Corps interministeriel des Telecommunications" (this kind of scholarship is reserved for students at Ecole Normale Supérieure, 3 of these scholarships are offered each year).
- ◇ Nomination for the best PhD award, Ecole Polytechnique, 2003.
- ◇ Best paper award at ACM Sigmetrics 2004, with Thomas Bonald.

TUTORIALS

- ◇ A teletraffic theory of the Internet, presented at Performance 2005, Juan-les-Pins.

PUBLICATIONS

- ◇ A queueing analysis of data networks, with Thomas Bonald, in *Queueing Networks: A Fundamental Approach*, Eds R. Boucherie, N. Van Dijk, to appear, 2006.

- ◇ Flow-level stability of utility-based allocations for non-convex rate regions, with Thomas Bonald, CISS 2006.
- ◇ Capacity of wireless networks with intra- and inter-cell mobility, with Sem Borst and Nidhi Hegde, IEEE Infocom 2006.
- ◇ A queueing analysis of max-min fairness, proportional fairness and balanced fairness, with Thomas Bonald, Laurent Massoulié and Jorma Virtamo, to appear in Queueing systems and applications, 2006.
- ◇ Random multi-access algorithms, a mean field analysis, with Charles Bordenave and David McDonald, Allerton conference on Communication, control and computing 2005.
- ◇ Conservative estimates of blocking and outage probabilities in CDMA networks, with Thomas Bonald, Performance, 2005.
- ◇ Evaluating the voice capacity of 802.11 WLAN under distributed control, with Nidhi Hegde and Jim Roberts, IEEE LAN/MAN 2005.
- ◇ On the traffic capacity of gaussian broadcast channels, with Thomas Bonald, ITC 19, 2005.
- ◇ User-level performance of WLAN hotspots, with Franck Lebeugle, ITC 19, 2005.
- ◇ Inter-cell Scheduling in Wireless Data Networks, with Thomas Bonald and Sem Borst, European Wireless, 2005.
- ◇ On stochastic bounds for monotonic processor sharing networks, with Thomas Bonald, in Queueing systems and applications, 47 (1-2), pp 81-106, 2004.
- ◇ Wireless Data Performance in Multi-Cell Scenarios, with Thomas Bonald, S. Borst and N. Hegde, ACM Sigmetrics, 2004.
- ◇ Insensitive load balancing, with Thomas Bonald and M. Jonckheere, ACM Sigmetrics, 2004.
- ◇ On performance bounds for the integration of elastic and adaptive streaming traffic, with Thomas Bonald, ACM Sigmetrics, 2004.
- ◇ Modeling integration of streaming and data traffic, with Franck Delcoigne and Gwenaél Regnie, Performance Evaluation, 55 (3-4), pp 185-209, 2004.
- ◇ How Mobility impacts the Flow-level Performance in Wireless Data Systems, with Thomas Bonald and Sem Borst, IEEE Infocom, 2004.
- ◇ On performance bounds for Balanced Fairness, with Thomas Bonald, Performance Evaluation, 55, pp 25-50, 2004.
- ◇ Wireless downlink data channels: User performance and cell dimensionning, with Thomas Bonald, ACM Mobicom, 2003.
- ◇ Computational aspects of balanced fairness, with Thomas Bonald, Jim Roberts and Jorma Virtamo, ITC 18, 2003.
- ◇ Insensitive bandwidth sharing in data networks, with Thomas Bonald, Queueing Systems and Applications, 44, pp 69-100, 2003.
- ◇ Insensitive bandwidth sharing, with Thomas Bonald, IEEE Globecom, November 2002,
- ◇ Insensitivity in queueing networks, with Thomas Bonald, Performance Evaluation, 49, pp193-209, 2002.
- ◇ Modelling integration of streaming and data traffic, with Franck Delcoigne and Gwénaél Régnié, ITC specialist seminar on IP traffic, July 2002.

- ◇ Insensitivity results in statistical bandwidth sharing, with Thomas Bonald, Gwénaél Régnié and Jim Roberts, ITC 17, December 2001.
- ◇ Statistical bandwidth sharing: a study of congestion at flow level, with Slim Ben Fredj, Thomas Bonald, Gwénaél Régnié and Jim Roberts, ACM Sigcomm, August 2001.
- ◇ Statistical performance guarantees for streaming using Expedited Forwarding, with Thomas Bonald and Jim Roberts, IEEE Infocom 2001, April 2001.

PATENTS

- ◇ Methods for data traffic transmission from a basestation to multiple mobile stations, joint inventor with Thomas Bonald, France Telecom, FR2873259, 2006.
- ◇ Opportunistic scheduling on different sectors of a basestation, joint invention with Thomas Bonald and Nidhi Hegde, France Telecom, pending patent.