

Nadia FAWAZ

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PROFILE: Senior Researcher at Technicolor, Los Altos, CA with 8 years of professional experience, specializing in data privacy and personalization, and wireless communications. Leverages techniques from information theory, random matrix theory, statistics and probability theory, and aims at bridging theory and practice. Contributes to challenging international high-tech projects in cooperation between Europe, America, Asia. Has lived in USA, and France and is used to working in multi-cultural and versatile environments at the cutting-edge of innovation.

EDUCATION

- Nov. 2007- Feb 2008 **Massachusetts Institute of Technology MIT– Lab. for Information & Decision Systems LIDS** Cambridge, MA, USA
During Ph.D. Visiting graduate student: research on wireless relay channels in the wideband regime
- Apr.-June 2007 **Ecole Nationale des Ponts et Chaussées ENPC - School of International Management** Paris, FRANCE
During Ph.D. **Certificate** “Docteur pour l’Entreprise”: ParisTech post-graduate program in management (150 hours)
- 2005 - 2008 **Telecom ParisTech ENST & EURECOM, Mobile Communications Department** Paris & Sophia-Antipolis, FRANCE
Ph.D. in Electrical Engineering, received with highest honors (*mention très honorable*)
Supported by a French Defense DGA fellowship (Délégation Générale à l’Armement)
 - thesis on Cooperative Systems for Mobile Ad Hoc Networks
 - contributed to international EU research projects (NEWCOM++, FAST, BIONETS, NEWCOM)
 - co-advised Master students, teaching
- 2002 - 2005 **Diplôme d’Ingénieur (Master) in Electrical Engineering**
 - & Eurecom Certificate in telecommunication systems
 - major : Mobile communications, graduated 1st in my major, with the best master thesis
- 2000 - 2002 **Preparatory classes, Lycée Louis Le Grand** Paris, FRANCE
MPSI – MP*: Mathematics, Physics, Chemistry, Engineering Sciences
Preparation for national competitive examinations for entry to the French engineering schools
- 2000 - 2002 **University Pierre and Marie Curie, Paris VI** Paris, FRANCE
in parallel of preparatory classes **DEUG**: Diploma of general university studies, received with highest honors (*mention très bien*)
Major: MIAS, Mathematics and computer science applied to science
- 1997-2000 **High school, Lycée Saint Charles, graduated 1st in my class** Athis-Mons, FRANCE
French Baccalaureate S: high school diploma received with highest honors (*mention très bien*)

PROFESSIONAL EXPERIENCE

- Since Jan. 2011 **Technicolor – Research and Innovation** Palo Alto, CA, USA
Senior Researcher specializing in data privacy and personalization
 - contribute to research on data privacy and personalization: inference attacks, differential privacy, information theoretic privacy, privacy-utility tradeoffs, privacy for time-series
 - led work package on data privacy (team of 8 researchers)
 - led exploratory project on information theoretic privacy
 - PriView demo: designed the backend and contributed to its front end user interface
 - mentor interns, manage the lab seminar series, organize workshops
- Jan.2009-Jan.2011 **Massachusetts Institute of Technology MIT– Research Lab. of Electronics RLE** Cambridge, MA, USA
Post-Doctoral researcher in wireless networks
 - contributed to DARPA funded IT-MANET project
 - co-advised PhD student, taught lectures
- July - Sep. 2006 **Samsung Advanced Institute of Technology SAIT** Seoul, SOUTH KOREA
Research Intern—Communication and Connectivity Lab
 - created an innovative cooperative communication strategy improving throughput of mobile ad hoc networks
 - produced a survey on European research in mobile communications
 - initiated bilingual Korean-English communication (meeting, email) in presence of foreign employees
 - followed up cooperation to give opportunity to another PhD student to intern at SAIT the following summer
- March - Aug. 2005 **CEA-LETI (Commissariat à l’Energie Atomique, Labo. d’Électronique des Technologies de l’Information)** Grenoble, FRANCE
government-funded technological research organization /15000 employees
Research intern—Algorithms and Digital Communications Department
 - created algorithms for semi-blind adaptive equalization in multi-antenna 3G mobile systems (SIMO MC-CDMA), decreasing overhead and improving rate
 - got acquainted with the funding mechanisms in the European research world

July-Sept. 2004	Bouygues Telecom — Mobile Communications Access Provider / 8500 employees <i>Engineering Intern</i> — <i>Networks Directorate - EDGE project</i>	Paris, FRANCE
	<ul style="list-style-type: none"> • compared GPRS/EDGE simulation results and data from sensors in the actual GPRS provider network • managed project team to organise an experiment on an actual EDGE platform • produced EDGE cell models (rates, services, customers) at the busy hour • served as liaison between technical team and marketing team developing future mobile services EDGE 	
July-August 2003	Advanced Timbers PTY LTD — Building material retailer/20 employees <i>Account assistant</i> — <i>Accounting</i>	Sydney, AUSTRALIA
	<ul style="list-style-type: none"> • learned about finance and value creation in a small business environment • helped the accountant to use the IT infrastructure more efficiently and faster 	

COMPUTER SKILLS

Programming Python (Pandas, Numpy, Matplotlib), Matlab, HTML/CSS, LaTeX

AWARDS & DISTINCTIONS

2014	MIT TechReview article cites and describes our UAI 2012 paper as “The Ultimate Challenge For Recommendation Engines” http://www.technologyreview.com/view/530196/the-ultimate-challenge-for-recommendation-engines/	Cambridge, MA, USA
2013	Awarded “Associate Member” level in Technicolor Fellowship Network Program honoring employees who deliver exceptional technical contributions	Palo Alto, CA, USA
2011	Winner of the RecSys challenge on Context-Aware Movie Recommendations CAMRa 2011	Chicago, IL
2010	DGA Award for the best Ph.D. thesis. Prize awarded by the French Ministries of Defense and of Education and Research	Paris, FRANCE
2009-2010	DGA Post-Graduate Fellowship awarded for 1 year by the French Defense Body DGA (Délégation Générale à l’Armement)	Paris, FRANCE
2005-2008	DGA Graduate Fellowship awarded for 3 years by the French Defense Body DGA (Délégation Générale à l’Armement)	Paris, FRANCE
2006	Member of the program “100 Jeunes Scientifiques Français en Chine” <ul style="list-style-type: none"> • selected by the French Ministry of Foreign Affairs to represent French Young Scientists for diplomatic trip • received by President Jacques Chirac and President Hu Jintao at Diaoyutai State Guesthouse in Beijing • received by senior officials in embassy, companies, China Academy of Science, universities, labs in China 	Beijing, Shanghai, Wuhan, CHINA
2005	HITACHI Award for the best Master thesis (fulfilled at CEA-LETI in partial requirement for the Master degree)	Sophia-Antipolis, FRANCE
Since 2003	Honor member of the Junior Enterprise “European Junior of Eurecom” as a founder of the Junior enterprise	Sophia-Antipolis, FRANCE
2000	CIC Bank Award for excellence of results in high school diploma: grant and trip to Spain	Paris, FRANCE
2000	Golden Palm, High school Saint Charles for excellence of academic results and general positive attitude	Athis-Mons, FRANCE

LEADERSHIP

Since Jan. 2011	Technicolor Seminar Series <i>Organizer</i> of the weekly seminar series featuring technical talks open to the public	Palo Alto, CA, USA
July 2011	Technicolor Privacy and Security Week 2011 <i>Organization chair</i> Organized, managed and hosted <ul style="list-style-type: none"> • a two-day Privacy Course, taught by Prof. Dawn Song, and Dr. Elaine Shi, UC Berkeley, July 18-19 2011 • a tutorial on Cryptography, taught by Marc Joye, Technicolor Security Lab., Rennes, July 20-21 2011 	Palo Alto, CA, USA
2007- 2011	Eurecom Community – Eurecom Alumni Association <i>President (2007-2009), Advisor to the governing board (2009-2011)</i>	Sophia-Antipolis, FRANCE
June 2003-Feb. 2005	European Junior of Eurecom, Junior Enterprise <i>Founder and General Secretary</i> — <i>Governing Board</i> <ul style="list-style-type: none"> • coordinated team for creation of the Junior Enterprise • organized the Mediterranean Regional Congress of the Junior Enterprises in Sophia-Antipolis • trained the following governing team 	Sophia-Antipolis, FRANCE
2002 - 2003	Forum of Telecommunications 2003 student-run recruitment fair in High-Technology/ 3000 visitors every year/ 80 employees <i>Coordinator of team in charge of contacts with exhibitors</i>	Paris, FRANCE

- managed the team in contact with exhibitors and coordinated relations with fair-administrators
- increased the database of potential exhibitors/customers
- trained the following team for edition 2004

PROFESSIONAL SERVICE & AFFILIATIONS

Teaching experience

Spring 2010	MIT Course 6.441: Information Theory , instructor: Prof. Médard Taught Lectures 4, 9, 17, and 23	Cambridge, MA, USA
Fall 2009 & 2010	MIT Course 6.450: Principles of Digital Communication I , instructor: Prof. Médard Taught Lectures 7, 10	Cambridge, MA, USA
Fall 2005	EURECOM Course: Mobile Communication Techniques , instructor: Prof. Debbah Taught several lectures and problem sessions	Sophia Antipolis, FRANCE

Conference Technical Program Committees

Nov. 2014	Workshop on Privacy in the Electronic Society, WPES 2014 <i>Member of the technical program committee</i>	Scottsdale, AZ, USA
Dec. 2013	IEEE Global Conference on Signal and Information Processing, GlobalSIP 2013 <i>Member of the technical program committee, symposium on cyber-security and privacy challenges in networks</i>	Austin, TX, USA
June 2013	ACM Conference on Electronic Commerce, EC 2013 <i>Member of the program committee</i>	Philadelphia, PA, USA
Feb. 2013	DIMACS Workshop on the Economics of Information Sharing <i>Co-chair and organizer</i>	Stanford University, CA, USA
June 2012	ACM workshop on Privacy and Anonymity for the Digital Economy, PADE 2012 <i>Member of the technical program committee, workshop held in conjunction with ACM SIGMETRICS 2012</i>	London, UK
Apr. 2012	International Conference on Telecommunications, ICT 2012 <i>Member of the technical program committee</i>	Jounieh, Lebanon
July 2011	International Conference on Computer Communications and Networks, ICCCN 2011 <i>Member of the technical program committee of the track on Wireless Communications</i>	Hawaii, USA
Oct. 2009	IEEE International Conference on Ultra Modern Telecommunications 2009 <i>Member of the technical program committee of the workshop on Random Matrix Theory</i>	Saint Petersburg, RUSSIA
June 2009	ACM IWCMC 2009, International Wireless Communications and Mobile Computing Conference <i>Member of the technical program committee of the MIMO Systems Symposium</i>	Leipzig, GERMANY
Apr. 2007	IEEE Winterschool on Information and Coding theory 2007 <i>Publications Chair</i> <ul style="list-style-type: none"> • in charge of the proceedings (content, edition, distribution) and technical program (sessions, support) • proposed video-recording of plenary talks and making them available online to global scientific community 	St Paul de Vence, FRANCE
July 2006	SPAWC 2006, IEEE Workshop on Signal Processing Advances in Wireless Communications <i>Coordinator of student helping team (15 team members)</i> <ul style="list-style-type: none"> • defined and organized work in tasks and teams: IT, Communication, Sessions support, Social events support • coordinated student team and relations with senior committee 	Cannes, FRANCE

Reviewer

Journals	IEEE Journal on Selected Topics in Signal Processing, IEEE Transactions on Information Forensics and Security, IEEE Transactions on Communications, IEEE Transactions on Wireless Communications, IEEE Transactions on Vehicular Technologies, EURASIP Journal on Wireless Communications and Networking
Conferences	WPES 2014, IEEE GlobalSIP2013, EC 2013, ICT 2012, EURASIP EUSIPCO 2011, ICCCN 2011, IEEE ISIT 2010, IEEE Globecom 2009 and 2007, ICST WiOpt 2009, ACM IWCMC 2009, IEEE ICASSP 2008 and 2007, IEEE VTC Fall 2008 and Spring 2007, IEEE SPAWC 2008, IEEE PIMRC 2008, ICST SimuTools 2008, IEEE ICC 2007, IEEE ISWCS 2006

Affiliations

Member	IEEE, IEEE Information Theory Society, IEEE Communication Society, IEEE Women in Information Theory
Member	ACM, ACM SigComm, ACM SigECom, ACM SigKDD, ACM SigMetrics, ACM Women in Computing

PUBLICATIONS

Journal articles

- July 2015 **PriView: Personalized Media Consumption Meets Privacy Against Inference Attacks**
Sandilya Bhamidipati, Nadia Fawaz, Branislav Kveton, Amy Zhang
IEEE Software
Special Issue on Security and Privacy on the Web
- Under revision*
Oct. 2014 **Managing your Private and Public Data: Bringing down Inference Attacks against your Privacy**
Salman Salamatian, Amy Zhang, Flavio du Pin Calmon, Sandilya Bhamidipati, Nadia Fawaz, Branislav Kveton, Pedro Oliveira, Nina Taft
Under revision for IEEE Journal of Selected Topics in Signal Processing, JSTSP
Special Issue on Signal and Information Processing for Privacy
- July 2014 **Privacy auctions for recommendation systems**
Pranav Dandekar, Nadia Fawaz, Stratis Ioannidis
ACM Transactions on Economics and Computation, TEAC
- April 2011 **Asymptotic Capacity and Optimal Precoding in MIMO Multi-Hop Relay Networks**
Nadia Fawaz, Keyvan Zarifi, Merouane Debbah, David Gesbert
IEEE Transactions on Information Theory, vol. 57, no. 4, pages 2050 - 2069, April 2011
- July 2010 **From Spectrum Pooling to Space Pooling: Opportunistic Interference Alignment in MIMO Cognitive Networks** - Samir Medina Perlaza, Nadia Fawaz, Samson Lasaulce, Merouane Debbah
IEEE Transactions on Signal Processing, vol. 58, no. 7, pages 3728 – 3741, July 2010
- May 2008 **When Network Coding and Dirty Paper Coding Meet in a Cooperative Ad Hoc Network**
Nadia Fawaz, David Gesbert, Merouane Debbah
IEEE Transactions on Wireless Communications, Vol. 7, No. 5, May 2008

Conference papers

- Feb. 2015 **Privacy-Utility Tradeoffs for Time-Series** **San Diego, CA, USA**
Nadia Fawaz, Murat Erdogdu
Invited at Information Theory and Applications Workshop, ITA 2015
- Jan. 2015 **Privacy-Utility tradeoff for time-series with application to smart-meter data** **Austin, TX, USA**
Murat Erdogdu, Nadia Fawaz, Andrea Montanari
AAAI conference on artificial intelligence, AAAI 2015 workshop on computational sustainability
- Dec. 2014 **Sequential Relevance Maximization with Binary Feedback** **Montreal, Canada**
Vijay Kamble, Nadia Fawaz, Fernando Silveira
Conference on Neural Information Processing Systems, NIPS 2014 workshop on personalization
- Nov. 2014 **From the Information Bottleneck to the Privacy Funnel** **Hobart, Australia**
Ali Makhdoumi, Salman Salamatian, Nadia Fawaz, Muriel Medard
IEEE Information Theory Workshop, ITW 2014
- July 2014 **SPPM: Sparse Privacy Preserving Mappings** **Quebec City, Canada**
Salman Salamatian, Nadia Fawaz, Branislav Kveton, Nina Taft
Conference on Uncertainty in Artificial Intelligence, UAI 2014
- June 2014 **Privacy Tradeoffs in Predictive Analytics** **Austin, TX, USA**
Stratis Ioannidis, Andrea Montanari, Udi Weinsberg, Smriti Bhagat, Nadia Fawaz, Nina Taft
ACM International Conference on Measurement and Modeling of Computer Systems, SIGMETRICS 2014
- May 2014 **PriView: Media Consumption and Recommendation Meet Privacy Against Inference Attacks**
Amy Zhang, Sandilya Bhamidipati, Nadia Fawaz, Branislav Kveton **San Jose, CA, USA**
IEEE Web 2.0 Security and Privacy Workshop, W2SP 2014 (Workshop of IEEE SSP Oakland Symposium)
- Feb. 2014 **From Differential Privacy to Divergence Privacy** **San Diego, CA, USA**
Nadia Fawaz, Flavio du Pin Calmon, Ali Makhdoumi, Salman Salamatian
Invited at Information Theory and Applications Workshop, ITA 2014
- Jan. 2014 **Privacy against Inference Attacks: From Theory to Practice** **Uni. of Florida at Gainesville, FL, USA**
Nadia Fawaz
Invited abstract at C³ 2nd Workshop on Cognition and Control, 2014
- Dec. 2013 **How to Hide the Elephant– or the Donkey– in the Room: Practical Privacy Against Statistical Inference**
Salman Salamatian, Amy Zhang, Flavio du Pin Calmon, Sandilya Bhamidipati, Nadia Fawaz, Branislav Kveton, Pedro Oliveira and Nina Taft. **Austin, TX, USA**
IEEE Global Conference on Signal and Information Processing, GlobalSIP 2013

Oct. 2013	Privacy-Utility Trade-Off under Statistical Uncertainty Ali Makhdoumi, Nadia Fawaz Allerton Conference on Communication, Control, and Computing, ALLERTON 2013	Allerton, IL, USA
Sep. 2013	Nearly Optimal Private Convolution Nadia Fawaz, S. Muthukrishnan, Aleksandar Nikolov European Symposium on Algorithms, ESA 2013	Sophia-Antipolis, FRANCE
Mar. 2013	Private Predicate Sums on Decayed Streams Jean Bolot, Nadia Fawaz, S. Muthukrishnan, Aleksandar Nikolov, Nina Taft International Conference on Database Theory, ICDT 2013	Genoa, Italy
Dec. 2012	Privacy Auctions for Recommender Systems Pranav Dandekar, Nadia Fawaz, Stratis Ioannidis Workshop on Internet & Network Economics, WINE 2012	Liverpool, UK
Oct. 2012	Privacy against Statistical Inference Flavio du Pin Calmon, Nadia Fawaz Allerton Conference on Communication, Control, and Computing, ALLERTON 2012	Allerton, IL, USA
Aug. 2012	Guess Who Rated This Movie: Identifying Users Through Subspace Clustering Amy Zhang, Nadia Fawaz, Stratis Ioannidis, Andrea Montanari Conference on Uncertainty in Artificial Intelligence, UAI 2012 Featured in MIT TechReview August 2014	Catalina Island, USA
July 2012	Reducibility of joint relay positioning and flow optimization problem Mohit Thakur, Nadia Fawaz, and Muriel Medard IEEE International Symposium on Information Theory, ISIT 2012	Cambridge, MA, USA
Feb. 2012	Private linear maps under decaying privacy Nadia Fawaz, S. Muthukrishnan, Aleksandar Nikolov invited at Information Theory and Applications Workshop, ITA 2012	San Diego, CA, USA
Oct. 2011 Winner Of challenge	Identifying Users From Their Rating Patterns José Bento, Nadia Fawaz, Andrea Montanari, Stratis Ioannidis Winner of ACM RecSys Challenge on Context-aware Movie Recommendation, CAMRa 2011	Chicago, IL , USA
Oct. 2011	A Converse for the Wideband Relay Channel with Physically Degraded Broadcast Nadia Fawaz, Muriel Medard Invited paper at IEEE Information Theory Workshop, ITW 2011	Paraty, Brazil
July 2011	On the Geometry of Wireless Network Multicast in 2-D Mohit Thakur, Nadia Fawaz, and Muriel Medard IEEE International Symposium on Information Theory, ISIT 2011	Saint Petersburg, Russia
April 2011	Optimal relay location and power allocation for low SNR broadcast relay channels Mohit Thakur, Nadia Fawaz, Muriel Médard IEEE International Conference on Computer Communications, INFOCOM 2011	Shanghai, CHINA
Feb. 2011	On wireless networks in the wideband regime Nadia Fawaz, Mohit Thakur, Muriel Medard invited at Information Theory and Applications Workshop, ITA 2011	San Diego, CA, USA
June 2010	On the Non-Coherent Wideband Multipath Fading Relay Channel Nadia Fawaz, Muriel Médard IEEE International Symposium on Information Theory, ISIT 2010	Austin, TX, USA
September 2009	Alignement d'Interférence Opportuniste avec des Terminaux Multi-Antennes Samir Medina Perlaza, Nadia. Fawaz, Samson Lasaulce, Merouane Debbah Signal and Image Processing Workshop, GRETSI 2009	Dijon, FRANCE
May 2008	Improving Ad Hoc Networks Capacity and Connectivity using Dynamic Blind Beamforming Nadia Fawaz, Zafer Beyaztas, Merouane Debbah, David Gesbert IEEE Vehicular Technology Conference, VTC Spring 2008	SINGAPORE
May 2008	Asymptotic Capacity and Optimal Precoding Strategy of Multi-level Precode & Forward in Correlated Channels - Nadia Fawaz, Keyvan Zarifi, Merouane Debbah, David Gesbert IEEE Information Theory Workshop, ITW 2008	Porto, PORTUGAL
April 2008	Large system design and analysis of protocols for decode-forward relay networks Laura Cottatellucci, Terence Chan, Nadia Fawaz ICST Workshop on Physics-Inspired Paradigms in Wireless Communications and Networks, WiOpt/PHYSCOMNET 2008	Berlin, GERMANY

June 2007	Capacity and Positioning in Dense Scattering Environments Nadia Fawaz, Merouane Debbah, David Gesbert IEEE Workshop on Signal Processing Advances in Wireless Communications, SPAWC 2007	Helsinki, FINLAND
March 2007	When Network Coding and Dirty Paper Coding Cooperate Nadia Fawaz, David Gesbert, Merouane Debbah IEEE Winter School on Coding and Information Theory, WSIT 2007	La-Colle-sur-Loup, FRANCE
January 2007	Capacity of Dense Scattering Environments Nadia Fawaz, Merouane Debbah, David Gesbert IRAMUS Workshop	Val-Thorens, FRANCE
Other publications		
April 2012	Privacy in the Personalized Computing Era Nina Taft, Anmol Sheth, Nadia Fawaz Technicolor White Paper	Palo Alto, CA, USA
May 2010	A Conjecture on the Gaussian Relay Channel in the low SNR Regime Nadia Fawaz, Muriel Médard Technical Poster and slide for IT-MANET PI Meeting, Uni. of Texas at Austin, TX, USA	Austin, TX, USA
May 2010	Non-coherent Multipath Fading Relay Networks in the Wideband Regime Nadia Fawaz, Muriel Médard Technical Poster and slide for IT-MANET PI Meeting, MIT, Cambridge, MA, USA	Cambridge, MA, USA
June 2009	Asymptotic Capacity and Optimal Precoding Strategy for MIMO Relay Systems Nadia Fawaz Chapter 4.5.1 in Deliverable DR6.2 of NEWCOM++ Work Package WPR6	
April 2008	Large System Analysis of Relay Networks Nadia Fawaz, Laura Cottatellucci Chapter 5.3.2 in Deliverable DR6.1 of NEWCOM++ Work Package WPR6	
August 2007	Network Design and Optimization: Ad-Hoc Network Infrastructure Nadia Fawaz Chapter 4 in Deliverable D1.3.2 of BIONETS Work Package WP 1.3	
June 2007	WSIT'007 – 9th IEEE Winter School on Coding and Information Theory Nadia Fawaz, Merouane Debbah Article in IEEE Information Theory Society Newsletter, June 2007	
September 2006	When Network Coding and Dirty Paper Coding Meet in a Cooperative Ad Hoc Network Nadia Fawaz, David Gesbert, Merouane Debbah EURECOM Research Report, RR-07-199, September 2006	
