

# SALMAN SALAMATIAN

Key Competences : Information Theory - Statistical Learning - Convex Optimization

42 avenue de Vessy  
Ferney-Voltaire  
France

salman.salamatian@epfl.ch

## • EDUCATION

M.S. in Communication Systems, EPFL (current GPA : 5.2/6) 2012-current  
Exchange student, Carnegie Mellon University (GPA : 3.37/4) 2011-2012  
B.S. in Communications Systems, EPFL (GPA : 5.4/6) 2009-2011

## • HONORS & ACADEMIC ACTIVITIES

Selected among whole EPFL for a one year exchange scholarship in CMU  
Student Assistant for the class of Information Theory & Coding 2013

## • ACADEMIC PROJECTS & RESEARCH EXPERIENCE

**Polar Codes for Separation of Source and Network Coding** Present  
Separation as a framework for reducing complexity  
Supervisors : Muriel Médard, MIT & Emre Telatar ,EPFL

**Duality and I-projection for Error Exponent in Information Theory** 2013  
Characterization of the Error Exponent curve  
Supervisor : Emre Telatar ,EPFL

**Compound Polar Code for the Multiple Access Channel** 2013  
Characterization of Capacity Region of the Compound Polar Code, and Applications to Interference Channel.  
Supervisor : Emre Telatar ,EPFL

**Distributed Learning on a Network of Nodes** 2012  
Transform Coding as a compression scheme for correlated data.  
Adaptation to a distributed setting, using covariance matrix estimation  
Applications on a large scale IP-level network of routeurs.

**Privacy and Recommendation systems** 2011  
Practical schemes to achieve a good trade-off between utility (recommendation accuracy) and privacy.  
Supervisors : Branislav Kveton & Nina Taft, Technicolor Palo Alto

## • INTERNSHIPS

**Sparse Approximate Privacy Mappings** Summer 2013  
Scalable Implementation of Large Scale Convex Optimization by usage of Sparse and Greedy Approximation for Privacy against Inference. Significant gain with respect to state of the art techniques.  
Supervisors : Nadia Fawaz, Branislav Kveton, & Nina Taft from **Technicolor Labs**, Palo Alto

**Privacy against Statistical inference** Summer 2012  
Information theoretical approach for strong theoretical privacy guarantees against inference. Evaluation of results on real large data-sets.  
Supervisors : Nadia Fawaz, Branislav Kveton, & Nina Taft from **Technicolor Labs**, Palo Alto

## • PUBLICATIONS

- “HOW TO HIDE THE ELEPHANT— OR THE DONKEY— IN THE ROOM: PRACTICAL PRIVACY AGAINST STATISTICAL INFERENCE FOR LARGE DATA”, Salman Salamatian et. al., *IEEE GLOBAL CONFERENCE ON SIGNAL AND INFORMATION PROCESSING (GLOBALSIP)*, 2013
- “SPPM: SPARSE PRIVACY PRESERVING MAPS”, Salman Salamatian, Nadia fawaz, Branislav Kveton, Nina Taft. “*UAI*”, 2014
- “FROM THE INFORMATION BOTTLENECK TO THE PRIVACY FUNNEL”, A. Makhdoumi, S. Salamatian, N. Fawaz, M. Médard. “*ITW*”, 2014

## • SKILLS

### Statistics and Data Mining

Advanced Probability,  
Machine Learning,  
Stat. of extremes,  
Information Processing & Learning,  
Stat. for Genomic Data  
Stat. Learning & Discovery  
Statistical Signal Proc

### Coding & Communications

Info. Theory & Coding,  
Advanced Digital Comm  
Stat. Physics for Comm.  
Stochastic Processes,  
Cryptography & Security,  
Computer Networks

### Algorithms and Optimization

Convex Optimization,  
Linear Programming,  
Combinatorial Optimization,  
Algorithms,

### Programming Languages

Matlab, Java, R, Scala,  
HTML, Shell, Latex

### Operating Systems

Linux, Windows, Mac Os

### Languages

Fluent in French, English & Farsi  
Knowledge of Spanish & German

## • PERSONAL STATUS

### Interests

Travels, Painting, Food

### Citizenship

French, Iranian  
(dual citizenship)

### Marital Status

Single