Jean-Baptiste Tristan

Personal information	Email	jean.baptiste.tristan@gmail.com
	Phone	(617) 997-1404
	Citizenship	French, permanent resident of the United States

Research Interests

- Machine learning
- Compilers, program analysis
- Parallel and distributed learning systems
- Probabilistic Graphical models
- Statistical inference, Markov Chain Monte Carlo algorithms
- Recurrent neural networks
- Program induction

Education

Ph.D. computer science, 2009
University of Paris 7, Paris, France
- Title: Formal Verification of Translation Validators
- Performed at INRIA (French Institute for Research in Computer Science and Automation)

M.Sc. computer science, 2006
Ecole Normale Superieure, Paris, France

Undergraduate studies
I obtained several French diplomas that do not correspond well to US diplomas
- "DEUG" in mathematics and computer science (University of Paris 7)
- "License" in computer science (University of Paris 7)
- "Magistere" in mathematics and computer science (Ecole Normale Superieure of Paris)

Awards

Recipient of the **2011 La Recherche award in Information Sciences** along with Sandrine Blazy, Zaynah Dargaye, and Xavier Leroy for our work on the CompCert verified C compiler.

Invited to the IFIP working group on Functional Programming and the IFIP working group on programming languages.

Research Experience

Oracle labs, Burlington, Massachusetts USA
Principal Member of Technical Staff **10/2015-present**
Oracle labs, Burlington, Massachusetts USA
Senior Member of Technical Staff **11/2011-10/2015**
Harvard University, Cambridge, Massachusetts USA
Postdoctoral fellow **11/2009 - 11/2011**
Microsoft research-INRIA joint center, Saclay, France
Intern **Fall 2009**
Harvard University, Cambridge, Massachusetts USA
Intern **Summer 2005**
Exalead R&D, Paris, France
Intern **Summer 2004**
University of Paris, 7, Paris, France

Intern **Summer 2003**

Teaching Experience

Harvard University, Cambridge, Massachusetts USA
Visiting Lecturer, CS 153: Compiler Construction **Fall 2015**
Harvard University, Cambridge, Massachusetts USA
Teaching fellow, CS51: Introduction to computer science II **Spring 2011**
Harvard University, Cambridge, Massachusetts USA
Teaching fellow, CS50: Introduction to computer science I **Fall 2010**

Peer-Reviewed Publications

Using Butterfly-Patterned Partial Sums to Optimize GPU Memory Accesses for Drawing from Discrete Distributions
Guy Steele, Jean-Baptiste Tristan.
In **PPOPP'17**: ACM SIGPLAN Symposium on Principles and Practice of Parallel Programming, 2017.

Exponential Stochastic Cellular Automata for Massively Parallel Inference
Manzil Zaheer, Michael Wick, Jean-Baptiste Tristan, Alex Smola, Guy Steele.
In **AISTATS'16**: International Conference on Artificial Intelligence and Statistics, 2016.

Adding approximate counters
Guy Steele, Jean-Baptiste Tristan.
In **PPOPP'16**: ACM SIGPLAN Symposium on Principles and Practice of Parallel Programming, 2016.

Comparing Gibbs, EM and SEM for MAP Inference in Mixture Models
Manzil Zaheer, Michael Wick, Satwik Kottur, Jean-Baptiste Tristan.
In **OPT'15**: Optimization for Machine Learning, 2015.

Exponential Stochastic Cellular Automata for Massively Parallel Inference
Manzil Zaheer, Michael Wick, Jean-Baptiste Tristan, Alex Smola, Guy Steele.
In **LearningSys'15**: Workshop on Machine Learning Systems, 2015. **Spotlight**.

Efficient Training of LDA on a GPU by Mean-for-Mode Estimation
Jean-Baptiste Tristan, Joseph Tassarotti, Guy Steele.
In **ICML'15**: International Conference on Machine Learning, 2015.

Augur: Data-Parallel Probabilistic Modeling
Jean-Baptiste Tristan, Daniel Huang, Joseph Tassarotti, Adam Pocock, Stephen J. Green, Guy Steele.
In **NIPS'14**: Annual Conference on Neural Information Processing Systems, 2014. **Spotlight**

Parallel programming with big operators
Changhee Park, Guy Steele, Jean-Baptiste Tristan.
In **PPOPP'13**: ACM SIGPLAN Symposium on Principles and Practice of Parallel Programming, 2013.

RockSalt: Better, Faster, Stronger SFI for the x86
Greg Morrisett, Gang Tan, Joseph Tassarotti, Jean-Baptiste Tristan, Edward Gan.
In **PLDI '12**: ACM SIGPLAN Conference on Programming Language Design and Implementation, 2012.

Evaluating Value-Graph Translation Validation for LLVM
Jean-Baptiste Tristan, Paul Govereau, Greg Morrisett.
In **PLDI '11**: ACM SIGPLAN Conference on Programming Language Design and Implementation, 2011.

A simple, verified validator for software pipelining
Jean-Baptiste Tristan, Xavier Leroy.
In **POPL '10**: ACM SIGACT-SIGPLAN Symposium on Principles of Programming Languages, 2010.

Verified Validation of Lazy Code Motion
Jean-Baptiste Tristan, Xavier Leroy.
In **PLDI '09**: ACM SIGPLAN Conference on Programming Language Design and Implementation, 2009.

Formal verification of translation validators: A case study on instruction scheduling optimizations
Jean-Baptiste Tristan, Xavier Leroy.
In **POPL '08**: ACM SIGACT-SIGPLAN Symposium on Principles of Programming Languages, 2008.

Academic Service

Program Committee: IBM PL day 2016, AISTATS 2017, SNAPL 2017 PC Member, NIPS 2016 PC Member, PAPI 2016 PC Member, PPOPP 2016 PC Member, POPL 2012 External Reviewing Committee, Coq Workshop 2012 PC Member.

Referee: Communication of the ACM, ACM Transations On Programming Languages and Systems, ACM Transaction on Architecture and Code Optimization, Software Practice & Experience, Information Processing Letters, Higher-Order and Symbolic Computation.

Reviewer: AISTATS, SOCC, NIPS, ICML, POPL, PLDI, PPOPP, DISC, PPDP, SSV, CAV.

Other: National Science Foundation panelist in 2013, 2014, 2015. Treasurer for ICFP 2013.

Patents

10 patents approved by Oracle's patent review committee.

Tools

I have had to use several combinations of tools for various projects.

- Scalable topic modeling: CUDA, MPI, java, Fork-Join
- Recurrent neural networks: python, numpy, theano, scikit
- Formal verification: Coq proof assistant, OCaml