

Sylvain GELLY

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French Citizen
27-year-old (09/07/1979)

Education

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| 2004–2007 | Phd in Machine Learning (ongoing)
TAO team, Paris 11 University
Optimal Control in difficult cases using Reinforcement Learning. |
| 2003–2004 | MS of Computer Science
Paris 6 University
Artificial Intelligence, Pattern Recognition and Applications
with First Class Honours. |
| 2000–2003 | Ecole Polytechnique
Top level General Engineering school
Relevant courses: Computer Science, Fundamental and Applied Mathematics. |
| 1997–2000 | ”Classes Préparatoires”
Years of intensive study (an intensive curriculum emphasizing Mathematics, and Physics) required to sit the competitive entrance examination to the French graduate-level engineering institutes ”Grandes Écoles”. |

Work experience

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| 2004–2006 | Research and Development achievements <ul style="list-style-type: none">- Designing and developing an algorithm for computer-go. Resulting program MoGo is currently the best ranked go program on the 9x9 Computer Go Server (http://cgos.boardspace.net/9x9.html).- Bringing new methods for solving difficult control problems. Developing a general and full featured framework of Reinforcement Learning and in particular of dynamic programming (OpenDP \approx 70000 C++ lines).- Theoretical works on Bayesian Networks with experimental validations. |
| 2004 | Master’s internship in Machine Learning
TAO team, Paris 11 University
Autonomous Robotic mapping
Fundamental and experimental works on Bayesian Networks used for representing the data. |
| 2003 | Undergraduate Internship
TAO team, Paris 11 University
Artificial Agents and Speculative Bubbles. |

Technical skills

- Operating Systems:** Linux (strong skills), Windows (9x, 2000, NT, XP)
Languages: C++ (strong skills), Java (strong skills), C, Assembly, Ocaml, Prolog, HTML, Latex, Maple, Matlab
Tools: Throlltech **Qt** toolkit (strong skills), Eclipse, MS Visual Studio, Netbeans, GNU development tools.
- Other Projects:**
- **Autonomous Robotics:** 3D object reconstruction from an embedded video.
 - **Language:** Writing of a ”Garbage Collector” for a functional language.

- **Constraints Programming:** Solving the Travelling Salesman Problem with capacity constraints and time windows.

Languages

English: Professional use of written and oral English.

Spanish: Scholastic.

Outside interests and activities

Social Work: Assisting mentally handicapped people. York, UK (2 months).

Robotic French Cup (2002): Responsible of computer science part of the school team's robot.

Music: Classical piano (since 1999).

Sports: Volley-ball in competition.

Teaching

2005-2006: **Artificial Intelligence** to third-year students of EFREI. (26h).

Data structures in **C** language to second-year students of EFREI. (26h).

Introduction to Computer Science to first-year students of Paris 11 University. (20h).

2004-2005: Supervisor of **Data mining projects** (Statistical Master of Paris 11 University). (25h).

2003-2004: **Matlab** programming language to first-year students of Ecole Polytechnique (24h).

Java programming language to first-year students of Ecole Polytechnique (40h).

Publications

Bayesian networks: a better than frequentist approach for parametrization, and a more accurate structural complexity measure than the number of parameters

S. Gelly, O. Teytaud

RIA (Journal) to appear

Universal Consistency and Bloat in GP. Some theoretical considerations about Genetic Programming from a Statistical Learning Theory viewpoint

S. Gelly, O. Teytaud, N. Bredeche, M. Schoenauer

RIA (Journal) to appear

Comparison-based algorithms: worst-case optimality, optimality w.r.t a bayesian prior, the intraclass-variance minimization in EDA, and implementations with billiards

S. Gelly, S. Ruetten and O. Teytaud

PPSN-BTP-Workshop, PPSN-2006 Parallel Problem Solving from Nature

On the ultimate convergence rates for isotropic algorithms and the best choices among various forms of isotropy

S. Gelly, J. Mary and O. Teytaud

PPSN 2006 Parallel Problem Solving from Nature

General lower bounds for evolutionary algorithms

O. Teytaud and S. Gelly

PPSN 2006 Parallel Problem Solving from Nature

Resource-Aware Parameterizations of EDA

S. Gelly, O. Teytaud and C. Gagne

IEEE CEC 2006 Congress on Evolutionary Computation

Learning for stochastic dynamic programming

S. Gelly, J. Mary and O. Teytaud

ESANN 2006 European Symposium on Artificial Neural Networks

From Factorial and Hierarchical HMM to Bayesian Network: A Representation Change Algorithm

S. Gelly, N. Bredeche and M. Sebag

SARA 2005 Symposium on Abstraction, Reformulation and Approximation

Taylor-based pseudo-metrics for random process fitting in dynamic programming: expected loss minimisation and risk management

S. Gelly, J. Mary and O. Teytaud

PDMIA 2005 (National Reinforcement Learning conference)

Statistical asymptotic and non-asymptotic consistency of bayesian networks: convergence to the right structure and consistent probability estimates

S. Gelly, O. Teytaud

CAP 2005 (National Machine Learning conference)

Universal Consistency and Bloat in GP

S. Gelly, O. Teytaud, N. Bredeche, M. Schoenauer

CAP 2005 (National Machine Learning conference)

A Statistical Learning Theory Approach of Bloat

O. Teytaud, S. Gelly, N. Bredeche, M. Schoenauer

GECCO 2005 (poster) Genetic and Evolutionary Computation Conference

Artificial Agents and Speculative Bubbles

Y. Semet, S. Gelly, M. Schoenauer, M. Sebag

CF'04: International Conference on Computational Finance
and its Applications (**PKDD-2004**)