

PHILIPPE MORIGNOT

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EXPERIENCE

- ◆ **SAFRAN (via ASPertise and Embarq), Eragny** *Dec. 17 (minus 20) – March 21*
 - ✓ R&D consultant in A.I. Path-planning and scheduling in a topological map, using a constraint programming model. Introduction of discrete uncertainty. Application to all-ground autonomous vehicles, VTOL aircraft and drones.
- ◆ **Institute VEDECOM, Versailles** *March 16 – Sept. 17*
 - ✓ Senior researcher in A.I., team VEH08. Introduction of the Artificial Intelligence domain into the Intelligent Transportation Systems one. Organization of a workshop “A.I. & Delegated-Driving Vehicle” at UVSQ. Writing a 160-page deliverable on “A.I. & Delegated-Driving Vehicle”.
- ◆ **INRIA Rocquencourt, Le Chesnay** *May 12 – Feb. 15*
 - ✓ Expert engineer, project-team LIFEWARE (since Jan. 14). Constraint programming for packing objects with complex shapes (project Net-WMS-2 for the French National Research Agency ANR).
 - ✓ Expert engineer, project-team RITS (until Dec. 13). Ontologies (relaxation of traffic rules, self-assessment of sensors) for intelligent vehicles. Arbitration. Simulation of urban traffic to assess its fluidity.
- ◆ **CEA-LIST / Interactive Robotics Lab., Fontenay-aux-Roses** *Dec. 09 – July 11*
 - ✓ Project leader. SLAM and visual detection of objects, with 3 humanoïd robots NAO (challenge CAROTTE, for the French National Research Agency ANR, YOJI project).
 - ✓ Researcher-engineer. Embedded task planning to generate the scenarios of a mobile robot with 6-DOF (mobile base ROBULAB, arm MANUS, gripper) for assisting elderly or disabled persons (ITEA 2 project MIDAS, project ARMEN for the French National Research Agency).
- ◆ **AIRBUS DEFENCE & SPACE / SDC / IPCC, Val de Reuil** *Sept. 09*
 - ✓ Expert in combinatorial optimization. Technical part of a contract on optimized sensors, for the French Procurement Agency (DGA).
- ◆ **OPTIMIA, Paris** *Feb. 07 – Feb. 09*
 - ✓ Co-founder, associate (part time). Start-up creation in combinatorial optimization (reactive timetabling).
- ◆ **AXLOG INGENIERIE, Arcueil** *Sept. 03 – Nov. 08*
 - ✓ Chief Scientific Officer. Relations with French and international universities/laboratories. High-level management of R&D projects for the European Space Agency, the French Procurement Agency (DGA), etc. Project leader by default on several projects. Before-sales activity. Writing of technical bids. Contribution to the definition of the technical strategy of the company. Artificial Intelligence and Operational Research evangelist for technical and commercial engineers. Advisor of 4 interns.
- ◆ **PACTE NOVATION, Issy-les-Moulineaux** *June 98- August 03*
 - ✓ Head of the Combinatorial Optimization Department. Before-sales activity, technical bids writing, recruitment, high level project management, management of the commercial team on this topic.
 - ✓ Project leader. For TRAPIL (6 man x months, 2 persons), optimization of the oil flow in a network of pipelines ; Ford & Fulkerson algorithm (flow theory), discrete event simulator, MFC. For ADP (15 man x months, 4 persons), Assignment of flight groups to airport’s terminals under quality constraints. Constraint programming (ILOG SOLVER), Operational Research (tabu algorithm), MFC, StingRay, Access. For EUTELSAT (22 man x months, 4 persons), software to rent satellite transponders ; ILOG Views, Oracle.

For ADP (33 man x months, 3 persons), building and optimizing the timetables of on-ground employees (150 shifts + 600 tasks per timetable). Operational Research (tabu algorithm, ILOG CPLEX) and Artificial Intelligence (ILOG SOLVER, A* algorithm).

- ✓ Consultant. For the European project PROACTIVE (1,5 years, 3 persons), expert system to reconfigure/adapt industrial systems ; Java, ILOG JRULES, Oracle. For EUROCONTROL, 2% shrink of the global take-off delay of European airplanes ; C++, tabu algorithm, simulated annealing (Operational Research), Artificial Intelligence (ILOG SOLVER, A* algorithm). Automatic construction of 300 flight sectors, supervised by airplane controllers, without caring of national borders. C++, 2D geometry, Voronoï diagram. For EDF/GDF (1 month), converting 60 inference rules from ILOG RULES version 6 to 7, with their execution test. For CSEE-Transport (2 months), Memory leak fixing with INSURE++ on UNIX. For EDF/GDF (2 months), bug fixing in an expert system in ILOG RULES for computing retirement pensions. For ALCATEL-ALSTOM (1 month), feasibility study for rewriting a train control simulator into an expert system. For ALCATEL-ALSTOM (1 month), studying the transformation of a railway control-command station into an education station.
- ✓ Advisor of 11 trainees on topics related to Artificial Intelligence (planning, constraint programming, hidden Markov models, etc) and Operational Research (tabu algorithm, linear programming, etc).

◆ **IBM (ex- ILOG), Gentilly**

Nov. 97 - May 98

- ✓ Consultant. Scheduling the test campaign of *L'OREAL* products (ILOG SCHEDULER).

◆ **Post-doctoral Researcher**

Sept. 92 - Oct. 97

- ✓ **Fraunhofer Institute – Intelligent Analysis and Information Systems, Sankt Augustin (Germany)** : Postdoctoral research associate (3 months). Cognitive architecture of autonomous agents, based on dual dynamics. C. Research group headed by Prof. Thomas Christaller, with Dr. Joachim Hertzberg as advisor.
- ✓ **Institute for Computer Science - FORTH, Heraklion (Crete, Greece)** : Postdoctoral research associate (9 months). Embedded planning in Prof. Stelios Orphanoudakis' team. C, Common-Lisp.
- ✓ **Laboratoire IOrrain de Recherche en Informatique et Automatique – INRIA Grand East, Nancy** : Postdoctoral research associate (6 months). Two-level cognitive architecture of autonomous agents to control a Nomad 200 mobile robot. C, Common-Lisp. SYCO research team headed by Prof. Jean-Paul Haton, with Dr. François Charpillet as advisor.
- ✓ **Knowledge Systems Laboratory, Stanford (California)** : Postdoctoral Research Associate (3,5 years). Lavoisier fellowship the 1st year, in Dr. Barbara Hayes-Roth's team. Psychology-based model to make an agent adaptable to environmental changes. Cognitive architecture of agents, based on two BB1 blackboards, to control of a Nomad 200 mobile robot. Embedded plan synthesis, based on my Ph.D. work. C, Common-Lisp.

◆ **Robotics Research Harvesting, Redwood City CA**

Nov. 94 – Mar. 96

- ✓ Software engineer (part-time). Simulation of a 27-DOF mobile robot which must retrieve lost astronauts around a spatial station (SBIR contract for the NASA, *Johnson Space Center*). Cognitive architecture of autonomous agents, based on Dr. Schoppers' Universal Plans. Graphical representation of data of pseudo-sensors. Prolog and C on emulated Silicon Graphics workstation.

◆ **IngénIA, Issy-les-Moulineaux**

Apr. 91 - Aug. 92

- ✓ Software engineer. Expert system to design internal broaching tools, for *PSA*. ILOG SMECI (the ancestor of RULES). Allocation of airplane parking slots, for *Aéroport de Marseille-Marignane*. ILOG PECOS (the ancestor of SOLVER).

◆ **SYSECA Temps-Réel, Saint-Cloud**

Mar. 89 - Feb. 90

✓ Software engineer. Writing (accepted) technical bids for planning and scheduling systems.

◆ **Etablissement Technique Central de l'Armement - CAD, Arcueil** *Sept. 87 - July 88*

✓ Scientific military service. Ballistic system for airplane interception (ADA). Map representation for a war game (FORTRAN).

◆ **Cognitech, Paris** *Sept. 86 - Feb. 89*

✓ Software engineer. Expert system for planning building sites (re-writing of a first-order inference engine in Le_lisp). Graphical software to help drawing (C with X-windows, Unix).

TEACHING EXPERIENCE

◆ **I.A. School, Boulogne-Billancourt** *March 21 - Present*

Lecturer. Course and exercises on constraint programming and linear programming. 32 M2 students of the class Data Scientist. 7 x 3h30 / year.

◆ **ENSTA ParisTech, Palaiseau** *Jan. 20 - Present*

Lecturer. Course and exercises on planning. 44 M2 students of ROB316. 2 x 3h / year.

◆ **EPITA, Le Kremlin-Bicêtre** *Feb. 12 - Dec. 16*

Lecturer. Course and exercises on constraint programming, linear programming, knowledge-based systems and planning. Approx. 40 M2 students. 4 x 5 x 3h / year.

◆ **Télécom ParisTech, Paris** *June 14*

Lecturer. Course and exercises on constraint programming and planning. 15 M2 students of INF-348. 2 x 4h.

◆ **ESIGELEC, Saint-Etienne-du-Rouvray** *Nov. 11 - Feb. 12*

Lecturer. Course and exercises on Linux. 40 M1 students. 7 x 4h + 2h.

◆ **University Paris 9 – Dauphine** *Feb. 07*

Lecturer. Course on applications of multi-agent systems. 23 M2P students of MIDO. 2 x 1h.

◆ **Télécom ParisTech, Paris** *Sept. 90 - June 92*

Teaching Assistant. Course and exercises on object-oriented programming. M2 students of the course "Knowledge Representation". 20h / year.

◆ **Ecole Centrale de Paris, Chatenay-Malabry** *Oct. 90 - June 92*

Lecturer. Course and exercises on object-oriented programming. Approx. 20 M2 student of the courses "Applied Mathematics" (10 x 3h / year) and "Real-time computer science" (5 x 8h / year).

◆ **IBM / ILOG (Gentilly), Pacte Novation (Issy-les-Moulineaux), IngenIA (Issy-les-Moulineau), Cognitech (Paris).** *89-03*

Lecturer in industry. Course and exercises on LISP, constraint programming, linear programming & MIP. For software engineers. 3 x 8h + 2 x 8h + 20h + 20h.

COMPETENCIES IN COMPUTER SCIENCE

- ◆ **Programming languages :** C, C++, Java, Lisp, Prolog, Ada, Pascal, Fortran, 6502 assembly language, OWL / SWRL, HTML / CSS / XML, SmallTalk, NetLogo.
- ◆ **Methods :** OMT / UML.
- ◆ **Graphical Environments :** OPENCV, X/Motif, basics of ILOG VIEWS, AIDA/MASAI, GKS.
- ◆ **Architectures :** Distributed agents, blackboards.
- ◆ **Solvers :** CPLEX CP Optimizer, RULES, CLIPS, MiniZinc, CHOCO, GECODE, AMPL, PROVER iLock, PROTÉGÉ.
- ◆ **Operating systems and tools :** Linux / Unix (k/Ubuntu, Solaris), Windows (10, 7, XP, 2000, NT), VMS. Insure ++, Purify, Quantify, Pure Coverage, RoboHelp.
- ◆ **Hardware :** PC, Macintosh, workstations (SUN, SGI, BULL, DEC) and VAX.

EDUCATION

- ◆ **92 - 97:** **Post-doctoral researcher** - Knowledge Systems Laboratory (Stanford University, California), LORIA / INRIA Grand East (Nancy), Institute for Computer Science-FORTH (Heraklion, Greece), Fraunhofer Institute-IAIS (Sankt Augustin, Germany).
- ◆ **87 - 91:** **Ph.D. – Télécom ParisTech, C.S. Dept.**
Truth criteria in planning
High Honors. Advisor : Prof. Alain Bonnet.
- ◆ **86 - 87:** **M.S. - University Paris 6 / Ponts ParisTech**
Artificial Intelligence, pattern recognition, algorithms (IARFAG).
Honors. Advisor : Prof. Jean-Louis Laurière.
- ◆ **83 - 86:** **B.S. - Ecole Centrale de Paris**

MISCELLANEOUS

- ◆ Languages:
 - French: Native.
 - English: Bilingual (I have lived in California for 3.5 years).
 - German: University level (I have lived in Germany for 3 months).
 - Greek: Basics (I have lived in Greece for 9 months).
- ◆ Prizes & Awards:
 - 03-19: Elected at the Board of Directors of the French Association for Artificial Intelligence (AFIA). Editor-in-chief of the newsletter of this association. President of the organization committee of the competitions “A.I. on Robot” and “A.I. & Video Games” during the national A.I. conference series PFIA.
 - 98-03: Won industrial contracts (TRAPIL, ADP, EUROCONTROL) for PACTE NOVIATION.
 - 96-97: ERCIM fellowship, to study in Greece and Germany.
 - 92: Lavoisier fellowship, from the French Ministry of Foreign Affairs, to study at Stanford.
 - 90: Won a research contract with the French Ministry of Education, to prepare my Ph.D.
 - 87: Ranked 1st in the competition of the August draft of the 11th Marine Infantry Regiment.
 - 86-87 / 88-90: CIFRE fellowship, to prepare my Ph.D.
- ◆ Reviewing: Avignon’89, ECP’97, ECAI’04, ANR’11, IJARS’12, ETPS’13, IoT Journal (13, 16), APIA (15, 16, 17, 18, 19, 20, 21), IV (16, 17, 18, 19, 20), CNIA’16.
- ◆ Publications: Book chapters (1), international journals (1), inter/national conferences (14), inter/national workshops (20). H-index = 10.