Frédéric LABROSSE

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Born in France (Annemasse (74)) the 5th November, 1967.
Married, one child (3 years old).

Degrees

Ph.D. in Computer Engineering, expected by the end of 1997, École Polytechnique de Montréal (Canada).

Diplôme d'Études Approfondies en Électronique (option Systèmes de Traitement de l'Information et Structure des Ordinateurs), 1991, Université Paris XI (France).

Bachelor degree in Electronics, Electrotechnology, and Automatics, Université Paris XI (France), with mention; "Maîtrise" (specialization in Electronics) in 1990, mention "Bien," and "License" in 1989, mention "Assez bien."

Certificat d'Informatique Appliquée, 1990, Université Paris XI (France), mention "Bien."

Diplôme d'Études Universitaires Générales (Sciences des Structures et de la Matière), 1988, Université Paris XI (France), mention "Assez bien."

Work in Progress

I am completing my **Ph.D.** in the *Groupe de Recherche en Perception et Robotique* of École Polytechnique in Montréal under the direction of Professor Paul Cohen and Professor Jean-Yves Hervé. Professor Paul Cohen is the holder of the **NSERC-Noranda Industrial Chair in Mining Automation**. My thesis is entitled "Modélisation de l'Objet et application à ses représentations" (Object Modeling and Application to its Representations). The term *Object* refers here to complex systems. In the context of my thesis, I have been more specifically interested in the modeling of environments for mobile robots. As an example of an application, I have studied the case of underground mines and of the processing and interpretation of surveying data for the construction of representations. These representations are being used to build virtual mines for the study of navigation problems.

Publications

Frédéric Labrosse, Philippe Debanné, Jean-Yves Hervé, and Paul Cohen. Virtual underground mines for studying navigational problems. Submitted to: *Centennial Meeting of the Canadian Institute of Mining, Metallurgy and Petroleum/XVIth Congress of the Council of Mining and Metallurgical Institutions*, May 1998.

Frédéric Labrosse, Jean-Yves Hervé, and Paul Cohen. Constructing virtual mines for navigation. To appear in *Proceedings of the IEEE International Conference on Systems, Man, and Cybernetics*, October 1997.

Frédéric Labrosse, Jean-Yves Hervé, and Paul Cohen. GnoMine: An application of the generic gnome model to the representation of mines. Technical Report GRPR-RT-9611, Groupe de Recherche en Perception et Robotique, École Polytechnique, Montréal, QC, Canada, October 1996.

Frédéric Labrosse, Jean-Yves Hervé, and Paul Cohen. Modélisation de mines avec un modèle générique d'objets. In *Proceedings of the Canadian Conference on Electrical and Computer Engineering*, Calgary, AB, Canada, May 1996.

Frédéric Labrosse. Modélisation de l'objet et application à ses représentations. In *Actes du 64^e congrès de l'ACFAS*, Montréal, QC, Canada, May 1996.

Frédéric Labrosse, Jean-Yves Hervé, and Paul Cohen. GNOME: a generic object model. Technical Report GRPR-RT-9608, Groupe de Recherche en Perception et Robotique, École Polytechnique, Montréal, QC, Canada, February 1996.

Frédéric Labrosse. Modélisation de l'Objet et application à ses représentations. Rapport Technique GRPR-RT-9507, Groupe de Recherche en Perception et Robotique, École Polytechnique, Montréal, QC, Canada, Octobre 1995.

Robert Laganière, Frédéric Labrosse, and Paul Cohen. A parallel network for the computation of structure from long-range motion. In *Proceedings of the International Joint Conference on Neural Networks*, volume 3, Baltimore, MD, USA, June 1992.

Research Interests

Object modeling and (graphical) representation, particularly robot environment representation.

Robotics (autonomous navigation).

Three-dimensional vision.

Qualitative vision (motion, shape).

Neural networks.

Teaching Experience

Teaching Assistant in charge of laboratories for the undergraduate course *Algorithms and Data structures* in C and *Algorithms and Object-oriented Programming* in C++.

Elaboration of computer courses for graduate students of École Polytechnique.

Introductory programming course (BASIC) at high school level.

Supervising Experience

A graduate student (preparing a Master), whose subject is mine exploration and surveying.

A graduate student, to implement a Kalman Filter for real-time tracking of mobile robots.

An undergraduate trainee, to develop a virtual underground mine environment to study navigation problems.

Two undergraduate trainees, to build a graphical interface for the supervision and control of multiple mobile robots.

Experience in Developing and Managing Systems

Development:

- participation to the conception and development of a testbed for the study of cooperation between multiple mobile robots in **GRPR**, Canada,
- financial applications with the DBMS DBASEIV for **MCAC** of Conakry, Republic of Guinea,
- perspective image synthesis program for **ETIS**, France,
- mailing and invitation management applications with the RDBMS PARADOX for **Arianespace**, France,
- three-dimensional reconstruction from a long-range sequence with a neural network in **Computer Vision Laboratory**, Canada.

Management:

- software installation on a Sun network in **GRPR**, Canada,
- software installation and management and hardware maintenance and repairing for a set of micro-computers (IBM compatible) in **MCAC** of Conakry, Republic of Guinea,
- management of a VAX network in **Laboratoire Pharmaceutique Leurquin**, France.

Programming Environments and Languages

Unix (SunOS, Solaris, Linux), DOS, Windows.

Structured and/or object oriented languages.

Graphical libraries: Motif, Open Inventor.

Assembler.

Employments

Since September 1993, **Research and Teaching Assistant**, Groupe de Recherche en Perception et Robotique, École Polytechnique, Montréal, Canada.

1992–93, **Computer Engineer**, Mission Française de Coopération et d'Action Culturelle, Conakry, Republic of Guinea. This employment was within the context of my National Service (of France) in Cooperation.

1991–92, **Computer Engineer**, Équipe de Traitement des Images et du Signal in *École Nationale Supérieure de l'Électronique et de ces Applications*, University of Cergy, France.

1991–92, **Local Network Manager**, Laboratoire Pharmaceutique Leurquin, Neuilly-Plaisance, France.

January–May 1991, **Trainee**, Computer Vision Laboratory, École Polytechnique, Montréal, Canada.

March–July 1990, **Trainee**, Arianespace, Evry, France.

References

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