

# Vitae

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34 years old, Canadian and French citizenships, Married, 1 child

## Professional Background

2008-present – On academic leave at Université de Liège (Belgium)  
2005-present – Assistant professor at Université de Metz (France)  
2006 – Invited researcher at Technische Universität Bergakademie Freiberg (Germany)  
2002-2005 – Post-doctoral fellow at Ecole Centrale de Nantes (France)  
1998-2002 – Ph.D Student at École Polytechnique de Montréal (Canada)  
1997-1998 – French military duty – Scientific coop in the French military industry (field : fiber reinforced plastics (FRP) and finite element modeling)

## Academic Titles

2002 – Philosophiae Doctor, École Polytechnique de Montréal (Canada).  
**Title :** *Solving of a free surface problem with an adaptive an anisotropic re-meshing algorithm*  
**Original Title :** *Résolution d'un problème aux limites à frontières libres au moyen d'un algorithme de remaillage adaptatif et anisotrope*  
Advisers : François Trochu and Jean-Christophe Cuillière  
Defense committee : Ricardo Camarero (École Polytechnique, president), François Trochu (École Polytechnique), Jean-Christophe Cuillière (Université du Québec à Trois-Rivières), Daniel Leroux (Université Laval), François Guibault (École Polytechnique).  
1997 – M.Sc (French DEA) in mechanical engineering, Doctoral school PROMEN (Nancy, France), with honours.  
1997 – B.Sc in mechanical engineering and numerical modeling at ESSTIN (Nancy, France).

## Teaching Experience

Cumulated experience : around 1200 hours.  
2008-present – Computer graphics, CAD, mesh generation, ...  
2005-2008 – Various teachings at Université de Metz : Maple(r), Finite elements, Strength of materials, C++, ...  
1999-2002 – ING1025 (3 cr.) at Ecole Polytechnique de Montréal : Computer science (Undergraduate level). Lecturer and also responsible for the labs. This course has been taught for 7 semesters (approx. 6 hours per week).  
1999 – MAT115 (3 cr.) at Ecole Polytechnique de Montréal : Engineering Mathematics (undergraduate). Responsible for labs. Taught for one semester (2 hours per week).  
1999-2002 – Some replacements in the mechanical engineering department (Machine parts / Power Transmissions).

## **Research and publications**

**Keywords :** Mechanical engineering, Finite element method, Mesh generation, Extended finite element methods (X-FEM, P.U.M), Fracture mechanics, Free surface fluid motion, implementation of the finite element method in a modern software engineering context (OOP, Generic programming, C++). Parallel grid computing (MPI with myrinet).

- 11 publications in international journals
- 1 articles in preparation
- 1 chapter in a collective book
- 16 communications with proceedings (9 international and 7 national)
- 5 invited talks

## **Research management and collaborations**

- Active collaborations with research institutes in Germany, Canada, Luxembourg.
- Ph.D main adviser, Subject : *Simulations in ambient space : An application of partition-of-unity methods to mesh independent mechanical engineering simulations*, Planned defense in 2010, Université de Metz.
- M.Sc Advisor, Subject : Dynamic crack propagation with the X-FEM for brittle materials, 2007, Université de Metz.
- Ph.D Co-adviser, Subject : *A new numerical approach for the life duration computation of reactor discs*, Defended in October 2006, École centrale de Nantes.
- Ph.D Co-adviser, Subject : *Finite element modeling of hydraulic efforts during tossing*, Defended in October 2005 , École centrale de Nantes.
- M.Sc Co-adviser, Subject : *Obtaining Stress intensity factors for an emerging crack with X-FEM*, 2003, École Centrale de Nantes.
- Reviewed various articles in International Journal for numerical methods in engineering and the International Journal for Numerical methods in Fluids.

## **Industrial relations**

- Goodyear (Luxembourg) to be finalized (planned in 2008)
- Snecma Moteurs : I took part in the research project shared by Snecma, Ecole centrale de Nantes and others : «fatigue life of reactors», 2003-2004.
- E.S.I. : Development contract for the PAM-RTM simulation code (resin injection simulations for FRP), 2001-2002.
- P. Patrick S.A. : Development contracts for a cam numerical analysis tool for weaving machinery (textile industry), 1996 and 1997.

## **Scientific computing knowledge**

- Long experience in C++ , Object Oriented and Generic Programming, Parallel Computing
- Set up of collaborative development infrastructure (CVS, Subversion )
- Development and maintenance of an object oriented finite element code and support for academic and graduate students using it
- High Performance Computing platforms (parallel computers, research network, Linux & free software)
- Linux administration

## **Misc**

- Languages : French (mothertongue), German and English (fluent); beginner in Chinese (written and spoken).