Felipe Galarce

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Education

2017-2020 **PH.D. IN APPLIED MATHEMATICS**
Centre de Recherche INRIA de Paris & Laboratoire Jacques-Louis Lions
Faculté des Sciences de Sorbonne Université, Paris, France
Thesis: *Enhancing hemodynamics measurements with mathematical modeling*
Thesis advisors: Jean-Frédéric Gerbeau Ph.D., Damiano Lombardi Ph.D and Olga Mula Ph.D.

2016-2017 **MASTER OF SCIENCE: MATHÉMATIQUES ET APPLICATIONS**
M2: Analyse, Modélisation et Simulation
Université Paris-Saclay, Paris, France
Mention bien.

2015 - 2016 **PROFESSIONAL DIPLOMA IN CIVIL ENGINEERING**
Pontificia Universidad Católica de Valparaíso, Chile.
Thesis: *Mathematical modeling and computational simulation of a multi-scale problem: application to cardiac fibers*.
Thesis advisors: Joaquin Mura Ph.D. and Cristobal Bertoglio Ph.D.
Promotion ranking 1/20

2011 -2014 **B.SC. IN ENGINEERING SCIENCES**
Pontificia Universidad Católica de Valparaíso, Chile.

2006-2010 High school at Colegio Francisco de Miranda. PSU scores: 773 in mathematics, 774 in language/communication and 740 in sciences (mention in physics).

Publications

2017 Cristóbal Bertoglio, Rodolfo Núñez, Felipe Galarce, David Nordsletten and Axel Osses. **Relative pressure estimation from velocity measurements in blood flows: state-of-the-art and new approaches.** Numerical Methods in Biomedical Engineering ⎚

Conference Presentations

2019 European Numerical Mathematics and Advanced Applications Conference. Egmond aan Zee, The Netherlands.

2019 CSMA 2019 - 14ème colloque national en calcul des structures. Giens, France. Summary : ⎚.

2018 6th European conference on computational mechanics and 7th European conference on computational fluid dynamics, United Kingdom. (Abstract: Optimal reconstruction of flows from Doppler measurements. ⎚)

2018 Poster presentation of Ph.D. thesis partial results at Model reduction and parametrized systems IV MoRePas, Nantes. ⎚

2017 Presentation at the Latinoamerican congress of civil engineering students (COLEIC ⎚). Presentation title: Engineering Sciences for Inverse Problems in Medicine. Valparaíso, Chile.

Conference assistance and summer/winter Schools

2018 CardioFunXion winter school 2018 - Cardiac ultrasound for in in-silico, in vitro and in vivo approaches.

2017 Summer School VIVABRAIN 2017 - Cerebral MR Angiography: acquisition, processing, simulation. ⎚

Experience

2017	(Internship) C++ implementation of an *optimal reconstruction* algorithm for velocity fields in human carotids. All work was done supervised by Jean-Frederic Gerbeau, Damiano Lombardi and Olga Mula. **REO team - INRIA Paris.**
2015 - 2016	(Internship) Python and Fenics implementation . The internship was done under the supervision of Ph.D. Cristobal Bertoglio. **Center for Mathematical Modeling (CMM) - Universidad de Chile**.
2016	Internship at **Mechanical Engineering Department - Texas Tech University** under supervision of Ph.D. Luciano Castillo.
2014 - 2015	(Internship) Research service provider for the FONDECYT project *Topologically flexible prior shape knowledge for level set segmentations* designing and programming algorithms for reinitialization process of level sets of Eikonal functions. **Center for Biomedical Imaging (CIB) - Pontificia Universidad Católica de Chile.**
2014	Internship at structural engineering consulting firm Carvallo, Carvallo Ltda, modeling and designing reinforced concrete multi-stage structures by using the finite element method with commercial softwares like SAP2000, ETABS and SAFE. **Carvallo Carvallo ltda. Structural Engineering Consulting Firm.**
2013 - 2015	Research assistant for different projects of professor Joaquin Mura Mardones. The implementation of finite elements routines, study of some analytical solutions of the elasticity problem (and the comparison with numerical ones) were some of the tasks performed. **Escuela de Ingeniería Civil - Pontificia Universidad Catolica de Valparaíso**
2010 - 2016	**Cathedra assistant** for the following courses: Geometry, Integral Calculus and Series, Multiple Variables Calculus, Linear Algebra, Dynamic Mechanics, Static Mechanics, Solid Mechanics, Engineering Drawing, Economy and Numerical Methods. Pontificia Universidad Catolica de Valparaíso.

Awards

2016 - 2017	Sophie Germain Master schoolarship from *Foundation Jacques Hadamard* and *Labex Mathematics Hadamard*, France.
2017 - 2020	INRIA funding for doctoral studies, France.

Fields of Interest

Hemodynamics, Medical Imaging, Inverse Problems, Computational Mechanics, Fluid Mechanics, Reduced Order Modeling, Numerical Simulations, Mathematical Modeling, High Performance Computing.

Programing/Software Skills

C++, Python, MATLAB, MPI, Git, SVN, FEniCS, Latex, Unix, Windows, Microsoft Office.

Languages

Spanish	Mother tongue
English	Fluent
French	Fluent