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PERLE GEOFFROY-DONDERS

EDUCATION

- Ph.D. in Applied Mathematics** 2015-2018
Homogenization method for topology optimization of structures built with lattice materials
Centre des Mathématiques Appliquées (CMAP), Ecole Polytechnique Palaiseau, France
CIFRE (industrially co-sponsored) scholarship between Safran Group and CMAP
Directors: Grégoire ALLAIRE - Olivier PANTZ
- Master of Science in Bioengineering** 2012-2014
Polytechnique Montréal, Canada
- Bachelor and Master of Science in Engineering** 2009-2012
Ecole Polytechnique Palaiseau, France
Major : Applied Mathematics and Mechanics
- Classes Préparatoires** 2007-2009
Lycée Marcelin Berthelot, Saint-Maur-des-Fossés, France
Major: Mathematics and Physics

RESEARCH EXPERIENCE

- Research project** *December 2015 - now*
CMAP, Ecole Polytechnique (Palaiseau, France)
Advisors : Professors Grégoire Allaire and Olivier Pantz
Ph. D. thesis: Homogenization method for topology optimization of lattice structures build by additive manufacturing.
- Research project** *September 2012 - April 2014*
Polytechnique Montréal (Canada)
Advisors : Professors Sofiane Achiche and Maxime Raison
Master thesis: Differential Dynamic Programming for optimal control of biomimetic actuators
- Internship** *May- July 2013*
LAAS (Toulouse, France)
Advisor: Professor Nicolas Mansard
Optimal control of variable impedance actuators
- Internship** *April - July 2012*
DCNS (Cherbourg, France)
Shape optimization of structural elements in a submarine

Scientific Group Project

October 2010 – May 2011

Ecole Polytechnique (Palaiseau, France)

Development of an experimental protocol to discriminate in vivo/in vitro replicated DNA

Research Project

September 2008 – June 2009

Lycée Marcelin Berthelot, Saint-Maur-des-Fossés, France

Advisor: Professor Pierre Colin

Shape optimization of beams using photoelasticity

PUBLICATIONS & PROCEEDINGS

- Geoffroy-Donders, P., Allaire, G., & Pantz, O. (2018). 3d topology optimization of modulated and oriented periodic microstructures by the homogenization method. Preprint
- Allaire, G., Geoffroy-Donders, P., & Pantz, O. (2018, March). Topology optimization of modulated and oriented periodic microstructures by the homogenization method. In *Computers and Mathematics with Applications*.
- Geoffroy-Donders, P., Allaire, G., Cortial, J., & Pantz, O. (2017, June). Optimization of oriented and parametric cellular structures by the homogenization method. In *12th World Congress on Structural and Multidisciplinary Optimization (WCSMO12)*.
- Geoffroy, P., Bordron, O., Mansard, N., Raison, M., Stasse, O., & Bretl, T. (2014, June). A two-stage suboptimal approximation for variable compliance and torque control. In *Control Conference (ECC), 2014 European* (pp. 1151-1157). IEEE.
- Geoffroy, P., Mansard, N., Raison, M., Achiche, S., & Todorov, E. (2014). From inverse kinematics to optimal control. In *Advances in Robot Kinematics* (pp. 409-418). Springer International Publishing.

CONFERENCES & WORKSHOPS

- 6th Eng Opt, Lisboa, Portugal, Spetember 2018
- ECCM-ECFD, Glasgow, Scotland, June 2018
- 44th CANUM, Cap d'Agde, France, May 2018
- Sim-AM, Munich, Germany, October 2017
- 12th WCSMO, Braunschweig, Germany, June 2017
- 13rd CSMA, Giens, France, May 2017
- Mandel Symposium, LMS, Ecole Polytechnique, France, June 2016
- PICO F 2016, Autrans, France, June 2016
- 43rd CANUM, Obernai, France, May 2016

TEACHING

Teaching Assistant

September 2016 – June 2018

Université Pierre et Marie Curie, Paris, France

- Algèbre linéaire et espaces affines (38.5h)
- Espaces euclidiens (38.5h)
- Elastic structures (30h)
- Mechanical equilibrium, stability and vibrations (26h)
- Introduction to Finite Element Method (24h)

Teaching Assistant

January – May 2014

Polytechnique Montréal, Canada

Introduction to solid mechanics (10h)

Math Examiner

September 2010 – June 2012

Math examiner in preparatory school for entrance to Grandes Ecoles

INDUSTRY EXPERIENCE

Famic Technologies

April – September 2015

Montréal, Canada

Software Engineer: Developed numerical tools to simulate behaviors of pneumatic and hydraulic components

Silkan

May 2014 – January

2015

Montréal, Canada

R&D Engineer: Developed numerical simulation software to see how smoke spreads in a 3D building. Modeled the fire security system.

OTHER WORK EXPERIENCE

Internship

July-August 2011

Chanel GmbH, Munich, Germany

Sales and accounting

Military Service

September 2009 – May 2010

Flotilla 25F, French Polynesia

Officer-candidate in charge of the flight planning (3 planes, 24 flight crew members)

SKILLS

- **Languages** : French (Native) – English (Professional) – German (Professional)
- **Software** : LateX, Paraview
- **Programming** : C, C++, Python, Matlab, FreeFem++

VOLUNTEER EXPERIENCE

- Volunteer at the “Journées Femmes et Maths”** *March 2017*
Ecole Polytechnique, Palaiseau, France
Event to encourage teenage girls not to self-censure and to study mathematics at university
Oral presentation
- Volunteer at the “Journées Industrielles”** *December 2016*
Ecole Polytechnique, Palaiseau, France
Event to promote Women in industry and scientific jobs
Oral presentation
- Volunteer at the mother and child university hospital center Ste Justine** *2015*
Montréal, Canada
- Volunteer at the House of Children** *2013*
Montréal, Canada
- Volunteer at the “Bibliothèque de rue”** *2009-2012*
Grigny, France
Association to encourage children from underprivileged neighborhoods to read
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