

CORBINEAU MARIE-CAROLINE

Ph.D. candidate in Applied Mathematics and Computer Science

@ mariecaroline.corbineau@gmail.com <https://mccorbineau.github.io/>
in linkedin.com/in/marie-caroline-corbineau-00944810b github.com/mccorbineau



EDUCATION

Ph.D. in Maths and Computer Science

Centre de Vision Numérique, CentraleSupélec, Université Paris-Saclay

Oct 2016 – Ongoing Gif-sur-Yvette, France

Proximal and interior point optimization strategies in image recovery

Advisors: Jean-Christophe Pesquet and Emilie Chouzenoux

M.Sc. with thesis in Aerospace Engineering

University of Illinois at Urbana-Champaign (UIUC)

Sep 2014 – Jun 2016 Illinois, USA

Engineer Degree

Institut Supérieur de l'Aéronautique et de l'Espace (ISAE)–SUPAERO

Sep 2012 – Jun 2014 Toulouse, France

Undergraduate Program in Maths and Physics (MPSI/MP*)

Lycée Clemenceau

Sep 2010 – Jun 2012 Nantes, France

Baccalauréat major in Maths, summa cum laude

Lycée St Joseph du Loquidy

June 2010 Nantes, France

PROJECTS

Master's Thesis

University of Illinois at Urbana-Champaign (UIUC)

Sep 2015 – May 2016 Illinois, USA

Deployment and on-orbit shape modifications for a large space telescope using magnetostriction.

Advisors: Victoria L. Coverstone and Melville P. Ulmer.

Funded by APERTURE, a NASA Innovative Advanced Concept.

Estimator for tidal accelerations on Mars (InSight mission)

Institut Supérieur de l'Aéronautique et de l'Espace (ISAE)–SUPAERO

Sep 2013 – Jun 2014 Toulouse, France

Modelling of tidal Martian surface accelerations; development of a Kalman filter to retrieve Mars' Love numbers from the seismometer signal.

Advisors: Naomi Murdoch and David Mimoun.

EXPERIENCE

Ph.D. candidate in Maths and Computer Science

CentraleSupélec, Université Paris-Saclay

Oct 2016 – Ongoing Gif-sur-Yvette, France

- Convergence study of a new optimization algorithm, numerical experiments on two image processing applications
- Optimization-based robust neural network for deblurring
- Joint segmentation and deconvolution of ultrasound images

Teaching Assistant

CentraleSupélec, Université Paris-Saclay

Nov 2016 – Mar 2019 Gif-sur-Yvette, France

- Foundations of Distributed and Large Scale Computing Optimization
- Advanced Optimization,

University of Illinois at Urbana-Champaign (UIUC)

Sep 2015 – Dec 2015 Illinois, USA

Orbital Mechanics, for undergraduate and graduate students (TD)

Research Assistant

University of Illinois at Urbana-Champaign (UIUC)

January 2016 – May 2016 Illinois, USA

Responsible of a five-person team. Advisor: Victoria L. Coverstone.

Intern

Airbus

Jul 2013 (1 month) Nantes, France

Technical drawing with CATIA

COMPUTER SKILLS

Python Matlab Notions in Java

Some Python libraries

PyTorch, Numpy, SciPy, PyWavelets

OS

Ubuntu, Windows

Misc.

Office, \LaTeX , CATIA, Solid Edge

LANGUAGES

French



English



Spanish



Italian



PUBLICATIONS

For articles with the * symbol, authors are listed in the alphabetical order.

Published or Accepted Journal Articles

- E. Chouzenoux, M.-C. Corbineau and J.-C. Pesquet*, 'A proximal interior point algorithm with applications to image processing', to appear in *Journal of Mathematical Imaging and Vision*, 2019.
- C. Bertocchi, E. Chouzenoux, M.-C. Corbineau, J.-C. Pesquet and M. Prato*, 'Deep unfolding of a proximal interior point method for image restoration', to appear in *Inverse Problems*, 2019.
- M.-C. Corbineau, D. Kouamé, E. Chouzenoux, J.-Y. Tourneret and J.-C. Pesquet, 'Preconditioned P-ULA for joint deconvolution-segmentation of ultrasound images', *IEEE Signal Processing Letters*, vol. 26 (10), 2019.

Conference Proceedings

- M.-C. Corbineau, C. Bertocchi, E. Chouzenoux, M. Prato and J.-C. Pesquet, 'Learned image deblurring by unfolding a proximal interior point algorithm', in *Proc. of the IEEE International Conference on Image Processing (ICIP)*, Taipei (Taiwan), Sep. 2019.
- M.-C. Corbineau, E. Chouzenoux and J.-C. Pesquet, 'Geometry-texture decomposition/reconstruction using a proximal interior point algorithm', in *Proc. of the IEEE Sensor Array and Multichannel Signal Processing Workshop (SAM)*, Sheffield (UK), Jul. 2018, pp. 435-439.
- M.-C. Corbineau, E. Chouzenoux and J.-C. Pesquet, 'PIPA: a new proximal interior point algorithm for large-scale convex optimization', in *Proc. of the IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, Calgary (Canada), Apr. 2018, pp. 1343-1347.

REVIEWER ACTIVITIES


I have acted as reviewer for the following journals and conferences:

- *Computer Vision and Image Understanding (CVIU)*, Elsevier
- *Signal Processing: Image Communication (SPIC)*, Elsevier
- *Journal of Mathematical Imaging and Vision (JMIV)*, Springer
- *Joint Urban Remote Sensing Event (JURSE 2019)*, conference

AWARDS

Best Poster Award

Journée de rencontre entre entreprises, doctorants et jeunes docteurs

 April 4, 2019

 Gif-sur-Yvette, France

AE Block Grant Fellowship

Dpt. of Aerospace Engineering at UIUC

 2015

 Illinois, USA

TALKS

Deep unfolding of a proximal interior point algorithm for image restoration

Mini-Symposium: From inverse problems to machine learning and back, Applied Inverse Problems Conference

 July 8, 2019

 Grenoble, France

Joint geometry-texture decomposition and reconstruction of CT scans using a proximal interior point algorithm

Young Researchers in Imaging Seminars – Institut Henri Poincaré

 February 27, 2019

 Paris, France

Proximal interior point algorithm for large scale image processing problems

Mini-Symposium: Approaches for fast optimisation in imaging and inverse problems, SIAM Conference on Imaging Science

 June 7, 2018

 Bologna, Italy

A proximal interior point algorithm for large-scale convex optimization.

Journée annuelles des GdR MOA et MIA

 October 18, 2017

 Bordeaux, France