CORBINEAU MARIE-CAROLINE

Ph.D. candidate in Applied Mathematics and Computer Science

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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 2016   📍 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

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)

📅 Jan 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

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.

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.

👥 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
Workshop "Regularisation for inverse problems & machine learning" – Jussieu
📅 19 november 2019   📍 Paris, France

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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