JINGWEI LIANG

DAMTP, Centre for Mathematical Sciences, Wilberforce Road – Cambridge, CB3 0WA – UK
✉ jl993@cam.ac.uk • http://www.damtp.cam.ac.uk/people/jl993/

WORKING EXPERIENCE

University of Cambridge **Cambridge, UK**
Postdoc Research Associate *2017-Now*
Advisor: Carola-Bibiane Schönlieb

EDUCATION

Normandie University, UNICAEN, ENSICAEN, CNRS **Caen, France**
Ph.D. in Applied Mathematics, funded by ***Σ-Vision ERC starting grant*** *2013-2016*
Title: *Convergence Rates of First-Order Splitting Methods*
Supervisors: Jalal Fadili (CNRS, ENSICAEN) and Gabriel Peyré (CNRS, ENS-Paris)

Shanghai Jiao Tong University **Shanghai, China**
M.S. in Applied Mathematics *2010-2013*
Title: *Wavelet Frame based Color Image Demosaicing (in Chinese)*
Supervisor: Xiaoqun Zhang

Nanjing University of Posts and Telecommunications **Nanjing, China**
B.S. in Electrical & Information Engineering *2006-2010*

RESEARCH INTERESTS

Non-smooth Optimization, Computer Vision, Machine Learning, Signal/Image Processing

PUBLICATIONS

*equal contributions, †corresponding author.

Preprints & in preparation

7. JL, J. Fadili, *"Best Pair Problem II: Finite Termination"*.
6. JL, J. Fadili, *"Best Pair Problem I: Which Algorithm to Choose"*.
5. JL, C. Poon and C. Schönlieb, *"MiSAGA: Multi-step Inertial Scheme for SAGA"*.
4. JL, *Multi-step Inertial Schemes for Non-smooth Optimisation*.
3. JL, J. Fadili, *"An Accelerated Douglas-Rachford Splitting Algorithm"*
2. A. Lewis, JL, *"Partly Smooth Mapping"*.
1. C. Molinari*, JL*† and J. Fadili, *"Convergence Rates of Forward–Douglas–Rachford Splitting Method"*.

Journal Papers

7. JL†, J. Fadili and G. Peyré, *"Local Linear Convergence of Primal–Dual Splitting Methods"*, Optimization, 67 (6), 821-853, 2018.
6. JL, J. Fadili and G, Peyré, *"Activity Identification and Local Linear Convergence of Forward–Backward-type Methods"*, SIAM Journal on Optimization, 27 (1), 408-437, 2017.
5. JL, J. Fadili and G. Peyré, *"Local Convergence Properties of Douglas–Rachford and Alternating Direction Method of Multipliers"*, Journal of Optimization Theory and Applications, 72 (3), 874-913, 2017.
4. JL, J. Fadili and G. Peyré, *"Convergence Rates with Inexact Non-expansive Operators"*, Mathematical Programming ser. A, 159 (1), 403-434, 2016.
3. JL, X. Zhang, *"Retinex by Higher Order Total Variation L^1 Decomposition"*, Journal of Mathematical Imaging and Vision, 52(3):345-355, 2015.
2. JL, J. Ma and X. Zhang, *"Seismic Data Restoration via Data-driven Framelet"*, Geophysics, 79(3):65-74, 2014.
1. JL, J. Li, Z. Shen and X. Zhang, *"Wavelet Frame based Color Image Demosaicing"*, Inverse Problems and Imaging, 7(3):777-794, 2013.

Conference Proceedings

6. JL and C. Schönlieb, *"Faster FISTA"*, European Signal Processing Conference (**EUSIPCO**), 2018.

5. C. Poon*, JL* and C. Schönlieb, *"Local Convergence Properties of SAGA/Prox-SVRG and Acceleration"*, Int. Conf. on Machine Learning (**ICML**), 2018.
4. JL, J. Fadili and G. Peyré, *"A Multi-step Inertial Forward–Backward Splitting Method for Non-convex Optimization"*, Advances in Neural Information Processing Systems (**NIPS**), 2016.
3. JL, J. Fadili and G. Peyré and R. Luke, *"Activity Identification and Local Linear Convergence of Douglas–Rachford/ADMM under Partial Smoothness"*, Int. Conf. on Scale Space and Variational Methods in Computer Vision (**SSVM**), 2015. (**Oral**)
2. JL, J. Fadili and G. Peyré, *"Locally Linear Convergence of Forward–Backward under Partial Smoothness"*, Advances in Neural Information Processing Systems (**NIPS**), 2014.
1. JL, J. Fadili and G. Peyré, *"On the Convergence Rates of Proximal Splitting Algorithms"*, IEEE Int. Conf. on Image Processing (**ICIP**), 2014. (**Top 10% Papers**)

Events Organised

1. *Minisymposium "Approaches for Fast Optimisation in Imaging and Inverse Problems"*, SIAM Conference on Imaging Science, Bologna, Italy, June 5-8, 2018. Co-organised with M. Nikolova (CNRS, ENS-Cachan) and C. Schönlieb (University of Cambridge).

Talks and Presentations

Invited Talks

4. *"When to Expect Initial to Work"*, SIAM Conference on Imaging Science, Bologna, Italy, June 5-8, 2018.
3. *"Activity Identification and Local Linear Convergence of Forward–Backward-type Methods"*, Optimization, Portugal, Lisbon, 6-8 Sep., 2017.
2. *"MUSTARD: a Multi-step Inertial Operator Splitting Method"*, Workshop on Signal Processing, Optimization and Compressed Sensing (**SPOC**), Nankai University, Tianjin, China, 17-21 Dec., 2016.
1. *"Activity Identification and Local Linear Convergence of Forward–Backward-type Methods"*, Problèmes Inverses, Contrôle et Optimisation de Formes (**PICOF**), Autrans, France, 1-3 June, 2016.

Conference Presentations

3. *"Local Linear Convergence of Primal–Dual splitting methods for Low Complexity Regularization"*: Signal Processing with Adaptive Sparse Structured Representations (**SPARS**), Portugal, Lisbon, 4-8 June, 2017.
2. *"Local Linear Convergence of Forward–Backward-type methods and Douglass–Rachford/ADMM for Low Complexity Regularization"*: Signal Processing with Adaptive Sparse Structured Representations (**SPARS**), Cambridge, UK, 6-9 July, 2015.
1. *"Iteration-Complexity of Inexact Proximal Splitting Algorithms"*, International Traveling Workshop on Interactions between Sparse models and Technology (**iTWIST**), Namur, Belgium, 27-29 Aug. 2014.

Seminar Talks

5. *"A Local Perspective of Stochastic Optimisation methods"*, Institute of Natural Sciences, Shanghai Jiao Tong University, 9 Nov, 2017.
4. *"Activity Identification and Local Linear Convergence of Forward–Backward-type Methods"*, BICMR, Peking University, 9 Jan., 2017.
3. *"Partial Smoothness: a Powerful Tool for Algorithm Analysis and Design"*, University of Seville, 14 Dec., 2016.
2. *"Local linear convergence of Forward–Backward-type methods"*, Institute of Natural Sciences, Shanghai Jiao Tong University, 29 July, 2015.
1. *"Local linear convergence of proximal splitting methods"*, GT Statistique et Imagerie, Paris-Dauphine, 25 June, 2015.

Referee Services

Conference

IEEE CAMSAP 2015 · SPARS 2015 · ECC 2016 · NIPS 2016.

Journal

Journal of Computational Mathematics · Inverse Problem and Imaging

Applied Mathematics and Computation · Applied Mathematical Modelling.

ESAIM: Control, Optimisation and Calculus of Variations

IEEE Trans. on Image Processing · IEEE Trans. on Signal Processing.

Computational Optimization and Applications · Journal of Mathematical Imaging and Vision · Journal of Optimization Theory and Applications · Optimization Letter · Optimization Methods and Software · Mathematical Programming.

SIAM Journal on Imaging Sciences · SIAM Journal on Numerical Analysis · SIAM Journal on Optimization.