

JINGWEI LIANG

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WORKING EXPERIENCE

University of Cambridge

Postdoc Research Associate

Advisor: Carola-Bibiane Schönlieb

Cambridge, UK

2017-Now

EDUCATION

Normandie University, UNICAEN, ENSICAEN, CNRS

Ph.D. in Applied Mathematics, funded by Σ -Vision ERC starting grant

Title: Convergence Rates of First-Order Splitting Methods

Supervisors: Jalal Fadili (CNRS, ENSICAEN) and Gabriel Peyré (CNRS, ENS-Paris)

Caen, France

2013-2016

Shanghai Jiao Tong University

M.S. in Applied Mathematics

Title: Wavelet Frame based Color Image Demosaicing (in Chinese)

Supervisor: Xiaoqun Zhang

Shanghai, China

2010-2013

Nanjing University of Posts and Telecommunications

B.S. in Electrical & Information Engineering

Nanjing, China

2006-2010

RESEARCH INTERESTS

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

PUBLICATIONS

*equal contributions, †corresponding author.

Preprints & in preparation

7. JL, *Multi-step Inertial Schemes for Non-smooth Optimisation*.
6. J. Liang, M. Nikolova, C. Schönlieb and P. Tan, “A Fast Inertial Douglas-Rachford splitting method”
5. JL, C. Poon and C. Schönlieb, “Identifiability of Proximal Incremental Gradient Methods and Beyond”.
4. A. Lewis, JL, “Partly Smooth Mapping”.
3. JL and C. Schönlieb, “Faster FISTA”.
2. C. Poon*, JL* and C. Schönlieb, “Local Convergence Properties of SAGA/Prox-SVRG and Acceleration”.
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, DOI: <https://doi.org/10.1080/02331934.2018.1426584>.
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

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.....

Applied Mathematics and Computation · Applied Mathematical Modelling.

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

Journal of Mathematical Imaging and Vision · Journal of Optimization Theory and Applications · Mathematical Programming.

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

PROGRAMMING LANGUAGES

C/C++, Matlab, Python, L^AT_EX, HTML/CSS