

# MEIXIA LIN

Engineering Systems and Design, Singapore University of Technology and Design

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<https://linmeixia.github.io/>

## RESEARCH INTEREST

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- Algorithm design for large-scale optimization problems in data science
- Convex regression problems
- Signal processing
- Stochastic optimization

## EMPLOYMENT

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Engineering Systems and Design,  
Singapore University of Technology and Design

*Jun. 2022 - Present*

- Assistant Professor

Institute of Operations Research and Analytics,  
National University of Singapore

*Jun. 2021 - May. 2022*

- Research Fellow
- Mentors: Professor Kim-Chuan Toh, Professor Subhroshekhar Ghosh

Department of Mathematics,  
National University of Singapore

*Nov. 2020 - May. 2021*

- Research Fellow
- Mentors: Professor Kim-Chuan Toh, Professor Subhroshekhar Ghosh

CriAT–Deep Credit Analytical Technologies, Singapore

*May. 2019 - Jul. 2019*

- Research Intern

## EDUCATION

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National University of Singapore, Singapore

*Aug. 2016 - Oct. 2020*

- Ph.D. in Department of Mathematics
- Supervisors: Professor Kim-Chuan Toh, Professor Chao Zhou
- Thesis: Efficient Second-order Algorithms for Structured Convex Composite Programming

Nanjing University, China

*Sep. 2012 - Jun. 2016*

- B.S. in Information and Computing Science

## PUBLICATIONS

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<sup>†</sup> equal contribution or alphabetical order; \* corresponding author.

1. Subhroshekhar Ghosh, **Meixia Lin**<sup>\*</sup>, and Dongfang Sun, *Signal analysis via the stochastic geometry of spectrogram level sets*, IEEE Transactions on Signal Processing, 70 (2022), pp. 1104–1117.
2. Rémi Bardenet<sup>†</sup>, Subhroshekhar Ghosh<sup>†\*</sup>, and **Meixia Lin**<sup>†\*</sup>, *Determinantal point processes based on orthogonal polynomials for sampling minibatches in SGD*, in Conference on Neural Information Processing Systems (NeurIPS), 2021. (**Spotlight** presentation, less than 3% acceptance rate)

3. **Meixia Lin\***, Defeng Sun, and Kim-Chuan Toh, *An augmented Lagrangian method with constraint generation for shape-constrained convex regression problems*, Mathematical Programming Computation, 2021, pp. 1–48.
4. **Meixia Lin**, Yong-Jin Liu\*, Defeng Sun, and Kim-Chuan Toh, *Efficient sparse semismooth Newton methods for the clustered lasso problem*, SIAM Journal on Optimization, 29 (2019), pp. 2026–2052.

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## PREPRINTS

<sup>†</sup> equal contribution or alphabetical order; \* corresponding author.

1. **Meixia Lin**, Yancheng Yuan\*, Defeng Sun, and Kim-Chuan Toh, *Adaptive sieving with PPDNA: Generating solution paths of exclusive lasso models*, submitted to Mathematical Programming (under 1st review), 2020. (arXiv: 2009.08719)
2. **Meixia Lin**, Defeng Sun, Kim-Chuan Toh, and Chengjing Wang\*, *Estimation of sparse Gaussian graphical models with hidden clustering structure*, submitted to Journal of Machine Learning Research (under 2nd review), 2020. (arXiv: 2004.08115)

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## TEACHING EXPERIENCES

### Singapore University of Technology and Design

- 40.016 The Analytics Edge

Summer 2022

### National University of Singapore

- Teaching Assistant

Aug. 2017 - May. 2020

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## CONSULTING PROJECT

### Tokopedia

Jan. 2022 - Present

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## PROFESSIONAL ACTIVITIES

### Minisymposium Organizer in International Conferences

- Chair, Minisymposium on “Recent Advances in Structured Non-Smooth Optimization” (virtual), SIAM Conference on Optimization 2021 (OP21), Jul. 20–23, 2021.

### Invited Talks

- “Signal analysis via the stochastic geometry of spectrogram level sets”, Workshop on Determinantal and Permanent Point Processes, Quantum Physics, and Signal Processing, May. 30–Jun 10, 2022.
- “Estimation of sparse Gaussian graphical models with hidden clustering structure” (virtual), SIAM Conference on Optimization 2021 (OP21), Jul. 20–23, 2021.
- “Adaptive sieving with PPDNA: Generating solution paths of exclusive lasso models” (virtual), Forum on Operations Research and Information 2020, Beijing, China, Nov. 23–26, 2020.
- “Efficient sparse semismooth Newton methods for the clustered lasso problem”, Workshop on Matrix Optimization 2019, Beijing, China, Nov. 29–30, 2019.
- “A dual Newton based preconditioned proximal point algorithm for exclusive lasso models”, The Sixth International Conference on Continuous Optimization, Berlin, Germany, Aug. 3–8, 2019.
- “Efficient sparse semismooth Newton methods for the clustered lasso problem”, International Symposium on Mathematical Programming 2018, Bordeaux, France, Jul. 1–6, 2018.

### University Services

- **Vice president** of NUS SIAM Student Chapter, Jul. 2019 – Jun. 2020.

## HONORS AND AWARDS

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- **Best Graduate Researcher Award** in Department of Mathematics, NUS, Singapore, 2020.
- Outstanding Graduate Award, Nanjing University, China, 2016.
- First-class Scholarship of Top-notch Student Training Plan, China, 2015.
- First-class People's Scholarship, China, 2014.
- **National Scholarship**, China, 2013.