LIANGZU PENG

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EDUCATION

Johns Hopkins Univerisity, Baltimore, USA — August 2021 – Now
Ph.D. in Electrical and Computer Engineering (advisor: Dr. René Vidal)
Thesis: TBD

ShanghaiTech Univerisity, Shanghai, China — September 2017 – June 2021
M.S. in Computer Science (advisor: Dr. Manolis C. Tsakiris)
Thesis: From Linear Regression Without Correspondences to Homomorphic Sensing

Zhejiang University, Hangzhou, China — September 2013 – June 2017
B.Eng. in Measurement Control Technology and Instruments
Thesis: Image Measurement Software for Visual Detection

WORK EXPERIENCE

Research Assistant, Johns Hopkins University — August 2021 – August 2023
Advisor: Dr. René Vidal

Teaching Associate, New York University, Shanghai — September 2020 – May 2021
Instructor: Dr. Siyao Guo

Intern, New York University, Shanghai — February 2020 – June 2020
Instructor: Dr. Irith Hartman

PUBLICATION

Preprint.

1. The Ideal Continual Learner: An Agent That Never Forgets (27 pages)
   LP , Paris V. Giampouras, and René Vidal

2. On the Convergence of IRLS and Its Variants in Outlier-Robust Estimation (32 pages)
   LP , Christian Kümmerle, and René Vidal

3. Unlabeled Principal Component Analysis and Matrix Completion (31 pages)
   Yunzhen Yao, ***LP*** , and Manolis C. Tsakiris

Conference Papers.

1. [NeurIPS 2022] Global Linear and Local Superlinear Convergence of IRLS for Non-Smooth Robust Regression
   LP , Christian Kümmerle, and René Vidal
   [OpenReview] [arXiv] [code] [bib]

2. [ECCV 2022] Semidefinite Relaxations of Truncated Least-Squares in Robust Rotation Search: Tight or Not
   Oral Presentation, 158/5803≈2.7% acceptance rate
   LP , Mahyar Fazlyab, and René Vidal
   [arXiv] [slides] [poster] [talk video] [bib]

3. [CVPR 2022] ARCS: Accurate Rotation and Correspondence Search
   Oral Presentation, 342/8161≈4.2% acceptance rate
   LP , Manolis C. Tsakiris, and René Vidal
   [arXiv] [code] [slides] [talk video] [bib]

4. [NeurIPS 2021] Unlabeled Principal Component Analysis
   Yunzhen Yao, ***LP*** , and Manolis C. Tsakiris

[OpenReview] [arXiv] [code] [bib]

5. [ICML 2021] Homomorphic Sensing: Sparsity and Noise
   LP , Boshi Wang, and Manolis C. Tsakiris
   [pdf] [talk video] [bib]

6. [ISIT 2021] Unsigned Matrix Completion
   Yunzhen Yao, ***LP*** , and Manolis C. Tsakiris
   [pdf] [bib]

7. [ICML 2019] Homomorphic Sensing
   Manolis C. Tsakiris and ***LP***
   [arXiv] [bib]

8. [ICASSP 2019] Algebraically-Initialized Expectation Maximization for Header-Free Communication
   LP , Xuming Song, Manolis C. Tsakiris, Hayoung Choi, Laurent Kneip, and Yuanming Shi
   [pdf] [bib]

Journal Papers.

1. Homomorphic Sensing of Subspace Arrangements
   Applied and Computational Harmonic Analysis, 2021
   LP and Manolis C. Tsakiris
   [arXiv] [bib]

2. Linear Regression Without Correspondences via Concave Minimization
   IEEE Signal Processing Letters, 2020
   LP and Manolis C. Tsakiris
   [arXiv] [code] [bib]

3. An Algebraic-Geometric Approach to Linear Regression Without Correspondences
   IEEE Transactions on Information Theory, 2020
   Manolis C. Tsakiris, ***LP*** , Aldo Conca, Laurent Kneip, Yuanming Shi, and Hayoung Choi
   [arXiv] [code] [bib]

Awards, Grants, and Honors

Honors:

Top Reviewer @NeurIPS 2022	2022
Highlighted Reviewer @ICLR 2022	2022

Grants:

GRO Conference Grants @JHU	June 2022
MINDS PhD Fellowship @JHU	Spring 2022

Talks

Fantastic Iteratively Reweighted Algorithms and Where to Find Them
@SIAM Conference on Optimization, Seattle, Washington — May 2023

A Tale of Two Villains: Bandit, Procrustes, and Their Regrets
TheoriNet Retreat @Flatiron Institute, New York City [slides] — September 28, 2022

Rotation Search: Optimization Theory and Algorithms

@AI TIME (Youth PhD Talk), Virtual [slides v4]	December 8, 2022
@Center for Applied Mathematics of Henan Province, China, Virtual [slides v3]	September 23, 2022
@Vision Lab Retreat, Johns Hopkins University [slides v2]	September 9, 2022
@VITA, University of Texas at Austin, Virtual [slides v1]	August 17, 2022

Semidefinite Relaxations in Robust Rotation Search: Tight or Not
@ECCV, Virtual [slides] October 2022
@ICCOPT, Bethlehem, Pennsylvania [slides] July 2022

ARCS: Accurate Rotation and Correspondence Search
@CVPR, New Orleans, Louisiana [slides] [talk video] June 2022

Professional Service

Organzer:

Mini-Symposium @SIAM Conference on Optimization May 2023
with Christian Kümmerle and René Vidal
"Iteratively Reweighted Algorithms in Data Science: From Convexity to Nonconvexity"

Reviewer:

International Conference on Computer Vision (2023)
IEEE International Conference on Acoustics, Speech and Signal Processing (2023)
International Conference on Artificial Intelligence and Statistics (2023)
Learning on Graphs Conference (2022)
European Conference on Computer Vision (2022)
Computer Vision and Pattern Recognition (2022, 2023)
International Conference on Learning Representations (2022, 2023)
Neural Information Processing Systems (2021, 2022)
International Conference on Machine Learning (2021 – 2023)
zbMATH Open (2021 - Now)
IEEE Transactions on Pattern Analysis and Machine Intelligence (1)
IEEE Transactions on Signal Processing (1)
IEEE Robotics and Automation Letters (1)

Teaching

Recitation Instructor:

CSCI-SHU 220, Algorithms Spring 2021, NYU-Shanghai
CSCI-SHU 220, Algorithms Fall 2020, NYU-Shanghai
CSCI-SHU 2314, Discrete Mathematics Spring 2020, NYU-Shanghai

Teaching Assistant:

SI 232, Subspace Learning Fall 2020, ShanghaiTech
CSCI-SHU 220, Algorithms Spring 2020, NYU-Shanghai
MATH 2111, Topological Data Analysis Spring 2020, ShanghaiTech
SI 232, Subspace Learning Fall 2019, ShanghaiTech
CS 133, Advanced C++ Programming Spring 2019, ShanghaiTech
SI 192, Applied Algebraic Geometry Spring 2019, ShanghaiTech
SI 112, Advanced Geometry[1] Spring 2018, ShanghaiTech

[1] Lecture notes available: http://www.liangzu.org/en/ag-notes.html