

Zhijian Lai

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Homepage: <https://galvinlai.github.io/>

Research interests

Mathematical Optimization, Riemannian Optimization, Machine Learning, Deep Learning, Quantum Computing

Education

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| 2021 – Present | University of Tsukuba – Tsukuba, Japan
Ph.D. in Policy and Planning Sciences
Supervisor: Prof. Akiko Yoshise |
| 2019 – 2021 | University of Tsukuba – Tsukuba, Japan
Master of Science (M.S.) in Policy and Planning Sciences
Supervisor: Prof. Akiko Yoshise |
| 2013 – 2017 | Dongbei University of Finance and Economics – Dalian, China
Bachelor of Management (B.Mgmt.) |

Grants

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| 2021 – Present | Research fellowship of <i>Support for Pioneering Research Initiated by the Next Generation</i> (SPRING), Japan Science and Technology Agency |
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Publications and Preprints

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| 2022 | Riemannian Interior Point Methods for Constrained Optimization on Manifolds
Zhijian Lai, Akiko Yoshise.
arxiv.org/abs/2203.09762 (Under review). |
| 2022 | Completely Positive Factorization by a Riemannian Smoothing Method
Zhijian Lai, Akiko Yoshise.
<i>Computational Optimization and Applications</i> . |

Working Papers

- 2023 **CLAP: A Contrastive Learning Structure for App-usage Prediction**
Xin Yang, Zhijian Lai, Qian Wu, Maiko Shigeno.
- 2023 **HGCL4REC: Hyperbolic Graph Contrastive Learning for Recommender System**
Xin Yang, Zhijian Lai, Qian Wu, Maiko Shigeno.

Research experience

- Month Year – **Title of project or lab where research was conducted**
Present Mentors: Professor A (University).
Description of your work. Summary of findings available [here](#). Sed dolor lacus, imperdiet non, ornare non, commodo eu, neque. Integer pretium semper justo.
- Month Year – **Title of project or lab where research was conducted**
Month Year Mentors: Professor B (University).
Description of your work. Summary of findings available [here](#). Sed dolor lacus, imperdiet non, ornare non, commodo eu, neque. Integer pretium semper justo.

Teaching experience

- Fall 2020 **Teaching assistant, STAT 123: Course name here (University)**
Topics and description of your responsibilities. Aliquam volutpat est vel massa. Sed dolor lacus, imperdiet non, ornare non, commodo eu, neque.
Average student rating: X/5.
- Spring 2020 **Teaching assistant, MATH 234: Course name here (University)**
Topics and description of your responsibilities. Aliquam volutpat est vel massa. Sed dolor lacus, imperdiet non, ornare non, commodo eu, neque.
Average student rating: X/5.

Conference Talks

- Aug. 2023 ICIAM 2023
Riemannian Interior Point Methods for Constrained Optimization on Manifolds, Tokyo.
- June 2023 SIAM OP23
Interior Point Methods for Nonlinear Optimization on Riemannian Manifolds, Seattle.

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| Mar. 2023 | The 2023 spring national conference of Operations Research Society of Japan
<i>Riemannian Interior Point Methods for Constrained Optimization on Manifolds</i> , Tokyo, Japan. |
| Dec. 2022 | International Workshop on Continuous Optimization
<i>Riemannian Interior Point Methods for Constrained Optimization on Manifolds</i> , Tokyo (virtual). |
| Sep. 2022 | The 2022 autumn national conference of Operations Research Society of Japan
<i>On the Global Convergence of Riemannian Interior Point Method</i> , Niigata (virtual), Japan. |
| Sep. 2022 | The Japan Society for Industrial and Applied Mathematics 2022 annual meeting
<i>On the Global Convergence of Riemannian Interior Point Method</i> , Sapporo, Japan. |
| Mar. 2022 | The 2022 spring national conference of Operations Research Society of Japan
<i>Superlinear and Quadratic Convergence of Riemannian Interior Point Methods</i> , Gunma (virtual), Japan. |
| July 2021 | SIAM OP21
<i>Completely Positive Factorization via Orthogonality Constrained Problem</i> , Hong Kong (virtual). |
| Aug. 2021 | Meeting 2021 of Kyoto University Research Institute for Mathematical Sciences
<i>Application of Smoothing Methods for Completely Positive Matrices via Orthogonality Constrained Problem</i> , Kyoto (virtual), Japan. |
| Mar. 2021 | The 2021 spring national conference of Operations Research Society of Japan
<i>Completely Positive Factorization via Orthogonality Constrained Problem</i> , Tokyo (virtual), Japan. |
| Aug. 2020 | Meeting 2020 of Kyoto University Research Institute for Mathematical Sciences
<i>A New Approach to the Recognition Problem of Completely Positive Matrices</i> , Kyoto (virtual), Japan. |

Mentorship and service

Month Year –	Title of organization you are in (Name of your role)
Present	Description of your responsibilities. Integer pretium semper justo. Proin risus. Nul- lam id quam. Nam neque. Phasellus at purus et lib ero lacinia dictum.

Month Year –	Title of organization you were in (Name of your role)
Month Year	Description of your responsibilities. Integer pretium semper justo. Proin risus. Nul- lam id quam. Nam neque. Phasellus at purus et lib ero lacinia dictum.

Professional memberships

Year – Present	Name of professional society <i>Short description or conferences you attended.</i>
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Technical skills

Programming languages

Proficient in: language 1, language 2, language 3

Familiar with: language 4, language 5

Software

L^AT_EX, Git, another piece of software

Languages

English (fluent), Another language (advanced)

Other interests

Some of your hobbies, etc.