Ruizhe Li

⚲ No. 1088 Xueyuan Avenue, Nanshan District, Shenzhen, Guangdong

⚲ Contact:(+86)187 2096 6763 ✉ 12212830@mail.sustech.edu.cn

Biography and Research Interests

I'm now in the department of mathematics at Southern University of Science and Technology. In the first two years of my undergraduate career, I studied pure maths. What I loved most is the finite group theory. And I follow (Caiheng Li ↗) to study this field. But when I'm taking the convex optimization class(2024 fall), I begin to be interested in optimization gradually. Thanks to this course's teacher(Xuyang Wu ↗), he lead me to the optimization field and I really love it.

Education

Southern University of Science and Technology   *Sept. 2022 – Present*
BS in Mathematics and Applied Mathematics

- GPA: 3.91/4.0
- Fields Honor class, led by the Fields Medal Winner Efim Zelmanov
- *Core course and related course*: *Topology*$(A, 94)$, *Abstract Algebra*$(H)(A^+, 97)$,
  Complex Analysis$(H)(A^+, 98)$, *Real Analysis*$(H)(A, 96)$,
  Numerical Analysis$(A^+, 97)$, *Probability Theory*$(A^+, 100)$,
  Ordinary Differential Equations$(H)(A, 95)$ *Partial Differential Equations*$(H)(A^+, 97)$
  Convex Analysis and application in machine learning$(A^+, 100)$

Research Experience

Convergence conditions for asynchronous optimization algorithms   *Shenzhen, China*
Advised by Xuyang Wu ↗   *Sep. 2024 - Present*

- Explore a broader scope of conditions in which many asynchronous optimization algorithms converges
- Study the convergence rate and time complexity of asynchronous optimization algorithms and find a more precise bound.

NN for solution mapping   *Hongkong, China*
Advised by Enming Liang ↗ and Minghua Chen ↗   *March. 2025 - Present*

- Explore the connection between neural networks,especially GNNs, and solution mapping in problems like LP,QCQP,MILP...
- Leverage the property of equivariance and the symmetry of the problem to design a new neural network architecture for solution mapping.

Seminars

Set theory   *Mar. 2023 - Jul. 2023*
Advised by Bochen Liu ↗

Fourier Analysis *Sep. 2023 - Jan. 2024*
Advised by [Bochen Liu](#) ↗

Harmonic Analysis *Sep. 2024 - Present*
Advised by [Bochen Liu](#) ↗

SKILLS & HONORS

Languages: Chinese(native), English(fluent)

Programming Languages: Java, Python

Scholarship: Merit Student Scholarship of SUSTech	*Oct. 2023*
Outstanding Student of SUSTech	*Nov. 2023*
Merit Student Scholarship of SUSTech	*Oct. 2024*
Outstanding Student of SUSTech	*Oct. 2024*

Competition: National Second prize in China Undergraduate Mathematical Contest in Modeling (As the captain) *Oct. 2023*
First prize in China Undergraduate Mathematical Contest *Oct. 2024*