Chengrui Li 李成睿

cnlichengrui@gatech.edu
https://JerrySoybean.github.io
https://scholar.google.com/citations?user=SXR3RXIAAAAJ
https://github.com/JerrySoybean

Research Interests

Computational neuroscience, neural latent variable models, statistical machine learning.
Eye tracking experiment and data analysis.
Fractional calculus signal processing.

Education

2021.08 – present
Ph.D. in Computational Science & Engineering.
M.Sc. in Mathematics on 2023.12.
Georgia Institute of Technology (Georgia Tech), Atlanta, USA.
GPA: **4.00**/4.00
Advisor: Prof. Anqi Wu

2018.08 – 2019.05
Undergraduate Non-Degree Exchange Student.
University of Tennessee, Knoxville (UTK), USA.
GPA: **4.00**/4.00

2016.09 – 2020.06
B.Eng. in Software Engineering (Computational Biology);
B.Sc. in Biological Sciences.
Wu Yuzhang Honors College, Sichuan University (SCU), Chengdu, China.
GPA: **3.94**/4.00; Rank: **1**/28
Advisor: Prof. Yifei Pu & Prof. Wei Deng
Thesis title: *The application of fractional order image enhancement in computational neuroscience*.

Honors and Awards

2023 **Runner-up Poster Award in the Neuro Next Initiative Launch Event**, Georgia Tech.
2020 **Outstanding Undergraduate Thesis**, SCU.
Outstanding Graduates, SCU.
2019 **Finalist** (<0.3%) + **Frank Giordano Award** (the only 1 out of 14,000), Mathematical Contest in Modeling (MCM/ICM), Consortium for Mathematics and Its Applications.
2018 **"Tang Lixin" Lifetime Scholarship**, Tang Lixin Education Development Foundation.
First Grade Scholarship, SCU.
2017 **National Scholarship**, Ministry of Education of the People's Republic of China.
First Grade College Mathematical Contest, SCU.

Research Publications

Peer Reviewed Conference Proceedings

C3 **Chengrui Li**, Yule Wang, Weihan, Li, and Anqi Wu. "Forward χ^2 Divergence Based Variational Importance Sampling". *The Twelfth International Conference on Learning Representations (ICLR)*, 2024. [**spotlight 5%**]

C2 **Chengrui Li**, Soon Ho Kim, Chris Rodgers, Hannah Choi, and Anqi Wu. "One-hot Generalized Linear Model for Switching Brain State Discovery". *The Twelfth International Conference on Learning Representations (ICLR)*, 2024.

C1 Yule Wang, Zijing Wu, **Chengrui Li**, and Anqi Wu. "Extraction and Recovery of Spatio-Temporal Structure in Latent Dynamics Alignment with Diffusion Model". *Advances in Neural Information Processing Systems 35 (NeurIPS)*, 2023. [**Spotlight: 3%**]

Journal Articles

J1 **Chengrui Li** and Anqi Wu. "Inverse Kernel Decomposition". *Transactions on Machine Learning Research (TMLR)*, 2023. [under review]

Preprints

P1 **Chengrui Li** and Bruce J. MacLennan. "Continuous-time systems for solving 0-1 integer linear programming feasibility problems". *arXiv:1905.04612*, 2019.

Invited Talks and Other Presentations

2024.02 **Chengrui Li**, Soon Ho Kim, Chris Rodgers, Hannah Choi, and Anqi Wu. "One-hot Generalized Linear Model for Switching Brain State Discovery". Poster presentation @ The 20th anniversary of Computational and Systems Neuroscience (COSYNE 2024), Lisbon, Portugal.

Yule Wang, Zijing Wu, **Chengrui Li**, and Anqi Wu. "Extraction and recovery of spatio-temporal structure in neural alignment via diffusion models". Poster presentation @ The 20th anniversary of Computational and Systems Neuroscience (COSYNE 2024), Lisbon, Portugal.

2023.10 **Chengrui Li**, Soon Ho Kim, Chris Rodgers, Hannah Choi, and Anqi Wu. "One-hot Generalized Linear Model for Switching Brain State Discovery". Poster presentation @ Neuro Next Initiative Launch Event, Georgia Tech.

2023.08 **Chengrui Li**. "Latent Variable Models for Neural Spike Train Data". Invited talk @ Affiliated Mental Health Center, Zhejiang University School of Medicine (Hangzhou Seventh People's Hospital), Hangzhou, China.

2018.12 **Chengrui Li** and Wei Deng. "The Power and Beauty of Mathematics: A Prospect of Nature Inspiration & Computational Model from the Interdisciplinary View". Oral presentation @ *The 11th International Conference on Brain Informatics (BI 2018)*, Arlington, TX, USA.

Miscellaneous Experience

Teaching Experiences

Fall 2023 **Teaching assistant**. CSE 6740 Computational Data Analysis @ Georgia Tech.

Spring 2023 **Teaching assistant**. CSE 6740 Computational Data Analysis @ Georgia Tech.

Summer Schools

2020.08 **CNeuro 2020: Theoretical and Computational Neuroscience Summer School**, Tsinghua University.

2018.08 **The Chinese University of Hong Kong Summer Workshop**, Hong Kong SAR, China.

2018.07 **Cognitive Neuroscience Summer School**, Peking University.

Other Research Experiences

2018.09 – 2019.10 **Eye tracking experiment: Response Selection**. Designed the eye-tracking program by Experiment Builder. Completed an eye-tracking data analysis program in MATLAB. Used the eye-tracking technique to investigate the influence of different stimulus-response conditions on the eye movement trajectories.

2019.07 **Web project development**. Developed a web project for an e-commerce platform under the SSM framework. Java + MySQL + JSP was used for full-stack agile development.

2018.02 **Clinical internship at the State Key Laboratory of Biotherapy, West China Hospital, SCU**. Conducted tests including the Mini-Mental State Examination (MMSE), the Montreal Cognitive Assessment (MoCA), the Hamilton Anxiety Rating Scale (HAM-A), and the Hamilton Depression Rating Scale (HAM-D).

Skills and Hobbies

Machine Learning/Math Programming: Python, MATLAB, Mathematica, R, Julia.
Development Programming: C/C++, Java, SQL.
Multi-Media: Cinema 4D, Adobe Premiere Pro, Adobe Illustrator, Adobe Audition, etc.
Others: Experiment Builder (eye-tracking), LaTeX, Linux, etc.
Hobbies: Violin, Piano, Magic tricks, YOYO ball, Aerial photograph & film/audio post-processing, etc.