# 李成睿 Chengrui Li


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## Research Interests

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

## Education

2021.08 – present

**Ph.D. in Computational Science & Engineering**.
**M.Sc. in Mathematics in 2023.12**.
**Got the offer in 2020.08 but deferred to 2021.08 due to COVID-19**.
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*.

## Employment

2025.06 – present

**Research Scientist,** Neural Interfaces, ML, CTRL-Labs, Meta Reality Labs, New York City, USA.
Working on Meta's sEMG neural band that controls the AI display glasses, advised by Greg Gimler in the ML Algorithm team.

2026.01 – present

**Postdoctoral Research Consultant (Remote),** Rollins Research Center, Department of Biology, Emory University, Atlanta, USA.
Working on mouse voltage imaging data analysis, advised by Dr. Dieter Jaeger.

2024.05 – 2024.08

**Research Internship,** Neuromoter Interfaces: Computational Modeling, CTRL-Labs, Meta Reality Labs, New York City, USA.
Advised by Dr. Sean Bittner in the EMG Foundations team.

## 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

C9 "A Disentangled Low-Rank RNN Framework For Uncovering Neural Connectivity and Dynamics"
**Chengrui Li**, Yunmiao Wang, Yule Wang, Weihan Li, Dieter Jaeger, and Anqi Wu
*The Fourteenth International Conference on Learning Representations (ICLR)*, 2026 [under review]

C8 "A Revisit of Total Correlation in Disentangled Variational Auto-Encoder with Partial Disentanglement"
**Chengrui Li**, Yunmiao Wang, Yule Wang, Weihan Li, Dieter Jaeger, and Anqi Wu
*The Fourteenth International Conference on Learning Representations (ICLR)*, 2026 [under review]

C7 "Learning Time-Varying Multi-Region Brain Communications via Scalable Markovian Gaussian Processes"
Weihan Li, Yule Wang, **Chengrui Li**, and Anqi Wu
*The Forty-Second International Conference on Machine Learning (ICML)*, 2025 [**Oral: 1.0%**]

C6 "Exploring Behavior-Relevant and Disentangled Neural Dynamics with Generative Diffusion Models"
Yule Wang, **Chengrui Li**, Weihan Li, and Anqi Wu
*Advances in Neural Information Processing Systems 36 (NeurIPS)*, 2024

C5 "A Differentiable Partially Observable Generalized Linear Model with Forward-Backward Message Passing"
**Chengrui Li**, Weihan Li, Yule Wang, and Anqi Wu
*The Forty-first International Conference on Machine Learning (ICML)*, 2024

C4 "Multi-Region Markovian Gaussian Process: An Efficient Method to Discover Directional Interactions Across Multiple Brain Regions"
Weihan Li, **Chengrui Li**, Yule Wang, and Anqi Wu
*The Forty-first International Conference on Machine Learning (ICML)*, 2024

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

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

C1 "Extraction and Recovery of Spatio-Temporal Structure in Latent Dynamics Alignment with Diffusion Model"

Yule Wang, Zijing Wu, **Chengrui Li**, and Anqi Wu
*Advances in Neural Information Processing Systems 35 (NeurIPS)*, 2023 [**Spotlight: 3%**]

### Journal Articles

J3 "Feature Reconstruction Guided Fusion Network for Hyperspectral and LiDAR Classification"
Zhi Li, Ke Zheng, Lianru Gao, Nannan Zi, and **Chengrui Li**
*IEEE Transactions on Geoscience and Remote Sensing*, 2025

J2 "Cross Semantic Heterogeneous Modeling Network for Hyperspectral Image Classification"
Zhi Li, Ke Zheng, Jiaxin Li, **Chengrui Li**, and Lianru Gao
*IEEE Transactions on Geoscience and Remote Sensing*, 2024

J1 "Inverse Kernel Decomposition"
**Chengrui Li** and Anqi Wu
*Transactions on Machine Learning Research (TMLR)*, 2024

### Abstracts

A1 "Similarity of Memory Representations Modulate Saccade Curvatures"
Golnaz Forouzandehfar, **Chengrui Li**, Aaron T. Buss, and A. Caglar Tas
*Journal of Vision*, 2024

### Preprints

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

### Theses

T1 "The application of fractional order image enhancement in computational neuroscience"
**Chengrui Li**, Wei Deng, and Yifei Pu
*Sichuan University Undergraduate Thesis*, 2020 [**Outstanding Undergraduate Thesis**]

## Invited Talks and Other Presentations

2026.03 "A disentangled low-rank RNN framework for uncovering neural connectivity and dynamics"
**Chengrui Li**, Yunmiao Wang, Yule Wang, Weihan Li, Dieter Jaeger, and Anqi Wu
Poster presentation @ *The 22th anniversary of Computational and Systems Neuroscience (COSYNE 2026), Lisbon, Portugal*

2025.04 "One-hot Generalized Linear Model for Switching Brain State Discovery (One-hot HMM-GLM GitHub Repository on Cybershuttle)"
**Chengrui Li**, and Anqi Wu
Invited talk @ *Data-Driven and Large-Scale Modeling in Neuroscience Workshop, Georgia Tech*

2025.03 "Disentangling partially independent low-rank nerual representations and connectivity"
**Chengrui Li**, Yunmiao Wang, Yule Wang, Weihan Li, Dieter Jaeger, and Anqi Wu
Poster presentation @ *The 21th anniversary of Computational and Systems Neuroscience (COSYNE 2025), Montreal, Canada*

2023.08 'Latent Variable Models and Inferencing Methods for Understanding Neural Functional Connectivity"
**Chengrui Li**
Invited talk @ *School of Life Sciences, Tsinghua University, Beijing, China*

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

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

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

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

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

## Miscellaneous Experience

### Teaching Experiences

Spring 2025 **Grader**. MATH 6647 Numerical Dynamical System @ Georgia Tech.
Fall 2023 **Teaching assistant**. CSE 6740 Computational Data Analysis @ Georgia Tech.
Spring 2023 **Teaching assistant**. CSE 6740 Computational Data Analysis @ Georgia Tech.
Summer 2022 **Graduate student research mentor**. SURE @ 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).

## Academic Services

### Reviewer

Neural Information Processing Systems (NeurIPS) 2023, 2024, 2025 (Datasets & Benchmarks)

International Conference on Machine Learning (ICML) 2023, 2024, 2025, 2026 (Position Paper Track)

International Conference on Learning Representations (ICLR) 2024, 2025, 2026

Association for the Advancement of Artificial Intelligence (AAAI) 2025, 2026

International Conference on Artificial Intelligence and Statistics (AISTATS) 2025, 2026

Transactions on Machine Learning Research (TMLR)

Computational and Systems Neuroscience (COSYNE) 2026

## 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.