

# XUANZHI CHEN

Undergraduate · Senior Student

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 [xuanzhichen](#)

 [google scholar](#)

## PERSONAL INTRODUCTION

I fully intend to work for more and more beneficial applications in brain science, with special interests in neurotechnology and (cognitive) neuroscience. My long-term goal lies in helping partially but better understand the incredible intelligence of our brain. In particular, I incline to leverage the computational methodology to simulate specific neural capabilities, and to unravel the mathematical model behind specific brain functions.

## SKILLS

INTERESTS: **Brain Science, NeuroAI,**  
Neurotechnology, Neuroscience

METHODS: **Computational Methodology,**  
Machine Learning, Bayesian Analysis

CODINGS: **Python,** PyTorch

## EDUCATION

**Guangdong University of Technology, GDUT**

*Bachelor of Science in Computer Science*

Sep. 2020 – Present

Guangzhou, china

## REPRESENTATIVE EXPERIENCE

**Data Mining and Information Retrieval Laboratory, DMIR**

*Research Assistant Intern | Advisors: [Wei Chen](#), [Ruichu Cai](#)*

Sep. 2021 – Sep. 2023

Guangzhou, china

- Motivation: Discover a potential “causal structure” entailed by general raw data.
- Assumption: Presume the “mathematical causal asymmetry” of specific non-linear brain functions.
- Result: Developed a “hybrid-based” discovery algorithm and highlighted a principle as to the non-linear causal inference among brain regions’ structures, with applications in fMRI brain data.

## REPRESENTATIVE WORK

### PROJECTS

[A Primer on Causal Diagram Learning](#)

Aug. 2023 – Mar. 2024

*Work for Popularization of Science and Technology*

- Create connections to celebrated books by leaders in causation, with topics of “causal discovery”.
- Following the giants in causation, provide beneficial opinions to fields in AI and cognitive science.

[Cadimulc: Light Python Package for Hybrid-Based Causal Discovery](#)

May. 2022 – Jun. 2023

*Software*

- CADIMULC stands for the data-driven task: CAusal Discovery with Multiple Latent Confounders.
- Provide easy-to-use APIs to learn causal graphs from generally raw data with relatively efficiency.

[Nonlinear Causal Discovery from Unknown Confounding](#)

Nov. 2021 – Jun. 2023

*Scientific Research*

- Interest in teaching AI in brain science to appreciate “causal structures” underneath the brain data.
- Develop algorithms fitting for the complicate data involving non-linearity and unknown confounding.

### PAPERS

- **Chen, XZ.** [A Primer on Learning Causal Graph: Interpret Causation from Causal Discovery Perspectives.](#)  
*Xuanzhi's Personal Website. 2024.*
- **Chen, XZ\*, Chen, W\*, Cai, RC.** [Non-linear Causal Discovery for Additive Noise Model with Multiple Latent Confounders.](#)  
*Xuanzhi's Personal Website. 2023.*

## AWARDS & HONORS

Guangdong University of Technology Invention Patent on causal inference in fMRI data (first inventor)

2023

Guangdong University of Technology Undergraduate Research Program project grant

2021-2023

## OTHER

- \* Languages: Mandarin Chinese (native)
- \* Test of English as a Foreign Language (TOEFL): a score of 85, with a score of 20 in speaking ([temporary score, 2023](#))
- \* Interests: skills of writing, software development, classics reading, art & design, badminton, cooking, traveling