

# XUANZHI CHEN

Email: [xuanzhichen.42@gmail.com](mailto:xuanzhichen.42@gmail.com)  
Phone: +86-18922691189

 [Personal Website](#)    [Guangzhou, China](#)  
 [Google Scholar](#)    [Github Profile](#)

## INTRODUCTION

My long-term endeavors is to apply scientific and technical knowledge to the relevant industrial fields. My current academic interest rests on machine intelligence and computational data analysis. I might also be interested in addressing commercial and financial problems in the future, by drawing inspiration from computer science and applied math.

## SKILLS

**METHODS**   **Computational & Mathematical:**  
Machine Learning, Deep Learning;  
Probabilistic Graphical Models

**CODINGS**   **Python, C++, R, Matlab;**  
PyTorch, TensorFlow; Unix, Linux;  
Distributed-Cluster Computing

## EDUCATION

**Guangdong University of Technology, GDUT**   Sep. 2019 – Jun. 2024  
*Bachelor of Engineering in Computer Science and Technology* | *Major GPA: 3.6 (86/100)*   *Guangzhou, china*

## EMPLOYMENT

**Data Mining and Information Retrieval Laboratory, DMIR Lab**   Sep. 2021 – Sep. 2023  
*Research Assistant Internship* | *Advisors: Wei Chen, Ruichu Cai*   *Guangzhou, china*

## WORK EXPERIENCES

### Research

- @ *A Survey on Causal Discovery with Incomplete Time-Series Data*   Nov. 2021 – Jun. 2023
- Excavated the paradigms concerning how the latest algorithms infer temporal-causation under hidden factors or miss data
  - Categorized the statistical assumptions that are relied by each type of the causality algorithms
- @ *Nonlinear Causal Discovery from Unknown Confounding*   Nov. 2021 – Jun. 2023
- Studying how to teach AI in neuroscience to unravel causation over (confounding) fMRI data
  - Formulated a theory that intuitively showcases causal identification by graphical language
  - Developed an algorithms by suggesting the third derivative of pairwise nonlinear functions that increased 10% in  $F1$  score performance and reduced 50% in computation cost

### Profession

- @ *Cadimulc: A Light Python Package for Hybrid-Based Causal Discovery*   May. 2022 – Jun. 2023
- Contributed python implementation of a causality algorithm proposed in IEEE-TNNLS (2021)
  - Provided out-of-the-box APIs that instruct beginners to conduct basic causal inference

### Personal Activities

- @ *A Primer on Causal Diagram Learning*   Sep. 2023 – Apr. 2024
- Popularized causal science concepts to general public by posting a series of videos that use every-day-life examples
  - Communicated math behind causation to technical audiences by writing an open online essay

## ACADEMIC PAPERS

### Publishments

- Liu, Y.\*, Zhu, W.\*, Qiao, J.\*, Huang, Z., Xiang, Y., **Chen, X.**, Chen, W. and Cai, R., 2022. [Causal Alignment Based Fault Root Causes Localization for Wireless Network](#). In *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*.

### Preprints

- Chen, X.**, Chen, W., Cai, R., 2023. A Survey on Causal Discovery with Incomplete Time-Series Data. In *Xuanzhi's Personal Website*. [[paper](#)] [[slides](#)]
- Chen, X.\***, Chen, W.\*, Cai, R., 2023. Non-linear Causal Discovery for Additive Noise Model with Multiple Latent Confounders. In *Xuanzhi's Personal Website*. [[paper](#)][[slides](#)]
- Chen, X.**, 2023. Supplementary Material to: "Non-linear Causal Discovery for Additive Noise Model with Multiple Latent Confounders". In *Xuanzhi's Personal Website*. [[paper](#)]

### Personal Essaies

- Chen, X.**, 2024. A Primer on Causal Diagram Learning. In *Xuanzhi's Personal Website*. [[paper](#)][[slides](#)]

## SUPPLEMENTAL MATERIAL

### A Report for My Undergraduate Research Work

- @ *Hybrid-based Causal Discovery with Machine Learning*   Nov. 2024 – Dec. 2024
- Written for readers who wish to make thorough assessment on my undergraduate studies
  - Made my work accessible to readers with limited insights into machine learning and causality.

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## CERTIFICATIONS

- (*Temporal, Jun. 2024*) English Proficiency (TOEFL) Test Score: 98 (Reading: 25, Listening: 22, Speaking: 24, Writing: 27)
- Graduate Record Examination (GRE) Test Score: 323 (Verbal: 158, Quant: 165)

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## AWARDS & HONORS

- 2022-2023: Guangdong University of Technology Undergrad Research Program Project Grant
- 2023: Guangdong University of Technology Invention Patent (First Inventor) on Causal Inference with fMRI Data
- 2023: Award (Project Lead) in China College Students' Innovation and Entrepreneurship Competition (Province Level)
- 2022: 2<sup>nd</sup> Prize in CUMCM (Contemporary Undergraduate Mathematical Contest in Modeling) (Province Level)
- 2021: 2<sup>nd</sup> Prize in LANQIAO Cup China Software and Information Technology Talent Competition (Province Level)

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## \*EMBEDDED LINKS DISPLAY (IF APPLICABLE)

- Personal Website: <https://xuanzhichen.github.io/>
- A Report for My Undergraduate Research Work:  
[https://xuanzhichen.github.io/work/papers/a\\_report\\_for\\_hybrid%E2%80%90based\\_causal\\_discovery.pdf](https://xuanzhichen.github.io/work/papers/a_report_for_hybrid%E2%80%90based_causal_discovery.pdf)
- My Google Scholar: <https://scholar.google.com/citations?user=ewInEIIAAAA&hl=en&authuser=1>
- My Published Paper: <https://ieeexplore.ieee.org/abstract/document/9746064>
- My Preprinted Paper (1):
  - PDF: [https://xuanzhichen.github.io/work/papers/a\\_survey\\_on\\_causal\\_discovery\\_with\\_incomplete\\_time-series\\_data.pdf](https://xuanzhichen.github.io/work/papers/a_survey_on_causal_discovery_with_incomplete_time-series_data.pdf)
  - Slides: [https://xuanzhichen.github.io/work/slides/a\\_survey\\_on\\_causal\\_discovery\\_with\\_incomplete\\_time-series\\_data.pdf](https://xuanzhichen.github.io/work/slides/a_survey_on_causal_discovery_with_incomplete_time-series_data.pdf)
  - Talk: [Unavailable](#)
- My Preprinted Paper (2):
  - PDF: [https://xuanzhichen.github.io/work/papers/nonlinear\\_mlc.pdf](https://xuanzhichen.github.io/work/papers/nonlinear_mlc.pdf)
  - Slides: [https://xuanzhichen.github.io/work/slides/nonlinear\\_mlc.pdf](https://xuanzhichen.github.io/work/slides/nonlinear_mlc.pdf)
  - Talk: [https://www.youtube.com/watch?v=4bpx1DPd\\_Vg&list=PLSyPZ5M\\_YtDRr9z25YgUjqs7-RLr-x5yg&index=3](https://www.youtube.com/watch?v=4bpx1DPd_Vg&list=PLSyPZ5M_YtDRr9z25YgUjqs7-RLr-x5yg&index=3)
- My Preprinted Paper/Supplementary Materials (3):  
[https://xuanzhichen.github.io/work/papers/nonlinear\\_mlc\\_supplementary\\_material.pdf](https://xuanzhichen.github.io/work/papers/nonlinear_mlc_supplementary_material.pdf)
- My Github Profile: <https://github.com/xuanzhichen>
- My Open-Source Project (User Guidance): <https://xuanzhichen.github.io/cadimulc/>
- My Open-Source Project (Github Repository): <https://github.com/xuanzhichen/cadimulc>
- My Coding Sample (Implementation of a Proposed Causality *Algorithm* in IEEE-TNNLS, 2021):
  - Codes: [https://github.com/xuanzhichen/cadimulc/blob/master/cadimulc/hybrid\\_algorithms/hybrid\\_algorithms.py](https://github.com/xuanzhichen/cadimulc/blob/master/cadimulc/hybrid_algorithms/hybrid_algorithms.py)
  - The *Algorithm*: <https://ieeexplore.ieee.org/abstract/document/9317707>
- Personal Activity in Causal Science Popularization:
  - Essay: [https://xuanzhichen.github.io/work/papers/primer\\_causal\\_diagram\\_learning.pdf](https://xuanzhichen.github.io/work/papers/primer_causal_diagram_learning.pdf)
  - Slides: [https://xuanzhichen.github.io/work/slides/primer\\_causal\\_diagram\\_learning.pdf](https://xuanzhichen.github.io/work/slides/primer_causal_diagram_learning.pdf)
  - Talk: [https://www.youtube.com/playlist?list=PLSyPZ5M\\_YtDQA6YQ7VNGVoNIYZYo\\_xgpu](https://www.youtube.com/playlist?list=PLSyPZ5M_YtDQA6YQ7VNGVoNIYZYo_xgpu)