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## EDUCATION

<b>University of Macau (UM)</b>	Macao, China
<i>Doctor of Philosophy in Psychology</i>	2021 - Present
<b>Sun Yat-sen University (SYSU)</b>	Guangzhou, China
<i>Master of Engineering in Software Engineering</i>	2016 - 2018
♦ Graduation thesis: Research on causal knowledge extraction method based on deep learning and sequence labelling	
<i>Bachelor of Engineering in Information Security</i>	2012 - 2016
♦ Relevant Courses: Computer Programming, Data Structure and Algorithm, Graph Theory and Its Algorithms, Principles and Applications of Artificial Intelligence	

## RESEARCH INTERESTS

### Topics

♦ Social cognition, social neuroscience, mentalising, artificial social intelligence, natural language processing

### Methods

♦ Experimental design, computational modelling, fMRI, machine learning

## AWARDS

<b>Diversity Travel Award</b>	Santa Barbara, United States
The 15th Annual Meeting of the Social & Affective Neuroscience Society	2023
<b>Excellent Presentation Award</b>	Online
2022 National Doctoral Forum on Brain-Computer Intelligence and Psychology	2022
<b>Best Presentation Award, the 3rd Place</b>	Macao, China
The 1st International Symposium on Addiction and Decision Making	2021
<b>Award of Excellence</b>	Macao, China
The 1st International Symposium on Addiction and Decision Making	2021
<b>Best Oral Presentation, the 3rd Place</b>	Online
Greater Bay Area Young Scholar Forum on Psychological Science	2021
<b>The 3rd Team</b>	Online
The 1st Computational Psychiatry Hack at China	2021
<b>The Third Prize Scholarship for Postgraduate Students</b>	Guangzhou, China
Sun Yat-sen University	2016 - 2017

## PEER-REVIEWED JOURNAL ARTICLES

**Li, Z.,** Jiang, Q., Wu, Z., Liu, A., Wu, H., Huang, M., Huang, K. & Ku, Y. (in press). Towards human-compatible autonomous car: A study of non-verbal Turing test in automated driving with affective transition modelling. *IEEE Transactions on Affective Computing*. [[arXiv](#)] [[Data & Code](#)] [[Twitter](#)]

**Li, Z.,** Dong, Q., Hu, B. & Wu, H. (2023). Every individual makes a difference: A trinity derived from linking individual brain morphometry, connectivity and mentalising ability. *Human Brain Mapping*, 44(8), 3343-3358. [[Paper](#)] [[bioRxiv](#)] [[Data & Code](#)] [[Twitter](#)] [[Mastodon](#)] [WeChat ([ANDlab](#), [brainnews](#), [Wiley NeuroPsycho](#))]

**Li, Z.,** Li, Q., Zou, X. & Ren, J. (2021). Causality extraction based on self-attentive BiLSTM-CRF with transferred embeddings. *Neurocomputing*, 423, 207-219. [[Paper](#)] [[arXiv](#)] [[Data & Code](#)]

**Li, Z.** & Ren, J. (2020). Fine-tuning ERNIE for chest abnormal imaging signs extraction. *Journal of Biomedical Informatics*, 108, 103492. [[Paper](#)] [[arXiv](#)] [[Data & Code](#)]

## PATENTS

**Li, Z.** Causal Knowledge Extractor based on Deep Learning V1.0. China Patent Application 2018SR275268, Certificate No.: 2604363, filed 2018.

## RESEARCH EXPERIENCE

**Non-verbal Turing Test in Automated Driving with Affective Transition Modelling** Guangzhou, China  
*Research Assistant, with Prof. Yixuan Ku, Memory & Emotion Lab at SYSU* 2020.09 - Present

- ◆ Designed a non-verbal variation of the Turing Test for automated driving based on 69 participants' feedback in the real world
- ◆ Found that the AI driver failed to pass the test because passengers detected the AI driver above chance
- ◆ Advanced a computational model combining SDT with PLMs to predict passengers' humanness rating behaviour in the test
- ◆ Revealed that the passengers' ascription of humanness would increase with the greater affective transition

**Linking Individual Brain Morphometry, Connectivity and Mentalising Ability** Macao, China  
*Individual Research, with Prof. Haiyan Wu, A. N. D Lab at UM* 2021.06 - 2023.05

- ◆ Used IS-RSA to assess relationships between amygdala and hippocampal MMS, rs-FC and IMQ scores across the participants
- ◆ Proposed a novel pipeline to obtain a decent representation for high-dimensional MMS data in IS-RSA
- ◆ Found that a trinity existed in idiosyncratic patterns of brain morphometry, connectivity and mentalising ability
- ◆ Revealed that a region-related mentalising specificity emerged from the trinity
- ◆ Suggested that rs-FC gates the MMS predicted similarity in mentalising ability by using the dyadic regression analysis

**Causality Extraction based on Self-Attentive BiLSTM-CRF with Transferred Embeddings** Guangzhou, China  
*Research Assistant, with Prof. Jiangtao Ren* 2018.09 - 2020.03

- ◆ Designed a causality tagging scheme to handle multiple causal triplets and embedded causal triplets in the same sentence
- ◆ Alleviated the problem of data insufficiency by incorporating transferred embeddings into the model
- ◆ Introduced the self-attention mechanism into the model to capture long-range dependencies between cause and effect
- ◆ Proved the effectiveness of the proposed model for causality extraction

**Causality Extraction based on Bi-directional LSTM Networks with Focal Loss** Guangzhou, China  
*Individual Research, with Prof. Jiangtao Ren* 2017.09 - 2018.04

- ◆ Investigated different BiLSTM-based end-to-end models to achieve the best performance of causal sequence labelling
- ◆ Applied focal loss as the loss function to address the tag class imbalance problem in the sequence labelling
- ◆ Proved that the proposed model can effectively enhance the association between cause and effect

## PROFESSIONAL EXPERIENCE

**Fine-tuning ERNIE for Chest Abnormal Imaging Signs Extraction** Guangzhou, China  
*NLP Engineer, Department of Big Data and Artificial Intelligence at Tianpeng Technology Co., Ltd.* 2019.04 - 2020.05

- ◆ Formulated chest abnormal imaging sign extraction as a sequence tagging and matching problem
- ◆ Alleviated the problem of data insufficiency by fine-tuning the pre-trained language model
- ◆ Designed a tag2relation algorithm based on the nature of chest imaging report text
- ◆ Proved the effectiveness of the proposed model for chest abnormal imaging signs extraction

**Multi-task Learning for Diagnosis Assistance based on Information Extraction and Text Classification** Guangzhou, China  
*NLP Engineer, Department of Big Data and Artificial Intelligence at Tianpeng Technology Co., Ltd.* 2019.09 - 2019.12

- ◆ Proposed a multi-task learning model to improve the interpretability of DL-based diagnosis prediction models
- ◆ Reached a hypothesis that diagnosis prediction and interpretability analysis may be mutually reinforcing

**Rare Disease Diagnosis based on Similarity Measuring and Additive Margin Softmax** Guangzhou, China  
*NLP Engineer, Department of Big Data and Artificial Intelligence at Tianpeng Technology Co., Ltd.* 2019.08 - 2019.12

- ◆ Applied the diagnosis prediction model for common diseases as an encoder to get the vector representation of each patient

- ◆ Employed cosine similarity-based KNN to contrast and sort the vector representations, achieving rare disease diagnosis
- ◆ Applied AM-Softmax as the loss function to reduce intra-class variation and increase inter-class difference

## CONFERENCE PRESENTATIONS

- Li, Z.,** Jiang, Q., Wu, Z., Liu, A., Wu, H., Huang, M., Huang, K. & Ku, Y. (2023). Bot or not: A study of the Turing test in automated driving with affective transition modelling. Blitz topics presented and poster presented virtually at *the 15th Annual Meeting of the Social & Affective Neuroscience Society*, Santa Barbara, United States, April 27-29. **Diversity Travel Award.** [[Slides](#)] [[Poster](#)] [[Video](#)]
- Li, Z.,** Jiang, Q., Wu, Z., Liu, A., Wu, H., Huang, M., Huang, K. & Ku, Y. (2022). Towards human-compatible autonomous car: A study of non-verbal Turing test in automated driving with affective transition modelling. Presented virtually at *2022 National Doctoral Forum on Brain-Computer Intelligence and Psychology*, Hangzhou, China, November 19. [[Slides](#)]
- Li, Z.,** Dong, Q., Hu, B. & Wu, H. (2022). Every individual makes a difference: A trinity derived from linking individual brain morphometry, functional connectivity and mentalising abilities. Presented virtually at *2022 National Doctoral Forum on Brain-Computer Intelligence and Psychology*, Hangzhou, China, November 19. **Excellent Presentation Award.** [[Slides](#)]
- Li, Z.,** Jiang, Q., Wu, Z., Liu, A., Wu, H., Huang, M., Huang, K. & Ku, Y. (2022). Towards human-compatible autonomous car: A study of non-verbal Turing test in automated driving with affective transition modelling. Poster presented at *the 3rd Macau Symposium on Cognitive and Brain Sciences*, Macao, China, November 18-19. [[Poster](#)]
- Li, Z.,** Dong, Q., Hu, B. & Wu, H. (2022). Every individual makes a difference: A trinity derived from linking individual brain morphometry, functional connectivity and mentalising abilities. Poster presented at *the 3rd Macau Symposium on Cognitive and Brain Sciences*, Macao, China, November 18-19. [[Poster](#)]
- Li, Z.,** Dong, Q., Hu, B. & Wu, H. (2022). Every individual makes a difference: A trinity derived from linking individual brain morphometry, connectivity and mentalising ability. Presented virtually at *2022 National Forum on Psychology for Excellent Doctoral Students*, Guangzhou, China, June 24-25. [[Slides](#)]
- Li, Z.,** Jiang, Q., Wu, Z., Liu, A., Wu, H., Huang, M., Huang, K. & Ku, Y. (2022). Towards human-compatible autonomous car: A study of modified Turing test in automated driving with affective variability modelling. Presented virtually at *International Graduate Forum on Language Cognitive Science*, Beijing, China, June 11. [[Slides](#)]
- Li, Z.,** Dong, Q., Hu, B. & Wu, H. (2022). Every individual makes a difference: A trinity derived from linking individual brain morphometry, connectivity and mentalising ability. Poster presented virtually at *the 14th Annual Meeting of the Social & Affective Neuroscience Society*, May 4-6. [[Poster](#)] [[Slides](#)] [[Video](#)]
- Li, Z.,** Jiang, Q., Wu, Z., Liu, A., Wu, H., Huang, M., Huang, K. & Ku, Y. (2021). Towards human-compatible autonomous car: A study of Turing test in automated driving with affective variability modelling. Presented at *the 1st International Symposium on Addiction and Decision Making*, Macao, China, November 19-20. **Best Presentation Award, the 3rd Place.** [[Slides](#)]
- Li, Z.,** Dong, Q., Hu, B. & Wu, H. (2021). Every individual makes a difference: A trinity derived from linking individual brain morphometry, functional connectivity and mentalising abilities. Presented at *the 1st International Symposium on Addiction and Decision Making*, Macao, China, November 19-20. **Award of Excellence.** [[Slides](#)]
- Li, Z.,** Jiang, Q., Wu, Z., Liu, A., Wu, H., Huang, M., Huang, K. & Ku, Y. (2021). Bot or not: How passenger tells apart AI and human drivers in the Turing test of automated driving? Presented virtually at *Greater Bay Area Young Scholar Forum on Psychological Science*, October 8-10. **Best Oral Presentation, the 3rd Place.** [[Slides](#)]

## INVITED TALKS & WORKSHOPS

- Li, Z.,** Dong, Q., Hu, B. & Wu, H. (2023). Every individual makes a difference: A trinity derived from linking individual brain morphometry, connectivity and mentalising ability. *Invited talk at Reviews Reading Group (RRG)*, University of Macau, May 17. [[Slides](#)]
- Li, Z.** (2022). Towards building artificial social intelligence (ASI) with mentalising ability: Two preliminary studies. *Invited talk at NCC Lab & AND Lab Joint Workshop*, University of Macau, August 28. [[Slides](#)]

## ORGANISED SEMINARS

**Social Cognition Seminar** [[Resources](#)]

2022.02 - 2022.06

- ◆ Fiske, S. T., & Taylor, S. E. (2020). *Social cognition: From brains to culture*. SAGE Publications Ltd.
- ◆ Fifteen participants, six presenters, fifteen seminars

## Computational Modelling Seminar

2021.10 - 2022.01

- ♦ Farrell, S. & Lewandowsky, S. (2018). *Computational modelling of cognition and behaviour*. Cambridge University Press.
- ♦ Thirteen participants, eleven presenters, fourteen seminars

## TEACHING

### Cognitive Neuroscience (Compulsory Courses of MSc)

Spring, 2023

Teaching Assistant

Center for Cognitive and Brain Sciences, University of Macau

## ADDITIONAL TRAINING

### The Computational and Cognitive Neuroscience (CCN) summer school

Suzhou, China

Cold Spring Harbor Asia

2021.07 - 2021.08

### Online summer school for Computational Neuroscience

Online

Neuromatch Academy

2021.07

## LANGUAGE

Mandarin Chinese, Jin Chinese (Bingzhou subgroup), English