Zhen Wei (he/him)

Contact

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Education

2022 – present	University of Texas at Austin, Austin, TX, United States *Ph.D.* in Neuroscience
2019 – 2021	New York University, New York City, NY, United States *M.A.* in Psychology, Advisor: Prof. Michael Landy and Prof. Wei Ji Ma
2015 – 2019	Jilin University, Changchun, Jilin, China *B.S.* in Psychology

Research Interests

Visual perception	Visual neuroscience	Psychophysics
Computational modeling	Sensory cue combination	Neural networks

Research Experience

Dec 2022 – May 2023	**Ideal observer models of confidence judgements in 2IFC orientation discrimination,** University of Texas at Austin, Austin, TX, United States o Supervisors: Prof. Wilson Geisler and Prof. Robbe Goris o Constructed ideal observer models to describe human categorical choices and confidence judgements in a 2IFC orientation discrimination task. o Implemented model simulations and model parameter recovery using maximum likelihood estimation and error minimization methods.
Sep 2022 – Dec 2022	**Edge Detection in Figure-Ground Gratings and Plaids,** University of Texas at Austin, Austin, TX, United States o Supervisors: Prof. Wilson Geisler and Prof. Eyal Seidemann o Validated the responses of multi-stage V1 encoding model to figure-ground square wave gratings and plaids with varying phase shifts. o Compared the effects of orientation-tuned gain control with non-orientation tuned gain control mechanisms in edge detection. o Conducted psychophysical experiments and optical imaging on Rhesus monkeys to verify the effectiveness of V1 encoding model.
Jan 2021 – Sep 2021	**Different Causal Inference Strategies in Audiovisual Localization,** New York University, New York, NY, United States o Supervisors: Prof. Michael Landy and Prof. Wei Ji Ma. o Proposed a generalized Bayesian causal inference strategy observers might employ to estimate the underlying causal structures and possible locations of audiovisual signals. o Implemented model parameter recovery for both Bayesian causal inference models and proposed heuristic models using maximum likelihood estimation. o Compared validities of different causal inference models using Bayesian statistical methods.

Dec 2018 – June 2019 **Influence of Flanker-Flanker Grouping on Orientation Crowding**, Jilin University, Changchun, Jilin, China

- Supervisor: Prof. Bing Li.
- Reviewed the effects of various forms of perceptual grouping in visual crowding in peripheral visual field.
- Designed and conducted visual psychophysical experiments to examine whether distracting Gabor stimuli with similar orientations reduce visual crowding in target Gabor stimulus.

COURSEWORKS

2021	Computational Neuroscience, Deep Learning by Neuromatch Academy
2019 – 2021	Math Tools in Cognitive Science and Neuroscience (Taught by Prof. Eero Simoncelli and Prof. Michael Landy), Computational Cognitive Modeling (Taught by Prof. Brenden Lake and Prof. Todd Gureckis), Psychophysics (Taught by Prof. Michael Landy), Bayesian modeling (Taught by Prof. Wei Ji Ma), Perception (Taught by Prof. David Heeger, Prof. Marisa Carrasco, Prof. Michael Landy), Scientific Programming (Taught by Prof. Shannon Tubridy).
2015 – 2019	Linear Algebra, Advanced Mathematics, Probability and Statistics

SELECTED AWARDS

June 2019	Outstanding Graduates, Jilin University
Dec 2017	Second Place, China Undergraduate Mathematical Contest in Modeling (CUMCM), Jilin University
Sep 2016	Third Place, Chinese Mathematical Competition in Shanghai, East China Normal University
Nov 2016	China National Scholarship, Jilin University

PRESENTATIONS & TALKS

May 2023	Annual INS Early Years Symposium, University of Texas at Austin, Austin, Texas

PROFESSIONAL SKILLS

- Experienced: MATLAB, Python, Mathematica, R, LaTeX
- Familiar: C/C++, HTML/CSS

Last Update: June 20, 2023