

EDUCATION

- Stanford University** 2022 - 2027
Ph.D. in Computer Science
Rotation Advisors: Profs. Chris Manning, Noah Goodman, Chris Potts
- Stanford University** 2020 - 2022
M.S. in Symbolic Systems Program
- University of Pennsylvania** 2015 - 2017
M.S. in Computer Science
- Case Western Research University** 2012 - 2015
B.S. in Aerospace Engineering

MANUSCRIPTS AND PUBLICATIONS¹

preprint ZEROC: A NEURO-SYMBOLIC MODEL FOR ZERO-SHOT CONCEPT RECOGNITION AND ACQUISITION AT INFERENCE TIME
Tailin Wu, Megan Tjandrasuwita, **Zhengxuan Wu**, Xuelin Yang, Kevin Liu, Rok Sasic, Jure Leskovec, M.s., Stanford University,
<https://arxiv.org/abs/2206.15049>.

preprint CEBAB: ESTIMATING THE CAUSAL EFFECTS OF REAL-WORLD CONCEPTS ON NLP MODEL BEHAVIOR
Eldar David Abraham*, Karel D'Oosterlinck*, Amir Feder*, Yair Ori Gat*, Atticus Geiger*, Christopher Potts*, Roi Reichart*, **Zhengxuan Wu***, M.s., Stanford University, Technion – Israel Institute of Technology, and Ghent University,
<https://arxiv.org/abs/2205.14140>.

preprint OOLONG: INVESTIGATING WHAT MAKES CROSSLINGUAL TRANSFER HARD WITH CONTROLLED STUDIES
Zhengxuan Wu*, Isabel Papadimitriou*, Alex Tamkin*, M.s., Stanford University,
<https://arxiv.org/abs/2202.12312>.

preprint ON EXPLAINING YOUR EXPLANATIONS OF BERT: AN EMPIRICAL STUDY WITH SEQUENCE CLASSIFICATION
Zhengxuan Wu, Desmond C. Ong, M.s., Stanford University and National University of Singapore, <https://arxiv.org/abs/2101.00196>.

NAACL '22 CAUSAL DISTILLATION FOR LANGUAGE MODELS
Zhengxuan Wu*, Atticus Geiger*, Josh Rozner, Elisa Kreiss, Hanson Lu, Thomas Icard, Christopher Potts, Noah D. Goodman, <https://arxiv.org/abs/2112.02505>.

ICML '22 INDUCING CAUSAL STRUCTURE FOR INTERPRETABLE NEURAL NETWORKS
Atticus Geiger*, **Zhengxuan Wu***, Hanson Lu*, Josh Rozner, Elisa Kreiss, Thomas Icard, Noah D. Goodman, Christopher Potts, <https://arxiv.org/abs/2112.00826>.

¹*equal contribution

- RepL4NLP '22 IDENTIFYING THE LIMITS OF CROSS-DOMAIN KNOWLEDGE TRANSFER FOR PRE-TRAINED MODELS [Best Paper Award]
Zhengxuan Wu, Nelson F. Liu, Christopher Potts,
<https://arxiv.org/abs/2104.08410>.
- NeurIPS '21 REAScan: COMPOSITIONAL REASONING IN LANGUAGE GROUNDING
Zhengxuan Wu*, Elisa Kreiss*, Desmond C. Ong, Christopher Potts,
<https://arxiv.org/abs/2109.08994>.
- ACL '21 DYNASent: A DYNAMIC BENCHMARK FOR SENTIMENT ANALYSIS
 Christopher Potts*, **Zhengxuan Wu***, Atticus Geiger, Douwe Kiela,
<https://arxiv.org/abs/2012.15349>.
- AAAI '21 CONTEXT-GUIDED BERT FOR TARGETED ASPECT-BASED SENTIMENT ANALYSIS
Zhengxuan Wu, Desmond C. Ong, <https://arxiv.org/abs/2010.07523>.
- SCiL '21 PRAGMATICALLY INFORMATIVE COLOR GENERATION BY GROUNDING CONTEXTUAL MODIFIERS
Zhengxuan Wu, Desmond C. Ong, <https://arxiv.org/abs/2010.04372>.
- BlackboxNLP '20 STRUCTURED SELF-ATTENTION WEIGHTS ENCODE SEMANTICS IN SENTIMENT ANALYSIS
Zhengxuan Wu, Thanh-Son Nguyen and Desmond C. Ong,
<https://arxiv.org/abs/2010.04922>.
- ACII '19 ATTENDING TO EMOTIONAL NARRATIVES
Zhengxuan Wu, Xiyu Zhang, Zhi-Xuan Tan, Jamil Zaki, Desmond C. Ong,
<https://arxiv.org/abs/1907.04197>.
- NAACL '21 DYNABENCH: RETHINKING BENCHMARKING IN NLP'
 Douwe Kiela, Max Bartolo, Yixin Nie, Divyansh Kaushik, Atticus Geiger, **Zhengxuan Wu**, Bertie Vidgen, Grusha Prasad, Amanpreet Singh, Zhiyi Ma, Tristan Thrush, Sebastian Riedel, Zeerak Waseem, Pontus Stenetorp, Robin Jia, Mohit Bansal, Christopher Potts and Adina Williams, <https://arxiv.org/abs/2104.14337>.
- CHI '21 NOT NOW, ASK LATER: USERS WEAKEN THEIR BEHAVIOR CHANGE REGIMEN OVER TIME, BUT BELIEVE THEY WILL IMMINENTLY RE-STRENGTHEN IT
 Geza Kovacs, **Zhengxuan Wu** and Michael S. Bernstein,
<https://arxiv.org/abs/2101.11743>.
- TAC '19 MODELING EMOTION IN COMPLEX STORIES: THE STANFORD EMOTIONAL NARRATIVES DATASET
 Desmond C. Ong, **Zhengxuan Wu**, Zhi-Xuan Tan, Marianne Reddan, Isabella Kahhale, Alison Mattek and Jamil Zaki, <https://arxiv.org/abs/1912.05008>.
- CHI '19 CONSERVATION OF PROCRASTINATION: DO PRODUCTIVITY INTERVENTIONS SAVE TIME OR JUST REDISTRIBUTE IT?
 Geza Kovacs, Drew Mylander Gregory, Zilin Ma, **Zhengxuan Wu**, Golrokh Emami, Jacob Ray and Michael S. Bernstein, <https://dl.acm.org/doi/10.1145/3290605.3300560>.
- CSCW '18 ROTATING ONLINE BEHAVIOR CHANGE INTERVENTIONS INCREASES EFFECTIVENESS BUT ALSO INCREASES ATTRITION
 Geza Kovacs, **Zhengxuan Wu** and Michael S. Bernstein,
<https://dl.acm.org/doi/10.1145/3274364>.

RESEARCH EXPERIENCE

Stanford AI Lab (SAIL) - Graduate Researcher *2020 - present*

- Working on inducing symbolic causal structures on neural networks through inter-change interventions.
- Developing program synthesis pipeline to solve ARC task using Knowledge Graph and RL.
- Built the next-gen sentiment analysis benchmark [DynaSent](#)
- Investigating fine-tuning under know label distribution shifts, and compositional generalization with symbolic-neural systems

Stanford Social Neuralscience Lab - Graduate Researcher *2018 - present*

- Advancing feature importance attribution methods in BERT-like models for better interpretations.
- Led the development of attention and relevance tracing for the Transformer model.
- Led the development of context-guided BERT by proposing novel quasi-attention mechanism.
- Built deep learning models for sentiment analysis tasks, including LSTM, VRNN and BERT.
- Jointly led the collection of a large story-telling sentiment analysis dataset, SEND.

Stanford HCI Lab - Graduate Researcher *2018 - 2020*

- Enhanced HabitLab, a personalized productivity intervention system on Chrome browser.
- Contributed to study user behavioral changes through online intervention systems.

PROFESSIONAL EXPERIENCE

VMware, Inc. - Senior Software Engineer *2017 - 2022*

- Developed scalable data-center management platform.

Swift Capital (Paypal, Inc.) - Machine Learning Intern *2016 - 2016*

- Developed machine learning systems to predict the credit scores of loan applicants.

ACADEMIC EXPERIENCE

- Reviewer for CHI19, *ACL22, ICML22, NeurIPS22
- Invited Abstract Presentation in IC2S2 2019, University of Amsterdam, Netherlands

TECHNICAL STRENGTHS

- **Program Languages:** Python, C++/C, C#, Java, R, Matlab, Haskell, Bash.
- **Machine Learning:** Discriminative and Generative Models; Reinforcement Learning; Multi-task Learning; Graph Neural Networks.
- **AI + Big Data:** PyTorch, scikit-learn, Keras, TensorFlow, NumPy, Pandas, H2O, MapReduce (Hadoop).
- **Data Mining:** PyData, SciPy, SNAP, SQL, NoSQL (Mongo), NetworkX, Jupyter.
- **Data Science:** Mixed Linear Model, Hierarchical Logistic Regression, A/B Testings, Crowdsourcing (MTurk).
- **Server + Database:** Node.js, Flask, MongoDB, PostgreSQL, Kubernetes, Docker, Google Cloud, AWS EC2, Heroku, Azure, Jenkins CICD.
- **Web + Mobile:** HTML/CSS/JS, Polymer, React, Webpack, Apache, Android (Java), Xcode.