

Wanqing (Psyche) He

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EDUCATION

Ph.D. **Cornell University** | Information Science (Human-Computer Interaction)

Aug. 2021 - Dec. 2026

B.A. **University of California, Berkeley** | Linguistics; Dean's List

Aug. 2016 - Dec. 2019

SELECTED RESEARCH

AI-Mediated Communication (AI-MC) as Cognitive Scaffolds - XPLAIN

Aug. 2024 - Now

- Architected a multi-model pipeline targeting cognitive bottlenecks (e.g., semantic prediction, temporal pressure) derived from psycholinguistic theory; developed a novel quantifiable metric for cognitive fluency in AI-mediated speech by mapping multimodal behavioral signals (speech disfluency, gaze, mouse click, facial expression) to specific speech processing stages.
- Engineered an algorithmic personalization framework by identifying user heterogeneity through latent class analysis and in-depth 1:1 interviews and surveys via inductive coding; translated these qualitative insights into dynamic metrics that adapt real-time agent interventions to individual traits, communicative proficiency, and metacognitive ability.
- Directed e2e systems evaluation via 80+ iterative user studies via WoZ, tracking incremental disruption via event-centered GLMMs and modeling interaction state shifts using latent transition models; optimized for < 800ms inference latency to ensure real-time viability; Offered empirically grounded design principles and behavioral evaluation criteria (CHI & CSCW)

Cognitive Constraints in Computer-Mediated Communication (CMC)

Jan. 2022 - Aug. 2024

- Developed an innovative LLM-based method to approximate human next-word prediction in real-time speech, replacing traditional neuroscience methods, to measure prediction failure in CMC. Research published at COLING & CogSci.
- Collected & synthesized behavioral data in lab (300+ participants) into predictive models (GLMM, LASSO). Provided empirical foundations to scale inclusive communication tools by identifying cognitive mechanisms of prediction breakdown.

Sustain Public Goods via Prosocial Behavior | *Statistician, Citizens & Technology Lab, Cornell*

Jan. 2025 - Now

- Constructed statistical analyses for a Wikipedia-based field experiment (15k+ users) to quantify causal impact of gratitude on upstream reciprocity in 4 global communities. Built full pipelines of causal inference analyses and visualizations.
- Translated stats findings into actionable strategies for online community health & social sustainability (PNAS under review).

Multilingual FrameNet Project | *Researcher, International Computer Science Institute*

Aug. 2019 - Dec. 2019

- Studied structures of English lexical databases, and ran model trainings on nine types of frame-to-frame semantic relations
- Evaluated poorly predicted semantic relations and constructed new relations from lexical units for model improvement
- Refined labelings of semi-automatic semantic role and universal semantic frames to improve multilingual alignment

PROFESSIONAL EXPERIENCE

Founder & Product Lead | *XPLAIN (Proactive Meeting AI)*

Aug. 2024 - Now

- Architected a real-time AI-MC system utilizing LLM-based cognitive scaffolding to mitigate miscommunication in online meetings; transformed psycholinguistic theory into a market-ready product for global knowledge workers and students.
- Architected task-level benchmarks and HITL evaluation protocols for real-time AI agents; defined task taxonomy, behavioral metrics, & success criteria, validating 30-80% efficacy via 100+ customer discovery interviews & 80+ in-lab user studies.
- Recruited & directed a 19-person cross-functional research team (UX, Engineering, Data); drove the e2e product roadmap from vision to full-stack MVP in < 8 months, securing traction via venture showcases & demos via Cornell eLab incubator.

Content Strategist (Trust and Safety) | *ByteDance Inc.*

Dec. 2020 - Jun. 2021

- Architected a new content moderation framework for sensitive word detection AI models across TikTok, Helo, Fictum (>500M users), delivering culture-specific community guidelines that balanced platform safety with advertiser/creator needs.
- Established HITL data-labeling standards and QA evaluation metrics by translating user behavior data into actionable policy playbooks across global markets for AI safety models, a benchmark design scaling human judgment to model behavior.

Linguist Intern - Ontology in NLU | *Facebook*

July - Aug. 2019

- Collaborated with ML engineers, QA, and product. Built the first Mandarin NLU model for Facebook AI Assistant chatbot with culture-specific syntactic and semantic adaptations, incorporating linguistic insights to improve performance for i18n.

LEADERSHIP & COMMUNICATION

Teaching & Mentoring | *Cornell University*

2022 - Now

- Taught discussion sections, designed class materials & graded for 7 courses (e.g., Data Science, Behavior & Information Technology, Teams and Technology, Computer-Mediated Communication, Psychology of Language, etc.).
- Curated and delivered guest lectures on content prediction and CMC fluency, translating advanced psycholinguistic theories into accessible frameworks for junior audiences with diverse technical and social science backgrounds

Student Mentorship | *Information Science & Psychology, Cornell University* 2022 – Now

- A sustained mentorship, cumulatively coaching 25 undergrads and 14 engineering masters in research execution and professional development with strong collaboration ethics and high retention rate through Independent Study program.

Vice President | *Graduate and Professional Women's network, Cornell University* Aug. 2022 - Dec. 2024

- Foster university-wide collaborations among organizations to promote leadership and diversity, equity, and inclusion.
- Organized social events, panels, and speaker series on to promote bonding and recognition of women in science

Community Engagement Researcher | *Psychology, Cornell University* May 2022 - Dec. 2022

- Identified Community Engagement Opportunities for Research Fellows for Psychology summer research program
- Surveyed local organizations to identify overlaps between community needs and resources/expertise in psychology
- Formed community partnerships to promote underrepresented minorities in participating psychology research

TECHNICAL SKILLS

Research Methods: Experimental Design, Wizard-of-Oz (WoZ), Multimodal Coding, Inductive/Deductive Coding, Surveys, Interviews, User Studies, Focus Groups, Field Studies, Diary Studies, Prototyping, Wizard-of-Oz, Concept/Usability Testing, Contextual Inquiry, Persona Development, Iterative Design

Quant & Modeling: Regression, Casual Inference, GLMM, Multilevel Model, Latent Analysis, Times Series Prediction

AI/LLM Ops: Prompt/Context Engineering, Human-in-the-loop Evaluation, LLM-based behavioral simulation

Tools: R, Python, JsPsych, PsychoPy | Praat, ELAN | Figma, Miro | Qualtrics, Atlas.ti | LaTeX, JupyterLab

PUBLICATIONS

Human-Computer Interaction:

He., W. P. & Fussell S. R. XPLAIN: A Proactive Scaffold Across Speech Processing Stages—Supporting Non-Native Speakers in Real-Time AI-Mediated Turn-Taking. In *Proceedings of the ACM Conference on Conversational User Interfaces*. July 21 - 24, 2026. Bremen, Germany. (Under review)

He., W. P. & Fussell S. R. User Heterogeneity in AI-Mediated Communication: Extending Cognitive Theories via Latent Class Analysis. In *Proceedings of the Annual Meeting of the Cognitive Science Society*. 48. July 22 – 25, 2026. Rio de Janeiro, Brazil. (Under review)

He., W. P. 2026. Disfluency as a Window into Cognitive Mediation: Psycholinguistic Metrics for Evaluating AI-Integrated Spoken Communication. In *Proceedings of Extended Abstracts of the 2026 CHI Conference on Human Factors in Computing Systems*. April 13 - 17, 2026. Barcelona, Spain. Published.

He., W. P. & Fussell S. R. 2025. Proactivity in Scaffolding Comprehension and Production in Real-Time Turn-Taking: A Case Study of Bridging Communication Gaps for Non-Native Speakers. In [Companion of the Computer-Supported Cooperative Work and Social Computing \(CSCW Companion '25\)](#), October 18–22, 2025, Bergen, Norway. ACM, New York, NY, USA.

Cognitive Psychology:

He, W. P. & Fussell, S. R. 2025. Difference in the Cognitive Mechanism of Predictive Processing in Computer-Mediated Communication: A Comparison Study of L2 Speakers. In [Proceedings of the Annual Meeting of the Cognitive Science Society](#), 47. July 30 – Aug 2, 2025. San Francisco, California, US.

He, W., ..., Fussell, S. R. 2025. Exploring Content Predictability in Turn-taking Through Different Computer-Mediated Communications. In [Proceedings of the 31st International Conference on Computational Linguistics](#), pages 7949–7962, Abu Dhabi, UAE. Association for Computational Linguistics.

Computational Social Science:

Matias, J. N., ..., **He., W. P.**.... How Thanking Peers Sustains Volunteer Participation in Public Goods: Parallel Field Experiments In four Wikipedia Language Communities. *Proc Natl Acad Sci USA (PNAS)*. (Under review)

HCI Manuscripts In-prep:

He., W. P. & Fussell S. R. Cognitive Trade-offs Between Speech Disfluencies and Active Engagement from Proactive AI-Mediated Scaffolds in Turn-taking.

He., W. P. & Fussell S. R. Context-Adaptive Translations for Optimized Processing under Time-Pressured AI-Mediated Turn-Taking for Non-Native Speakers.

He., W. P. & Fussell S. R. Deploying Cognitive Measures as Personalization Metrics for Proactive AI-Mediated Scaffolds in Turn-taking: A Mixed-Methods Study.

POSTERS & PRESENTATIONS

Cognitive Psychology:

He, W., Christiansen, M. H. (2024). Statistical Chunking in Reading: The Modulating Effect of High-Frequency Multi-Word Chunks on Reading Performance. In *The International Conference on Interdisciplinary Advances in Statistical Learning, Don-Sebastian, Spain*.

He, W., Christiansen, M. H. (2022). To Chunk or Not to Chunk: Statistical Learning of High-Frequency Word-Marker Pairs. In *The International Conference on Interdisciplinary Advances in Statistical Learning, Don-Sebastian, Spain*.

Linguistics:

He, W. (2021). Verbal tone interactions in Iquito: an Optimality-theoretic analysis. At The 28th Manchester Phonology Meeting, online.

He, W. (2020). Modeling Tone System: The Role Of Dispersion Theory in Optimization. At The 56th Linguistics Colloquium, online.

Developmental Psychology:

He, W., Zhang, E., He, M. (2020). Infant walking, social communicative abilities, and vocabulary increases. Poster presented at the 22nd Biennial International Conference of Infant Studies, online.

Zhang, E., **He, W.**, He, M. (2020). Does object exploration mediate infant walking and vocabulary increases? Poster presented at the 22nd Biennial International Conference of Infant Studies, online.

GRANTS & AWARDS

Entrepreneurship Lab (eLab) Start-Up Fund - Cornell University	2025
1 of the only 10 teams selected for funds to build software prototypes per year; \$5,000	
Research & Travel Grant - Cognitive Science Program & Cornell University	2022, 2024, 2025
Funds for study recruitment and conference travels; cumulative \$5,000.	
SAGE Fellowship - Cornell University	2021 - 2023
Full funding and living stipend for PhD studies in Psychology, including tuition; ~\$65,000 per year.	
Linguistics Society of America Summer Grant - Department of Linguistics, UC Berkeley	2019
Funds for attending summer camp of Linguistics Society of America; \$1,500	
International PASCH Junior Scholarship - Goethe-Institut, Germany	2015
Funds for attending summer cultural & language immersion program in German study; \$15,000	