WENHU CHEN

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ABOUT ME

I'm a tenure-track assistant professor at Computer Science of University of Waterloo and Vector Institute since Aug 2022. I became a Canadian CIFAR AI chair since Jan 2023. I mainly work on different aspects of foundation models. My research can be summarized as the following aspects:
1) **large language models**: post-training, reasoning, coding, etc.
2) **multimodal language models**: post-training, multi-image/video understanding, etc.
3) **diffusion models**: text-to-image generation, image editing, text-to-video generation, video editing, etc.
4) **retrieval augmentation**: information retrieval, retrieval-augmented generation, etc.
5) **evaluation**: benchmarks, automatic metrics, etc.

WORKING EXPERIENCE

Vector Institute *Aug 15th, 2022-Now*
Location: Toronto, Canada
Role: Faculty Member
Duties: 1. Conducting research in natural language processing. 2. Service in postdoc and faculty review committee. 3. Hosting research events in Vector Institute.

University of Waterloo *Aug 15th, 2022-Now*
Location: Waterloo, Canada
Role: Assistant Professor in Cheriton School of Computer Science
Duties: 1. Leading research projects and supervising graduate students. 2. Teaching 3 units of courses per year. 3. Administrative service in the department (like graduate admission committee, etc).

Google Deepmind *Aug 15th, 2022- Aug 15th, 2025*
Location: Remote
Role: Senior Research Scientist (20% Part-Time)
Manager: William W. Cohen & Ming-Wei Chang
Duties: Conducting Research. We aim at building more robust image generation and editing systems. We publish our research results on [CVPR 2024], [NeurIPS2 2023] and [ICLR 2023].

Google Research *Aug 16th, 2021-Aug 12th, 2022*
Location: Pittsburgh, USA
Role: Research Scientist (Full time)
Manager: William W. Cohen
Duties: Conducting Research. We aim at integrating search results to enhance language generative models. We publishe our research results in [EACL 2023] and [EMNLP 2022].

EDUCATION

University of California, Santa Barbara *Sep 2017-Jun 2021*
Location: Santa Barbara, USA
Ph.D in Computer Science
Advisor: William (Yang) Wang and Xifeng Yan

RWTH Aachen University, Germany *Sep 2014-Dec 2016*
Location: Aachen, Germany
M.Sc. in Electronics Engineering

Huazhong University of Science and Technology, China *Sep 2010-June 2014*
Location: Wuhan, China
B.Sc. in Electronics Engineering

INTERNSHIP EXPERIENCE

Google Research June 15th, 2020 - Dec 18th, 2020
Location: Pittsburgh, PA, USA
Mentors: Ming-Wei Chang, Eva Schlinger, William W. Cohen
Duties: Work as research intern to explore research topics. We Build question answering system that can understand both structured and unstructured information. Our work was published in [ICLR 2021].

Microsoft AI & Cloud June 17th, 2019 - Sep 6th, 2019
Location: Seattle, WA, USA
Mentors: Zhe Gan, Jingjing Liu
Duties: Work as research intern to explore research topics. We build explainable visual question answering system that can ground on images to answer simple questions. Our work was published in [WACV 2021].

Samsung Research America June 18th, 2018 - Sep 14th, 2018
Location: Mountain View, CA, USA
Mentors: Yi-Lin Shen, Hongxia Jin
Duties: Work as research intern to explore research topics. We investigate different compression algorithm in natural language systems to save computation and storage. Our work was published in [NAACL 2019].

Microsoft Research Asia Feb 13th, 2017 - Aug 11th, 2017
Location: Bejing, China
Mentors: Shujie Liu, Ming Zhou
Duties: Work as research intern to explore research topics. We enhance the machine translation systems by utilizing data augmentation strategies. Our work was published in [NAACL 2018].

eBay Research Dec 7th, 2015 - May 27th, 2016
Location: Aachen, Germany
Mentors: Matusov Evgency, Shahram Khadivi
Duties: Work as research intern to explore research topics. We enhance machine translation with statistical alignment algorithm. Our work was published in [AMTA 2016].

TEACHING EXPERIENCE

University of Waterloo, 2023 Winter : CS 486/686 Introduction to Artificial Intelligence
University of Waterloo, 2024 Winter : CS 886 Recent Advances on Foundation Models
University of Waterloo, 2024 Spring : CS 486/686 Introduction to Artificial Intelligence

SELECTED PUBLICATIONS (AS FIRST & LAST AUTHOR)

[**LLM Report 2025**] Gemini 2.5: Pushing the frontier with advanced reasoning, multimodality, long context, and next generation agentic capabilities
Gemini Team

[**TMLR 2025**] ABC: Achieving Better Control of Multimodal Embeddings using VLMs
Benjamin Schneider, Florian Kerschbaum, Wenhu Chen

[**COLM 2025**] ScholarCopilot: Training Large Language Models for Academic Writing with Accurate Citations
Yubo Wang, Xueguang Ma, Ping Nie, Huaye Zeng, Zhiheng Lyu, Yuxuan Zhang, Benjamin Schneider, Yi Lu, Xiang Yue, Wenhu Chen

[**COLM 2025**] Critique Fine-Tuning: Learning to Critique is More Effective than Learning to Imitate
Yubo Wang, Xiang Yue, Wenhu Chen

[**ICCV 2025**] Vamba: Understanding Hour-Long Videos with Hybrid Mamba-Transformers
Weiming Ren, Wentao Ma, Huan Yang, Cong Wei, Ge Zhang, Wenhu Chen

[**ACL 2025**] AceCoder: Acing Coder RL via Automated Test-Case Synthesis
Huaye Zeng, Dongfu Jiang, Haozhe Wang, Ping Nie, Xiaotong Chen, Wenhu Chen

[**ACL 2025**] TheoremExplainAgent: Towards Video-based Multimodal Explanations for LLM Theorem Understanding
Max Ku, Thomas Chong, Jonathan Leung, Krish Shah, Alvin Yu, Wenhu Chen

[**CVPR 2025**] Enhancing Long-Duration and High-Resolution Video Understanding by VIdeo SpatioTemporal Augmentation
Weiming Ren, Huan Yang, Jie Min, Cong Wei, Wenhu Chen

[**TMLR 2025**] Long-context LLMs Struggle with Long In-context Learning
Tianle Li, Ge Zhang, Quy Duc Do, Xiang Yue, Wenhu Chen

[**ICLR 2025**] OmniEdit: Building Image Editing Generalist Models Through Specialist Supervision
Cong Wei, Zheyang Xiong, Weiming Ren, Xinrun Du, Ge Zhang, Wenhu Chen

[**ICLR 2025**] VLM2Vec: Training Vision-Language Models for Massive Multimodal Embedding Tasks
Ziyan Jiang, Rui Meng, Xinyi Yang, Semih Yavuz, Yingbo Zhou, Wenhu Chen

[**ICLR 2025**] MEGA-Bench: Scaling Multimodal Evaluation to over 500 Real-World Tasks
Jiacheng Chen, Tianhao Liang, Sherman Siu, Zhengqing Wang, Kai Wang, Yubo Wang, Yuansheng Ni, Wang Zhu, Ziyan Jiang, Bohan Lyu, Dongfu Jiang, Xuan He, Yuan Liu, Hexiang Hu, Xiang Yue, Wenhu Chen

[**TMLR 2024**] MANTIS: Interleaved Multi-Image Instruction Tuning
Dongfu Jiang, Xuan He, Huaye Zeng, Cong Wei, Max Ku, Qian Liu, Wenhu Chen

[**TMLR 2024**] AnyV2V: A Plug-and-Play Framework For Any Video-to-Video Editing Tasks
Max Ku, Cong Wei, Weiming Ren, Huan Yang, Wenhu Chen
(Reproducibility Certification)

[**NeurIPS 2024**] MMLU-Pro: A More Robust and Challenging Multi-Task Language Understanding Benchmark
Yubo Wang, Xueguang Ma, Ge Zhang, Yuansheng Ni, Abhranil Chandra, Shiguang Guo, Weiming Ren, Aaran Arulraj, Xuan He, Ziyan Jiang, Tianle Li, Max Ku, Kai Wang, Alex Zhuang, Rongqi Fan, Xiang Yue, Wenhu Chen
(Spotlight, Top 10% of accepted papers)

[**NeurIPS 2024**] GenAI Arena: An Open Evaluation Platform for Generative Models
Dongfu Jiang, Max Ku, Tianle Li, Yuansheng Ni, Shizhuo Sun, Rongqi Fan, Wenhu Chen

[**NeurIPS 2024**] MAmmoTH2: Scaling Instructions from the Web
Xiang Yue, Tuney Zheng, Ge Zhang, Wenhu Chen

[**EMNLP 2024**] Unifying Multimodal Retrieval via Document Screenshot Embedding
Xueguang Ma, Sheng-Chieh Lin, Minghan Li, Wenhu Chen, Jimmy Lin

[**EMNLP 2024**] VideoScore: Building Automatic Metrics to Simulate Fine-grained Human Feedback for Video Generation
Xuan He, Dongfu Jiang, Ge Zhang, Max Ku, Achint Soni, Sherman Siu, Haonan Chen, Abhranil Chandra, Ziyan Jiang, Aaran Arulraj, Kai Wang, Quy Duc Do, Yuansheng Ni, Bohan Lyu, Yaswanth Narsupalli, Rongqi Fan, Zhiheng Lyu, Yuchen Lin, Wenhu Chen

[**Findings of EMNLP 2024**] Augmenting Black-box LLMs with Medical Textbooks for Clinical Question Answering
Yubo Wang, Xueguang Ma, Wenhu Chen

[**COLM 2024**] StructLM: Towards Building Generalist Models for Structured Knowledge Grounding
Alex Zhuang, Ge Zhang, Tianyu Zheng, Xinrun Du, Junjie Wang, Weiming Ren, Stephen W. Huang, Jie Fu, Xiang Yue, Wenhu Chen

[**ACL 2024**] VIEScore: Towards Explainable Metrics for Conditional Image Synthesis Evaluation
Max Ku, Dongfu Jiang, Cong Wei, Xiang Yue, Wenhu Chen

[**Findings of ACL 2024**] OpenCodeInterpreter: Integrating Code Generation with Execution and Refinement
Tianyu Zheng, Ge Zhang, Tianhao Shen, Xueling Liu, Bill Yuchen Lin, Jie Fu, Wenhu Chen, Xiang Yue

[**TMLR 2024**] TIGERScore: Towards Building Explainable Metric for All Text Generation Tasks
Dongfu Jiang*, Yishan Li*, Ge Zhang, Wenhao Huang, Bill Yuchen Lin, Wenhu Chen

[**ECCV 2024**] UniIR: Training and Benchmarking Universal Multimodal Information Retrievers
Cong Wei, Yang Chen, Haonan Chen, Hexiang Hu, Ge Zhang, Jie Fu, Alan Ritter, Wenhu Chen
(Oral, Top 5% of accepted papers)

[**CVPR 2024**] Instruct-Imagen: Image Generation with Multi-modal Instruction
Hexiang Hu*, Kelvin C.K. Chan*, Yu-Chuan Su*, Wenhu Chen*, Yandong Li, Kihyuk Sohn, Yang Zhao, Xue Ben, Boqing Gong, William Cohen, Ming-Wei Chang, Xuhui Jia
(Oral, Top 3% of accepted papers)

[**CVPR 2024**] MMMU: A Massive Multi-discipline Multimodal Understanding and Reasoning Benchmark for Expert AGI
Xiang Yue, Yuansheng Ni, Kai Zhang, Tianyu Zheng, Ruoqi Liu, Ge Zhang, Samuel Stevens, Dongfu Jiang, Weiming Ren, Yuxuan Sun, Cong Wei, Botao Yu, Ruibin Yuan, Renliang Sun, Ming Yin, Boyuan Zheng, Zhenzhu Yang, Yibo Liu, Wenhao Huang, Huan Sun, Yu Su, Wenhu Chen
(Best Paper Finalist, Top 1% of accepted papers)

[**ICLR 2024**] ImagenHub: Standardizing the evaluation of conditional image generation models
Max Ku, Tianle Li, Kai Zhang, Yujie Lu, Xingyu Fu, Wenwen Zhuang, Wenhu Chen

[**ICLR 2024**] MAmmoTH: Building Math Generalist Models through Hybrid Instruction Tuning
Xiang Yue*, Xingwei Qu, Ge Zhang, Yao Fu, Wenhao Huang, Huan Sun, Yu Su, Wenhu Chen*
(Spotlight, Top 20% of accepted papers)

[**WACV 2024**] Synthesizing Coherent Story with Auto-Regressive Latent Diffusion Models
Xichen Pan, Pengda Qin, Yuhong Li, Hui Xue, Wenhu Chen
(Oral, Top 5% of accepted papers)

[**TMLR 2023**] DreamEdit: Subject-driven Image Editing
Tianle Li, Max Ku, Cong Wei, Wenhu Chen

[**TMLR 2023**] Program of Thoughts Prompting: Disentangling Computation from Reasoning for Numerical Reasoning Tasks
Wenhu Chen*, Xueguang Ma*, Xinyi Wang, William W. Cohen

[**EMNLP 2023**] TheoremQA: A Theorem-driven Question Answering dataset
Wenhu Chen, Ming Yin, Max Ku, Elaine Wan, Xueguang Ma, Jianyu Xu, Tony Xia, Xinyi Wang, Pan Lu

[**NeurIPS 2023**] Subject-driven Text-to-Image Generation via Apprenticeship Learning
Wenhu Chen, Hexiang Hu, Yandong Li, Nataniel Ruiz, Xuhui Jia, Ming-Wei Chang, William W. Cohen

[**ACL 2023**] Few-shot In-context Learning on Knowledge Base Question Answering
Tianle Li, Xueguang Ma, Alex Zhuang, Yu Gu, Yu Su and Wenhu Chen

[**Findings of EACL 2023**] Large Language Models are few(1)-shot Table Reasoners
Wenhu Chen

[**EACL 2023**] Augmenting Pre-trained Language Models with QA-Memory for Open-Domain Question Answering
Wenhu Chen, Pat Verga, Michiel de Jong, John Wieting, William Cohen

[**ICLR 2023**] Re-Imagen: Retrieval-Augmented Text-to-Image Generator
Wenhu Chen,Hexiang Hu, Chitwan Saharia, William W. Cohen

[**EMNLP 2022**] MuRAG: Multimodal Retrieval-Augmented Generator for Open Question Answering over Images and Text
Wenhu Chen, Hexiang Hu, Xi Chen, Pat Verga, William W. Cohen

[**NeurIPS 2021**] A Dataset for Answering Time-Sensitive Questions
Wenhu Chen, Xinyi Wang, William Yang Wang

[**EMNLP 2020**] KGPT: Knowledge-Grounded Pre-Training for Data-to-Text Generation
Wenhu Chen, Yu Su, Xifeng Yan, William Yang Wang.

[**Findings of EMNLP 2020**] HybridQA: A Dataset of Multi-Hop Question Answering over Tabular and Textual Data
Wenhu Chen, Hanwen Zha, Zhiyu Chen, Wenhan Xiong, Hong Wang, William Wang.

[**WACV 2021**] Meta Module Network for Compositional Visual Reasoning
Wenhu Chen, Zhe Gan, Linjie Li, Yu Cheng, William Wang, Jingjing Liu.
(Best Student Paper Honorable Mention, Top 1% of accepted papers)

[**Findings of EMNLP 2020**] HybridQA: A Dataset of Multi-Hop Question Answering over Tabular and Textual Data
Wenhu Chen, Hanwen Zha, Zhiyu Chen, Wenhan Xiong, Hong Wang, William Wang.

[**ACL 2020**] Logical Natural Language Generation from Open-Domain Tables
Wenhu Chen, Jianshu Chen, Yu Su, Zhiyu Chen and William Yang Wang.

[**ICLR 2020**] TabFact: A Large-scale Dataset for Table-based Fact Verification
Wenhu Chen, Hongmin Wang, Jianshu Chen, Yunkai Zhang, Hong Wang, Shiyang Li, Xiyou Zhou and William Yang Wang.

[**ACL 2019**] Semantically Conditioned Dialog Response Generation via Hierarchical Disentangled Self-Attention
Wenhu Chen, Jianshu Chen, Pengda Qin, Xifeng Yan and William Yang Wang.

[**NAACL 2019**] How Large A Vocabulary Does Text Classification Need? A Variational Approach on Vocabulary Selection
Wenhu Chen, Yu Su, Yilin Shen, Zhiyu Chen, Xifeng Yan and William Yang Wang.

[**EMNLP 2018**] XL-NBT: A Cross-lingual Neural Belief Tracking Framework
Wenhu Chen, Jianshu Chen, Yu Su, Xin Wang, Dong Yu, Xifeng Yan and William Yang Wang.

[**ACL 2018**] No Metrics Are Perfect: Adversarial Reward Learning for Visual Storytelling
Wenhu Chen*, Xin Wang*, Yuan-Fang Wang and William Yang Wang.

[**NAACL 2018**] Variational Knowledge Graph Reasoning
Wenhu Chen, Wenhan Xiong, William Yang Wang, Xifeng Yan.

[**NAACL 2018**] Generative Bridging Network in Neural Sequence Prediction
Wenhu Chen, Guanlin Li, Shuo Ren, Shujie Liu, Zhirui Zhang, Mu Li, Ming Zhou.

ACADEMIC AWARD

2025 Math Golden Jubilee Award.
2024 CVPR Best Paper Finalist.
2023 AACL-IJCNLP Area Chair Award.
2022 CIFAR AI Chair.
2021 WACV Best Student Paper Honorable Mention.
2019 NeurIPS Outstanding Reviewer Award.

FUNDINGS

CIFAR AI Chair Fund: 2022 - 2027
NSERC Discovery Fund: 2023 - 2028
Mitacs Accelerate Fund: 2023 - 2025
CIFAR AI Catalyst Fund: 2024 - 2026
Canada National Research Council (AI4D): 2024 - 2026
Canada National Research Council (New Beginning): 2025 - 2026

SERVICE

Program Committee: NAACL, ACL, EMNLP, ICML, NeurIPS, ICLR
Area Chair: AAAI, EMNLP, ACL, NAACL

STUDENTS

Max Ku (PhD, University of Waterloo)
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