

Wenda Xu

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Education

University of California, Santa Barbara

Ph.D., Computer Science: **3.9/4.0**

Advisor: William Yang Wang, Ph.D

Lei Li, Ph.D

Santa Barbara, CA

9/2020–6/2025

University of California, Davis

BS., Computer Science: **3.9/4.0**

Senior Design Project—Visual SLAM using ORB-SLAM2 with Path Finding

Advisors: Chen-Nee Chuah, Ph.D.

Davis, CA

9/2016–3/2020

Research Interests

Natural Language Generation: Large Language Model Alignment; Text Generation Evaluation; Machine Translation

First Author's Publications & Preprints

1. **Wenda Xu**, Daniel Deutsch, Mara Finkelstein, Juraj Juraska, Biao Zhang, Zhongtao Liu, William Yang Wang, Lei Li, Markus Freitag, “Pinpoint, Not Criticize: Refining Large Language Models via Fine-Grained Actionable Feedback”, <https://arxiv.org/abs/2311.09336>, Preprint (Under Review)
2. **Wenda Xu**, Danqing Wang, Liangming Pan, Zhenqiao Song, Markus Freitag, William Yang Wang, Lei Li, “INSTRUCTSCORE: Explainable Text Generation Evaluation with Finegrained Feedback”, <https://arxiv.org/abs/2305.14282>, EMNLP 2023
3. **Wenda Xu**, Xian Qian, Mingxuan Wang, Lei Li, William Yang Wang, “SEScore2: Learning Text Generation Evaluation via Synthesizing Realistic Mistakes”, <https://arxiv.org/abs/2212.09305>, ACL2023
4. **Wenda Xu**, Yilin Tuan, Yujie Lu, Michael Saxon, Lei Li, William Yang Wang, “Not All Errors are Equal: Learning Text Generation Metrics using Stratified Error Synthesis”, <https://arxiv.org/abs/2210.05035>, EMNLP 2022, **SEScore: No.1 metric among all unsupervised metrics in WMT22 metrics shared task** (Huggingface link: <https://huggingface.co/spaces/xu1998hz/sescore>)
5. **Wenda Xu**, Michael Saxon, Misha Sra and William Yang Wang, “Self-Supervised Knowledge Assimilation for Expert-Layman Text Style Transfer”, <https://arxiv.org/abs/2110.02950>, AAAI 2022

Collaboration Publications

6. Liangming Pan, Michael Saxon, **Wenda Xu**, Deepak Nathani, Xinyi Wang, William Yang Wang, “Automatically Correcting Large Language Models: Surveying the landscape of diverse self-correction strategies”, <https://arxiv.org/pdf/2308.03188.pdf>, Preprint
7. Michael Saxon, Xinyi Wang, **Wenda Xu**, William Yang Wang, “PECO: Examining Single Sentence Label Leakage in Natural Language Inference Datasets through Progressive Evaluation of Cluster Outliers”, <https://arxiv.org/abs/2112.09237>, EACL2023
8. Yujie Lu, Weixi Feng, Wanrong Zhu, **Wenda Xu**, Xin Eric Wang, Miguel Eckstein, William Yang Wang, “Neuro-Symbolic Causal Language Planning with Commonsense Prompting”, <https://arxiv.org/abs/2206.02928>, ICLR2023
9. Wanrong Zhu, An Yan, Yujie Lu, **Wenda Xu**, Xin Eric Wang, Miguel Eckstein, William Yang Wang, “Visualize Before You Write: Imagination-Guided Open-Ended Text Generation”, <https://arxiv.org/pdf/2210.03765.pdf>, EACL2023
10. Yi-Lin Tuan, Alon Albalak, **Wenda Xu**, Michael Saxon, Connor Pryor, Lise Getoor, William Yang Wang, “CausalDialogue: Modeling Utterance-level Causality in Conversations”, <https://arxiv.org/pdf/2212.10515.pdf>, ACL2023

Research Experience

Google

Mountain View, CA

Research Science Intern

6/2023 - 12/2023

Mentors: Markus Freitag, Dan Deutsch.

- Used a learned fine-grained feedback model (InstructScore style) to pinpoint defects. Using original LLM (PALM2) as a proposal of edits, **LLMMend** searches for defect-less text via simulated annealing. LLMMend achieves top performance at translation, topical summarization and long form QA [1].

TikTok

Mountain View, CA

Research Science Intern

6/2022 - 10/2022

Mentors: Mingxuan Wang, Xian Qian.

- Synthesized realistic model mistakes by perturbing sentences retrieved from a corpus. Developed a self-supervised technique to train a learned metric to estimate number of errors and severity levels in each sample; **SEScore2**(14.3% improvements from SEScore) achieves top performance in Machine and Speech Translation and data-to-text [3]

UCSB NLP Lab

Santa Barbara, CA

PHD student, Research Assistant

2/2021–present

Mentors: Lei Li and William Yang Wang.

- Build an explainable text generation metric (**InstructScore**, **EMNLP oral presentation**) to output a diagnostic report (error location, error type and severity label and explanation) in augmenting to a single score, achieving top performance at translation, data-to-text, commonsense generation, captioning and table-to-text [2].
- Used a stratified error synthesis technique to build an unsupervised learned text generation evaluation metric (**SEScore**) through accuracy and fluency aspects, achieving top performance in Machine Translation, data-to-text and image captioning [4].
- Developed a novel unsupervised **expert layman text style transfer** system using Self-Supervised learning and KBA pre-training task, assimilating knowledge graph edges into a language model [5].

Skills

Software Proficiencies

Python (Pytorch, Tensorflow, Numpy, SciPy, Sklearn etc), C, C++, Linux, PHP, JavaScript (React), MySQL

Conceptual

Deep learning, Natural Language Processing (NLP), Text Generation

Selected Coursework

Probability; Matrix Analysis; Machine Learning; Algorithm and Data Structure; Machine Translation; Natural Language Processing; Computer Vision; Computer Graphics; Self-Driving; Combinatorics and Graph Theory.

Honors

UCSB, The Robert Noyce Fellowship	2022
UCSB, Academic Excellence Fellowship	2020
UC Davis, Honor Graduation	2020
UC Davis, Thomas E. Bruzzone Scholarship	2019
UC Davis, Robert Murdoch Memorial Scholarship	2019
UC Davis, Best Senior Design of a year (Visual SLAM)	2019
UC Davis, College of Engineering, Dean's Honor list	16-20