

# SIFAN WU

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## INTRODUCTION

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Sifan Wu(1998) is a Ph.D. student in her final year at Université de Montréal, advised by Professor Bang Liu. She earned her Master’s degree from Tsinghua University, one of the best universities in China. She has published multiple papers in top conferences such as NeurIPS, ECCV, and AAAI. Her research areas are multimodal large language models, multimodal reasoning and AI4Science.

## EDUCATION

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<b>Doctoral in Computer Science</b>	<b>Jan 2022 - Jan 2026</b>
Department of Computer Science and Operations Research	
University of Montreal, DIRO & MILA	<i>Montreal, Canada</i>
<b>Master in Computer Technology</b>	<b>Sep 2018 - Jul 2021</b>
Department of Information Science and Technology, Tsinghua University	<i>Beijing, China</i>
<b>Bachelor in Communicating Engineering</b>	<b>Sep 2014 - Jul 2018</b>
Department of Electronic Information System, Tongji University	<i>Shanghai, China</i>

## EXPERIENCE

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<b>Microsoft Turing(Redmond, United States)</b>	June 2024 - Sep 2024
· Research on reward model stability.	<i>Applied Research Intern</i>
<b>Autodesk AI Lab(Toronto, Canada)</b>	May 2023 - Sep 2023
· Research on CAD Large Language Models.	<i>Research Intern</i>
<b>Tencent Jarvis Lab(Shenzhen, China)</b>	May 2021 - December 2021
· Research on Event Causality Identification.	<i>Research Intern</i>
<b>Microsoft Bing(Beijing, China)</b>	July 2020 - September 2020
· Research on livestreaming recommendation.	<i>Machine Learning Engineer Intern</i>
<b>Tencent AI Lab(Shenzhen, China)</b>	August 2019 - June 2020
· Research on Shenzhen load forecasting.	<i>Research Intern</i>

## PUBLICATIONS

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**Seeing Beyond Words: MatVQA for Challenging Visual-Scientific Reasoning in Materials Science.**

*S. Wu, H. Zhang, et.al.*

*Preprint 2025*

- Propose a novel benchmark evaluating MLLMs on complex, research-level visual-scientific reasoning in materials science.
- Propose an automated system that generates and refines high-difficulty questions by removing textual shortcuts to ensure genuine visual reasoning.

**What to Ask Next? Probing the Imaginative Reasoning of LLMs with TurtleSoup Puzzles.**

*M.Zhou\*, S. Wu\*, H. Zhang, et.al.*

*Preprint 2025*

- Propose to use TurtleSoup Puzzles as the environments to assess the imaginative reasoning ability of LLMs.
- Design a multi-agent framework Mosaic-Agen to solve TurtleSoup puzzle fully automatically.

**CadVLM: Bridging Language and Vision in the Generation of Parametric CAD Sketches.**  
*S. Wu, A. Khasahmadi, M. Katz, et.al.* *ECCV 2024*

- Propose an end-to-end vision language model for CAD sketch generation.
- Adapting pre-trained models to manipulate engineering sketches effectively, integrating both sketch primitive sequences and sketch images.

**CAD-LLM: Large Language Model for CAD Generation**  
*S. Wu, A. Khasahmadi, M. Katz, et.al.* *NeurIPS 2023 Workshop*

- Establish a comprehensive pipeline to model CAD sketches by finetuning a pre-trained foundational language model.
- Introduce three novel evaluation metrics for CAD generative models: Entity Accuracy, Sketch Accuracy, and CAD F1 score.

**Identify Event Causality with Knowledge and Analogy**  
*S. Wu, R. Zhao, Y. Zheng, J. Pei, B. Liu* *AAAI 2023*

- Analogy memory information as experience to better identify the relationship between a new event pair.
- Document-level event causality identification on two benchmark datasets.

**Improving clinical note generation from complex doctor-patient conversation**  
*Y Li, S. Wu, C Smith, T Lo, B. Liu* *PAKDD 2024*

- Enhance the traditional SOAP format by adding a "Keyword" section, creating the K-SOAP structure.
- Present a new, expert-curated dataset comprising 1,200 complex doctor-patient conversations paired with full clinical notes.

**Adversarial Sparse Transformer for Time Series Forecasting**  
*S. Wu, X. Xiao, Q. Ding, P. Zhao, Y. Wei, J. Huang* *NeurIPS 2020*

- A Generative Adversarial Encoder-Decoder framework to regularize the forecasting model.
- An effective time series forecasting model – Adversarial Sparse Transformer based on sparse Transformer and Generative Adversarial Networks.

**Knowledge Refinery: Learning from Decoupled Label**  
*Q. Ding, S. Wu, T. Dai, H. Sun, J. Guo, Z. Fu, S. Xia* *AAAI 2021*

- A novel neural network regularization method with proposed Residual Label.
- Improvement of 2.04% (Acc.) on CIFAR-100 datasets and 1.06% (Top-1 Acc.) on ImageNet datasets with only little increase of model paramters.

**Multi-scale Hierarchical Gaussian Transformer for Stock Movement Prediction**  
*Q. Ding\*, S. Wu\*, H. Sun, J. Guo, J. Guo* *IJCAI 2020*

- Using the feature of K-lines can help to improve the performance of stock movement.
- Hierarchical structure contributes to the archive of various terms patterns.

## HONORS

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Tsinghua University Outstanding Graduate of the department of Computer Science (2021)  
Tongji University Scholarship for Outstanding Students, First Prize (2015 and 2016)  
American Mathematical Contest In Modeling/ Interdisciplinary Contest In Modeling,Honor Prize(2016)

**TALENTS**

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<b>Language</b>	Mandarin(native speaker), English(advanced), French(beginner)
<b>Framework</b>	PyTorch, Tensorflow