

# ZHIHAN GAO

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## EDUCATION

- **Peking University** **Beijing, China**  
*Bachelor of Science, School of Physics.* *Sep 2012 – Jul 2016*
- **The Hong Kong University of Science and Technology** **Hong Kong SAR, China**  
*Doctor of Philosophy, under the supervision of Prof. Dit-Yan Yeung.* *Sep 2016 – Oct 2024*  
*Department of Computer Science and Engineering, School of Engineering.*

## RESEARCH INTEREST

- Spatiotemporal modeling and forecasting.
- Machine learning for geospatial Earth science.

## PUBLICATIONS

- Vitus Benson, Claire Robin, Christian Requena-Mesa, Lazaro Alonso, Carvalhais Nuno, José Cortés, **Zhihan Gao**, Nora Linscheid, Mélanie Weynants, Markus Reichstein. "Multi-Modal Learning for Geospatial Vegetation Forecasting." *Forty-First IEEE/CVF Conference on Computer Vision and Pattern Recognition Conference (CVPR)*, 2024. [\[paper\]](#) [\[project page\]](#)
- **Zhihan Gao**, Xingjian Shi, Boran Han, Hao Wang, Xiaoyong Jin, Danielle Maddix, Yi Zhu, Mu Li, and Yuyang Wang. "PreDiff: Precipitation Nowcasting with Latent Diffusion Models." *Thirty-Sixth Annual Conference on Neural Information Processing Systems (NeurIPS)*, 2023. [\[paper\]](#) [\[project page\]](#) [\[poster\]](#)
- **Zhihan Gao**, Xingjian Shi, Hao Wang, Yi Zhu, Yuyang Bernie Wang, Mu Li, and Dit-Yan Yeung. "Earthformer: Exploring Space-Time Transformers for Earth System Forecasting." *Thirty-Fifth Annual Conference on Neural Information Processing Systems (NeurIPS)*, 2022. [\[paper\]](#) [\[project page\]](#) [\[poster\]](#)
- **Zhihan Gao**, Hao Wang, Yuyang Bernie Wang, Xingjian Shi, and Dit-Yan Yeung. "Probabilistic Continuous-Time Whole-Graph Forecasting." *Eighth SIGKDD International Workshop on Mining and Learning from Time Series–Deep Forecasting: Models, Interpretability, and Applications (KDD-MiLeTS)*, 2022. [\[paper\]](#)
- Ting Sun, Lei Tai, **Zhihan Gao**, Ming Liu, and Dit-Yan Yeung. "Fully Using Classifiers for Weakly Supervised Semantic Segmentation with Modified Cues." *arxiv preprint*, 2019. [\[paper\]](#)
- Shi, Xingjian, **Zhihan Gao**, Leonard Lausen, Hao Wang, Dit-Yan Yeung, Wai-kin Wong, and Wang-chun Woo. "Deep Learning for Precipitation Nowcasting: A Benchmark and A New Model." *Thirty-First Annual Conference on Neural Information Processing Systems (NeurIPS)*, 2017. [\[paper\]](#) [\[project page\]](#) [\[poster\]](#)
- Liu, Xuefeng, Hongyi Yu, Qingqing Ji, **Zhihan Gao**, Shaofeng Ge, Jun Qiu, Zhongfan Liu, Yanfeng Zhang, and Dong Sun. "An Ultrafast Terahertz Probe of the Transient Evolution of the Charged and Neutral Phase of Photo-Excited Electron-Hole Gas in a Monolayer Semiconductor." *2D Materials* 3 (1), 014001, 2016. [\[paper\]](#)
- Song, Sijie, Yanghao Li, **Zhihan Gao**, and Jiaying Liu. "Face Hallucination Based on Neighbor Embedding via Illumination Adaptation." *Asia-Pacific Signal and Information Processing Association Annual Summit and Conference (APSIPA ASC)*, 2015. [\[paper\]](#) [\[poster\]](#)

## BOOK CHAPTERS

- **Zhihan Gao**, Xingjian Shi, Hao Wang, Dit - Yan Yeung, Wang - chun Woo, and Wai - Kin Wong. "Deep Learning and the Weather Forecasting Problem: Precipitation Nowcasting." *Deep learning for the Earth Sciences: A Comprehensive Approach to Remote Sensing, Climate Science and Geosciences*, G. Camps-Valls, D. Tuia, X.X. Zhu, and M. Reichstein (eds.), Wiley & Sons, 2021. [\[book preview\]](#) [\[project page\]](#)

## WORKING EXPERIENCES

- **Amazon Web Services** *Mar 2020 – Sep 2023*  
*Applied Scientist Intern.*

## AWARDS AND HONORS

- May Fourth Scholarship (top 15%) *Oct 2015*
- Weiming Scholarship (top 5%) *Oct 2015*
- Samsung Scholarship (top 5%) *May 2015*
- Weiming Scholarship (top 5%) *Dec 2013*
- Excellent Student (top 5%) *Dec 2013*
- POSCO Asia Fellowship (top 5%) *Oct 2013*
- 3rd Prize in Chinese Physics Olympiad (CPhO) *Nov 2011*

## ACADEMIC SERVICE

- Conference Reviewer: NeurIPS (2022-now), ICML (2023-now), CVPR (2023-now), ICCV (2023-now), ECCV (2024-now), AAAI (2024-now).
- Journal Reviewer: TPAMI.

## PRESENTATIONS

- PreDiff: Precipitation Nowcasting with Latent Diffusion Models. NeurIPS Presentation, 2023. [\[video\]](#)
- Earthformer: Exploring space-time transformers for earth system forecasting. Shanghai Meteorology Bureau, 2022.
- Earthformer: Exploring space-time transformers for earth system forecasting. NeurIPS Presentation, 2022. [\[video\]](#)