ZHIHAN GAO

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Contact: Personal Website; Google Scholar; GitHub; LinkedIn

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 – Aug 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]
- Sun, Ting, 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**
  Applied Scientist Intern — *Mar 2020 – Sep 2023*

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)
- 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]