

# ZHIHAN GAO 高智涵

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## EDUCATION

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

## RESEARCH INTEREST

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

## PUBLICATIONS

- **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." *Advances in Neural Information Processing Systems* 36 (2023). [[paper](#)] [[project page](#)] [[poster](#)]
- Benson, Vitus, Christian Requena-Mesa, Claire Robin, Lazaro Alonso, José Cortés, **Zhihan Gao**, Nora Linscheid, Mélanie Weynants, and Markus Reichstein. "Forecasting localized weather impacts on vegetation as seen from space with meteorology-guided video prediction." *arXiv preprint arXiv:2303.16198* (2023). [[paper](#)]
- **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." *Advances in Neural Information Processing Systems* 35 (2022): 25390-25403. [[paper](#)] [[project page](#)] [[poster](#)]
- **Zhihan Gao**, Hao Wang, Yuyang Bernie Wang, Xingjian Shi, and Dit-Yan Yeung. "Probabilistic continuous-time whole-graph forecasting." In *8th SIGKDD International Workshop on Mining and Learning from Time Series–Deep Forecasting: Models, Interpretability, and Applications*. 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 arXiv:1904.01749* (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." *Advances in neural information processing systems* 30 (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, no. 1 (2016): 014001. [[paper](#)]
- Song, Sijie, Yanghao Li, **Zhihan Gao**, and Jiaying Liu. "Face hallucination based on neighbor embedding via illumination adaptation." In *2015 Asia-Pacific Signal and Information Processing Association Annual Summit and Conference (APSIPA)*, pp. 680-683. IEEE, 2015. [[paper](#)]

## 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* (2021): 218-239. [[book preview](#)]

## 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)

## 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](#)]