

**Siyi Chen**  
Peking University, Beijing, 100084, P.R. China  
2100011494@stu.pku.edu.cn  
Google Scholar

## Education

|   |  |
|---|--|
| <b>University of Michigan, Ann Arbor</b><br><i>Ph.D., Electrical and Computer Engineering</i> <ul style="list-style-type: none"><li>• <b>Advisors:</b> Jun Gao, Qing Qu</li><li>• <b>Interests:</b> reconstructing, generating and simulating 3D worlds, Computational Imaging, 3D modeling, etc.</li></ul> | Michigan, USA<br><i>Incoming</i>           |
| <b>Peking University</b><br><i>Bachelor of Science, School of Physics</i> <ul style="list-style-type: none"><li>• <b>Interests:</b> Probabilistic Machine Learning, Diffusion Models etc.</li></ul>   | Beijing, China<br><i>09/2021 – Present</i> |

## Work Experience

|   |   |
|---|---|
| <b>University of Michigan, Ann Arbor</b><br><i>Electrical and Computer Engineering</i> <ul style="list-style-type: none"><li>• Lead the ML for scientific application project in Qing's group, the main project is to use the generative models to model and predict chaotic dynamic systems like fluids and use it to solve real-world problems, we primarily focus on the data assimilation task.</li><li>• Introduce the current research projects in various seminars and symposiums, like IMSI workshop, CSP seminar etc.</li><li>• Work on basic medical imaging tasks, like MRI and Ultrasonic Computed Tomography</li></ul> | Michigan, USA<br><i>06/2024 – 12/2024</i> |
|---|---|

## Papers

|   |  |
|---|--|
| <b>FlowDAS: A Flow-based Framework for Data Assimilation ( CPAL 2025 )</b> [arXiv]<br><i>Siyi Chen, Yixuan Jia, Qing Qu, He Sun, Jeffrey A. Fessler</i>   |  |
| <b>LatentDEM: Blind Inversion using Latent Diffusion Priors ( IEEE TIP submission )</b> [arXiv]<br><i>Weimin Bai*, Siyi Chen*, Wenzheng Chen, He Sun</i>  |  |
| <b>Learning Diffusion Model from Noisy Measurement using Principled Expectation-Maximization Method ( ICASSP 2025 )</b> [arXiv]<br><i>Weimin Bai, Weiheng Tang, Enze Ye, Siyi Chen, Wenzheng Chen, He Sun</i> |  |

## Research Experience

|   |   |
|---|---|
| <b>Deep learning models ( Flow models for data assimilation )</b><br><i>Advisor: Qing Qu, Jeffrey A. Fessler</i> <ul style="list-style-type: none"><li>• Use the stochastic interpolants framework to model the stochastic dynamic system</li><li>• Develop suitable algorithms for the scientific task: data assimilation with the stochastic interpolants framework.</li><li>• Apply the proposed method to real-world settings, like climate modeling, weather forecasting, seismology analysis.</li></ul> | University of Michigan, Ann Arbor<br><i>06/2024 – 12/2024</i> |
| <b>Deep learning models ( Diffusion models for inverse problems )</b><br><i>Advisor: He Sun</i> <ul style="list-style-type: none"><li>• Use the latent diffusion model to solve blind inverse problems in 2D (blind motion deblurring) and 3D (pose-free sparse-view reconstruction).</li><li>• Combine the PnP Monte Carlo algorithm to iteratively estimate clean images from noisy measurements and train the diffusion model.</li></ul>   | Peking University<br><i>02/2024 – 06/2024</i>                 |
| <b>Computational optics ( Multi-channel detection in SMLM )</b><br><i>Advisor: He Sun</i> <ul style="list-style-type: none"><li>• Simulate and compute the physics process of the detection in single-molecule localization microscopy.</li><li>• Signal processing and detection including using conventional methods to denoise the noisy image, filter and detect the molecule.</li></ul>  | Peking University<br><i>06/2023 – 01/2024</i>                 |
| <b>Quantum physics ( Design and simulation of Quantum chips )</b><br><i>Advisor: Jianwei Wang</i> <ul style="list-style-type: none"><li>• Design quantum optical devices on chips and explore the best material and structure to improve the performance.</li><li>• Test the performance of the devices and compare all kinds of device structures by experiments.</li><li>• Numerically simulate the devices by scientific software like COMSOL and develop simulation Python program.</li></ul>             | Peking University<br><i>10/2022 – 05/2023</i>                 |

## Awards & Honors

|   |         |
|---|---------|
| <b>Scholarship for Freshman Students: 3rd prize</b><br><i>Peking University</i> | 12/2021 |
|---|---------|

## Membership

|   |                   |
|---|-------------------|
| <b>IEEE Membership</b><br><i>Membership number: 100814053</i> | 12/2024 – Present |
|---|-------------------|