

Zicong Jiang

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EDUCATION

- Chalmers University of Technology** (Nov.2024 - Now)
PhD student
Communication systems group
Data driven joint optical fiber sensing and communication
- École Polytechnique Fédérale de Lausanne (EPFL)** (Sep.2023 - Jul.2024)
M.Sc. Exchange student in Communication Systems
Semester project at IVRL and TCL
Thesis student at IVRL (Supervised by Yufan, Prof. Sabine Süsstrunk and Prof. Søren Forchhammer)
- Technical University of Denmark** (Aug.2022 - Jul.2024)
M.Sc. Communication technologies and system design
GPA: 10.28/12
- Northeast Electric Power University** (Sep.2017 - Jul.2021)
B.Eng. Communication Engineering
GPA: 87/100 (Top 5%)
Thesis: Excellent Graduation Thesis in NEEPU

RESEARCH EXPERIENCE

- Physical-informed optical channel power profile estimation.**
(PhD / Supervisors: Prof. Christian Häger, Prof. Erik Agrell, Prof. Magnus Karlsson) Chalmers
Ongoing project related to my first warm-up PhD project. Utilize physical-informed loss and physical-based models for optical fiber power profile estimation.
- FDS: Frequency-aware Denoising Score for Text-guided Latent Diffusion Image Editing. Thesis project**
(M.Sc / Supervisors: Prof. Sabine Süsstrunk, Yufan Ren, Prof. Søren Forchhammer) DTU&EPFL
Demo Website (coming soon):<https://ivrl.github.io/fds-webpage/>
We propose a novel method, utilize wavelet to represent the optimization target for Score Distillation Sampling (SDS) to generate high-quality textures for complex mesh objects, our method also can be utilized for texture and 2D image editing.
- GEometry-conditioned Multi-View Diffusion for Text-Guided Texturing of 3D Shapes. Sep 23 - Jan 24**
(M.Sc / Supervisors: Prof. Sabine Süsstrunk, Yufan Ren) EPFL
Demo Website:<https://zicongjiang.github.io/GEM3D/>
We research text-guided 3D generation and propose a novel pipeline that supports using a single normal map or mesh as input. This algorithm utilizes neural networks to generate multiple view-consistent color maps and normal maps. Leveraging this information, we can swiftly accomplish mesh generation and coloring in under a minute. Moreover, our method effectively resolves the significant issue of multiview inconsistency that has been persistent in previous works. Finally, we perform texture optimization on the generated colorized mesh to attain more refined details.
Now we want to extent this work into texture editing, we want to achieve texture editing for 3D mesh based on users' painting in 2D view
- ML-based compensation of component distortion in optical systems** Sep 22 - Aug 23
(M.Sc / Supervisors: Prof. Da Ros Francesco, Post-doc. Ognjen Jovanovic) Technical University of Denmark
The project will review the state of the art on linear and nonlinear predistortion applied to optical transmitters, as well as implement a few of the simple common methods. Try to use the one and second-order Volterra series for nonlinear curve fitting and MZM nonlinearity compensation
The project will investigate the use of ML tools for the compensation (pre-and/or post) of linear and nonlinear signal distortion caused by practical limitations of components employed in optical communication systems. Use simple Neural networks to compensate for the nonlinearity of MZM and also for distortion in the optical Channel.
- Deep Learning-based Transmission Line Detection System** Aug 19 - Jul 21
(B.Eng / Supervisor: Prof. Liquan Zhao) Northeast Electric Power University

- Designed a pair of smart glasses based on Raspberry Pi, which can implement the remote transmission of information (video, audio, text, photo, image and voice control), and real-time fault detection in the smart glasses terminal to give feedback for better maintenance.
- Improved the YOLOV4-tiny target detection algorithm such as proposing a new network structure and post-process approach to have higher accuracy and high computational speed, and the GAN algorithm is used to create my own Insulator-Defect Datasets. Eventually, I deploy it on Raspberry Pi for real-time transmission line fault detection.

CAMPUS ACTIVITIES

1. *Student Research Assistant in Lidar*

(M.Sc)

Mar 2023 - Aug 2023

Technical University of Denmark, SPOC

- Research in the implementation of high-speed Lidar and imaging algorithms

2. *Member of Smart Car Team*

(B.Eng)

Sep 2018 - Sep 2019

Hardware Department of Northeast Electric Power University

- Organized and participated in various scientific and technological competitions at the university and department levels.
- Being TA, introduced extracurricular knowledge related to electronics, including simple hands-on practices such as welding and designing a track car.

3. *Member of Drone Group*

(B.Eng)

Sep 2018 - Jul 2021

Robot Studio of Northeast Electric Power University

- Researched various robot technologies, including biped robots, quadruped robots, drones, etc. Conducted self-study on computer vision and other knowledge, and participated in related competitions.

AWARDS & HONORS

- 2021 Excellent Graduation Thesis at Northeast Electric Power University
- 2021 Technology Star student of Northeast Electric Power University
- 2020 Outstanding Student of Northeast Electric Power University
- 2020 Third-class Scholarship of Northeast Electric Power University
- 2020 First-class Award of The "Challenge Cup" in Jilin Province
- 2020 Second-class Award of Chinese Undergraduate Computer Design Contest in Jilin Province
- 2019 First-class Award of China Robot Competition
- 2019 Second-class Award of National Undergraduate Electronics Design Contest
- 2019 Second-class Scholarship of Northeast Electric Power University
- 2019 Championship of Jilin Provincial University Robot Competition
- 2019 Innovation First-class Scholarship of Northeast Electric Power University
- 2018 Third-class Award of "Changtong Cup" Electronic Design Competition
- 2018 Second-class Scholarship of Northeast Electric Power University
- 2018 Innovation Third-class Scholarship of Northeast Electric Power University
- 2017 Second-class Scholarship of Northeast Electric Power University

PUBLICATIONS

Journal Papers:

1. Liquan Zhao*, **Zicong Jiang**, Ziming Teng and Yanfei Jia. Fault Detection Method for Insulators Using Improved YOLOv4[J] Journal of Network Intelligence, Vol. 7, No. 4, pp. 818-834, November 2022.
2. Liquan Zhao*, Siying Zhou, Ziming Teng, **Zicong Jiang**, Yanfei Jia. Unsupervised domain adaptation using attention network and new loss function[J]. Journal of Network Intelligence, Vol. 7, No. 3, pp. 704-718, August 2022.
3. Liquan Zhao*, Yupeng Zhang, Ziming Teng, **Zicong Jiang**, et al. Conditional Adversarial Domain Adaption based on Self-attention[J]. Journal of Network Intelligence, Vol. 7, No. 1, pp. 175-188, Feb 2022.
4. **Jiang Z**, Zhao L, Li S, et al. Real-time object detection method based on improved YOLOv4-tiny[J]. arXiv preprint arXiv:2011.04244, 2020.

Conference Papers:

1. **Jiang, Zicong**, et al. "PIDT: Physics-Informed Digital Twin for Optical Fiber Parameter Estimation." arXiv preprint arXiv:2601.07436 (Accepted by OFC 2026).
2. Yufan Ren, **Zicong Jiang**, Tong Zhang, Søren Forchhammer, Sabine Süsstrunk. FDS: Frequency-aware Denoising Score for Text-guided Latent Diffusion Image Editing. CVPR'25
3. **Zicong Jiang**, Liquan Zhao, Yanfei Jia. Design of transmission device inspection auxiliary management system based on raspberry pi. ICITEE-2019: Proceedings of the 2nd International Conference on Information Technologies and Electrical Engineering. December 2019 Article No.: 130 Pages 1–4.

Patents:

1. Software Copyright Registration Certificate: Jianpo Li, **Zicong Jiang**, Yuxiang Gao. RS485-based Environmental Monitoring Information Management System. Registration No.: 2020SR0282369. Completion date: 2020-01-07.

TECHNICAL SKILLS

- **Programming Language:** C, Python, VHDL, C++, C#
- **Tools:** LaTeX, MATLAB, Pytorch, Modelsim, Quartus, Microsoft Office, Qt Creator, HFSS, MCUs, Multisim

OTHERS

- **Volunteer and supervision:**
 1. Welcome buddy, Communication System Group, Electrical Engineering, Chalmers (2025-2026).
 2. Research master's thesis supervisor: Jun Cao (2025-26).
 3. Master's thesis advisor: Jacob (Ericsson, 2024-25), Oskar (Saab, 2025).
 4. Student volunteer for International Conference on Computational Photography (ICCP) 2024 EPFL.
 5. DTU student ambassador.
- **Paper reviewer:** Journal of Lightwave Technology
- **Teaching assistant:** EEN115: Introduction to communication networks - Chalmers University of Technology
- **Hobbies:** Travelling, Taking photos and videos, Playing soccer, Listening to Music, Learning new things.
- **Languages:** Chinese (Native), English, Japanese.