(+31) 06-83104008
Delft, The Netherlands
p.zhai@tudelft.nl
hantyou.zhai@gmail.com

Peiyuan Zhai

github.com/hantyou
linkedin.com/in/peiyuan-zhai

Education

Delft University of Technology **Feb. 2023 — Feb. 2027 (Expected)**
Ph.D. in Electrical Engineering, Signal Processing Systems Group *Delft, The Netherlands*

Delft University of Technology **Sep. 2020 — Aug. 2022**
M.Sc. in Electrical Engineering, Faculty of Electrical Engineering, Mathematics & Computer Science *Delft, The Netherlands*
GPA: 8.32/10

Xi'an Jiaotong University **Sep. 2016 — Jul. 2020**
B.Eng. in Information Engineering, School of Information and Communications Engineering *Xi'an, China*
GPA: 86.44/100

Publications

Conference Publications

- **P. Zhai**, G. Joseph, N. J. Myers, C. Onen, and A. Pandharipande, "Sparsity-aware occupancy grid mapping for automotive driving using radar-LiDAR fusion," in *2024 IEEE SENSORS*, Oct. 2024, pp. 1–4, doi: 10.1109/SENSORS60989.2024.10785054.
- **P. Zhai** and R. T. Rajan, "Distributed Gaussian Process Hyperparameter Optimization for Multi-Agent Systems," in *ICASSP 2023 - 2023 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, Jun. 2023, pp. 1–5, doi: 10.1109/ICASSP49357.2023.10096267.

Journal Publications

- **P. Zhai**, G. Joseph, N. Jonathan Myers, and A. Pandharipande, "Camera-Aided Binary Prior Support-Informed Occupancy Grid Mapping," *IEEE Sensors Journal*, vol. 26, no. 3, pp. 4340–4348, Feb. 2026, doi: 10.1109/JSEN.2025.3642255.
- **P. Zhai**, G. Joseph, N. J. Myers, C. Onen, and A. Pandharipande, "Spatial Sparsity-Aware Radar-LiDAR Fusion for Occupancy Grid Mapping in Automotive Driving," *IEEE Sensors Journal*, vol. 25, no. 17, pp. 33328–33338, Sep. 2025, doi: 10.1109/JSEN.2025.3592023.

Research Experience

Doctoral Research on Autonomous Perception: Occupancy Grid Mapping
Signal Processing Systems, Delft University of Technology *Delft, The Netherlands*
Supervised by Dr. Geethu Joseph

- Problem

M.Sc. Thesis on Distributed Gaussian Process **Dec. 2021 — Aug. 2022**
Circuits and Systems, Delft University of Technology *Delft, The Netherlands*
Supervised by Dr. Raj Thilak Rajan *Score: 8.5/10*

- Researched Gaussian Process (GP) based unknown field learning in multi-agents systems, and simulated state-of-the-art algorithms.
- Proposed two **fully-distributed** asynchronous proximal alternating direction method of multipliers algorithms for GP **hyperparameter optimization**, which extended the state-of-the-art algorithm to fully-distributed system without fusion center.
- Proposed several fully-distributed GP **aggregation** strategies for consistent and accurate unknown field prediction.
- ICASSP 2023 paper under review:
  P.Zhai & R.T.Rajan, "Distributed Gaussian Process Hyperparameter Optimization for Multi-agent Systems".

M.Sc. Extra Project **Aug. 2021 — Oct. 2021**
Circuits and Systems, Delft University of Technology *Delft, The Netherlands*
Supervised by Dr. Raj Thilak Rajan

- Revisited classical and state-of-the-art works in distributed learning and cooperative control.
- Learned and reproduced a classical algorithm, of which the performance is examined on artificial datasets.
- Wrote a scientific report introducing and discussing the simulated algorithm. Possible future research for MSc Thesis were discussed.

B.Eng. Thesis on Video Background Modeling **Nov. 2019 — Jun. 2020**
Multi-media Processing Group, Xi'an Jiaotong University *Xi'an, China*
Supervised by Associated Prof. Ruiping Qiao

- Researched state-of-the-art works on background modeling for target tracking.
- Based on Gaussian Mixture Model (GMM), proposed a selective update strategy for background modeling. Examined the performance of proposed algorithm on real world videos.
- Designed a routine of implementing proposed algorithm in Digital Signal Processor platforms.

(+31) 06-83104008
Delft, The Netherlands
p.zhai@tudelft.nl
hantyou.zhai@gmail.com

Peiyuan Zhai

github.com/hantyou
linkedin.com/in/peiyuan-zhai

Skills

Tools and Languages	Python, C/C++, Linux, MATLAB, Git, LaTeX, FPGA
Research Keywords	Sparse Bayesian learning, Autonomous perception, Convex/Non-convex Optimization, Distributed Signal Processing, Gaussian Process, Multi-agents System
Hobbies	Cycling, Cooking, Photography, Badminton
Communication	English (fluent), Chinese (native), Dutch (beginner)