

Weijiang Xiong

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SUMMARY

EPFL Robotics PhD candidate working on probabilistic forecasting, cross-city generalization, and active urban sensing. Experience in aerial vision, driving scenario construction, reinforcement learning and trajectory data processing. Publications in Transportation Research Part C and IEEE T-ITS.

EDUCATION

École Polytechnique Fédérale de Lausanne (EPFL), Lausanne, Switzerland Dec 2022 – May 2027 (expected)
PhD in Robotic Systems (EDRS), Advisor [Prof. Nikolas Geroliminis](#), Co-advisor [Prof. Alexandre Alahi](#)

- Research: Data-Driven Urban Mobility Pattern Recognition, focusing on large-scale trajectory data, probabilistic spatio-temporal modeling, multi-vehicle interactions and collaborative decisions

Aalto University, Espoo, Finland

Sep 2020 – Nov 2022

MSc in Robotics and Autonomous Systems, Minor in Machine Learning

- Full Aalto University scholarship; GPA: 4.86/5.00 (96 ECTS); EPFL exchange: 5.80/6.00 (31 ECTS, 2021 Fall)
- Coursework: Computer Vision; Bayesian ML; Deep Learning; Probabilistic ML; Parallel Computing

Tongji University, Shanghai, China

Sep 2015 – Jul 2020

BSc in Mechanical Engineering, specializing in Mechatronics

- GPA: 4.58/5.00; rank: 3/114 (top 3%); **Excellent Graduate of Shanghai**; 3x Excellent Student Scholarship

PUBLICATIONS

SkyDrive: Learning to Drive in a New City from Aerial Traffic Monitoring

ArXiv Preprint

Weijiang Xiong, Lan Feng, Alexandre Alahi and Nikolas Geroliminis.

[\[Preprint\]](#)

- Built 650K driving scenarios and map pipelines from 137.2 h of aerial monitoring across 20 intersections
- Fine-tuned RAP on target-city data: 4s FDE 8.12 → 2.73 m; TTC infraction rate 25.56% → 5.89% vs. zero-shot

Unveiling Stochasticity: Universal Multi-modal Probabilistic Modeling for Traffic Forecasting

TR-C, 2026

Weijiang Xiong, Robert Fonod, and Nikolas Geroliminis.

[\[Paper\]](#) [\[Code\]](#)

- Designed a modular Gaussian mixture head for predicting multimodal probabilistic posterior
- Reduced CRPS by 27.7% on average vs. deterministic variants across 3 datasets and 5 backbones

Multi-Source Urban Traffic Flow Forecasting with Drone and Loop Detector Data

IEEE T-ITS, 2025

Weijiang Xiong, Robert Fonod, Alexandre Alahi, and Nikolas Geroliminis.

[\[Paper\]](#) [\[Code\]](#) [\[Data\]](#) [\[Poster\]](#)

- Designed a spatiotemporal GNN fusing drone and loop-detector data; reduced 30-min regional speed MAE by ~39% under partial and noisy observations

INTERNSHIPS

Master's Thesis Intern, Nokia Visual AI Group, Espoo, Finland. [\[Thesis\]](#)

Feb 2022 – Nov 2022

- Developed domain adaptation for aerial detection using adversarial alignment and knowledge distillation
- Improved three-class vehicle detection mAP from 13.06 to 18.14 (+5.08 points) on VisDrone→UAVDT

Research Intern, [Probabilistic Machine Learning Group](#), Aalto University. [\[GitHub\]](#)

Jun 2021 – Aug 2021

- Built normalizing-flow modules for dense and convolutional layers, learning flexible aleatoric uncertainty
- Used variational inference; improved CIFAR-10 accuracy by ~2% compared to learnable Gaussian posterior

Perception Algorithm Intern, [Hesai Technology](#), Shanghai

Jul 2020 – Aug 2020

- Fused point-cloud sequences with ConvLSTM for voxel-based vehicle detection on Waymo Open Dataset

PROJECTS

SkyMonitor: Agentic aerial traffic monitoring with PPO and decision-aligned representations

[\[Code\]](#)

LLM Reasoning: Adapted a Qwen3 model for math problems with Prompt, LoRA SFT and GRPO

[\[Code\]](#)

PoseAct: Developed a pose-based human action recognition model for autonomous-driving

[\[Code\]](#)

Habitat Navigation: Analyzed visual corruption effects on PPO agents with mid-level features

[\[Code\]](#)

SKILLS

Autonomous Sys. Object Detection, Tracking, 3D Point Cloud, Action Recognition, Trajectory Planning

Model Design Self-supervised ML, Probabilistic Modeling, Knowledge Distillation, Domain Adaptation

Programming Python, PyTorch, Transformers, Linux, Git, $\text{\LaTeX}$, Slurm, Docker, Codex