

# Wenqing Qu

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## EDUCATION

- École Polytechnique**, Palaiseau Sep 2022 – Present  
Master of Artificial Intelligence and Advanced Visual Computing  
GPA: 3.49/4.00  
Major Courses: Machine and Deep Learning, Natural Language Processing, Deep Reinforcement Learning, Computer Vision, Computer Animation
- École Polytechnique**, Palaiseau Sep 2019 – Jun 2022  
Bachelor of Computer Science & Mathematics  
GPA: 3.72/4.00  
Major Courses: Machine Learning, Computer Programming, Computer Graphics, Numerical Methods
- École Polytechnique Fédérale de Lausanne**, Lausanne Sep 2021 – Apr 2022  
Exchange Program in Computer Science & Mathematics Bachelor

## RESEARCH EXPERIENCE

- Diffusion-Based Denoising for Pedestrian Trajectory Prediction** May 2024 – Sep 2024  
EPFL VITA Lab, Lausanne
- Developed a diffusion-based denoiser for pedestrian trajectory data to reduce noise in real-world scenarios.
  - Extended the application of the denoiser to unseen pedestrian trajectory datasets, showcasing its adaptability beyond the training data.
  - Tested the denoiser in trajectory prediction tasks and robot navigation systems, achieving improved accuracy and robustness, particularly in challenging, noisy environments.
- Cross-View Geo-localization for Real Estate** Jan 2024 – Apr 2024  
Homiwoo, Palaiseau
- Prepared and annotated datasets (CVUSA, CVACTION, VIGOR) for model training and evaluation.
  - Implemented and fine-tuned models based on Sample4Geo and SAIG architectures.
  - Achieved significant performance improvements through data preprocessing and fine-tuning strategies.
- Machine Learning in Multi-scale Geomechanics** Jun 2023 – Sep 2023  
INRAE, Aix en Provence
- Developed and trained neural networks to replace traditional H-model structures for granular material simulation.
  - Generated and preprocessed large datasets, and compared performance using standard tests.
- Implicit Surface Modeling using Quaternion/Tensor Fields** Jan 2022 – Apr 2022  
École Polytechnique, Palaiseau
- Explored quaternion and tensor fields for anisotropic blending in implicit surface modeling.
  - Developed methods for skeleton-based implicit surfaces and demonstrated proof-of-concept for anisotropic blending.

## PUBLICATION

- Multiscale modeling of granular materials using mesoscale DEM and machine learning approaches**  
IS-Grenoble 2024, International Symposium on Geomechanics from Micro to Macro Accepted for oral presentation  
*Antoine Wautier, Aoxin Li, Wenqing Qu, Mehdi Pouragha, Francois Nicot*
- Establish the necessary framework for inputting any kind of mesostructure into multi-scale models for granular materials.
  - Propose a strategy to compute the mechanical response of the mesostructures using discrete element simulations and surrogate models based on artificial neural networks (ANN).