Special Issue

Generative Artificial Intelligence Technologies and Applications for Road Environment Understanding

Message from the Guest Editors

This Special Issue explores the latest advancements and applications of generative AI technologies to enhance understanding road environments. The topics include but are not limited to the following:

- Generative adversarial networks for road scene synthesis and augmentation;
- Variational autoencoders for road environment modeling and reconstruction;
- Diffusion models for road scene generation and editing;
- Generative models for 3D road environment reconstruction;
- Conditional generative models for road object detection and segmentation;
- Generative models for traffic flow prediction and simulation;
- Adversarial training techniques for road environment understanding;
- Interpretability and explainability of generative models in road scene analysis;
- Multimodal generative models for road environments (e.g., combining vision and LiDAR data);
- Generative models for data augmentation and domain adaptation in road scene understanding;
- Generative models for road sign and lane marking synthesis;
- Applications of generative AI in autonomous driving, intelligent transportation systems, and road safety.

Guest Editors

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Message from the Editor-in-Chief

As the world of science becomes ever more specialized, researchers may lose themselves in the deep forest of the ever increasing number of subfields being created. This open access journal Applied Sciences has been started to link these subfields, so researchers can cut through the forest and see the surrounding, or quite distant fields and subfields to help develop his/her own research even further with the aid of this multi-dimensional network.

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