

Internship - Enhancing a Diffusion-Based Traffic Scene Generation Model for Closed-Loop Simulation - REF5865M

Your tasks

High-fidelity traffic scenario generation is increasingly important for developing and validating autonomous driving systems. Diffusion models have recently demonstrated strong potential for synthesizing diverse and realistic multi-agent driving scenes.

In this internship, you will contribute to advancing an existing diffusion-based traffic scene generation model used in closed-loop simulation within the Aumovio AI Lab in Berlin. The focus of your work will be on improving the model's generation quality through enhanced training strategies, better data representations, and the development of a critic module for automated quality assessment.

You will have direct access to our simulation stack, enabling interactive testing and evaluation of your improved models across a wide range of simulated driving scenarios.

Duration: 6 Months

Tasks:

- Conduct a familiarization phase and baseline analysis of the current diffusion model.
- Enhance the existing diffusion model using improved conditioning, data augmentation, fine-tuning, or reinforcement learning methods.
- Develop a critic model capable of assessing scene realism, safety, and consistency.
- Integrate the improved generator and critic into the simulation framework and conduct a comprehensive evaluation in closed-loop settings.

Your profile

- Enrolled students (m/f/diverse) in Computer Science, Electrical Engineering, Robotics, AI, or a related field.
- Solid programming skills in Python and experience with deep learning frameworks (preferably PyTorch).
- Prior experience with diffusion models or generative modeling is a strong advantage.
- Strong command of English (spoken and written); German is a plus.
- Independent, reliable, and collaborative working style with strong problem-solving skills.

Please remember to upload your current certificate of enrollment as well as your current transcript of grades and an excerpt from the current study regulations regarding completion of a thesis, as these are mandatory for processing your application. If required, please submit



Job ID
REF5865M

Field of work
Information Technology

Location
Berlin

Contact
Nadia-Victoriana Ciorba

Legal Entity
co-pace GmbH

your valid residence permit as well as your work permit including the additional sheet.

Applications from severely handicapped people are welcome.

Our offer

- Flexible working hours / working time models (job flexibility)
- A performance-based remuneration for your work with us
- Qualified support by our experts
- Health-oriented workplace
- Health courses and sports activities (EGYM Wellpass)
- Subsidy Germany Ticket
- Regular interns table, if applicable
- Regular (team) events, if applicable
- Company restaurant, if applicable

Diversity, Inclusion &

Belonging are important to us and make our company strong and successful. We offer equal opportunities to everyone - regardless of age, gender, nationality, cultural background, disability, religion, ideology or sexual orientation.

Ready to take your career to the next level? The future of mobility isn't just anyone's job. Make it yours! **Join AUMOVIO. Own What's Next.**

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About us

Since its spin-off in September 2025 AUMOVIO continues the business of the former Continental group sector Automotive as an independent company. The technology and electronics company offers a wide-ranging portfolio that makes mobility safe, exciting, connected, and autonomous. This includes sensor solutions, displays, braking and comfort systems as well as comprehensive expertise in software, architecture platforms, and assistance systems for software-defined vehicles. In the fiscal year 2024 the business areas, which now belong to AUMOVIO, generated sales of 19.6 billion Euro. The company is headquartered in Frankfurt, Germany and has about 87.000 employees in more than 100 locations worldwide.