THOMAS MARKHORST

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Persevering and problem-solving PhD candidate in Computer Vision, graduated cum laude with an MSc in AI. My research focuses on modeling human movement using generative approaches, including diffusion models for 3D pose estimation and large language models for movement understanding, with applications in social interaction generation. Experience in image denoising, neural architecture search, and synthetic data generation, supported by strong communication skills from a teaching and collaborative background.

EDUCATION

PhD Computer Vision - TU Delft (NL)   *Mar. 2024 – Mar. 2028*
- Modeling human movement with generative models for motion and non-verbal interaction understanding
- Coordinate 3 PhD and 4 MSc teaching assistants to manage the Computer Vision MSc course with 100+ students & daily-supervising of 2 MSc and 5 BSc theses

Master Artificial Intelligence - TU Delft (NL)   *Sept. 2021 – Aug. 2023*
- Graduated cum laude, specializing in Machine/Deep Learning and Computer Vision   **GPA: 8.7**
- Further refined the thesis after graduation and published in the Proceedings of the ECCV-24 Workshops

Bachelor Computer Science - TU Delft (NL)   *Sept. 2018 – July 2021*
- Received a 9.5 for BSc thesis at Delft Computer Vision Lab   **GPA: 8.9**
- Graduated cum laude and with honours following The Next Generation Robotics Honours Program

PROFESSIONAL EXPERIENCE

Bosch Computer Vision Research Intern   *(Eindhoven, NL) Dec. 2022 – Aug. 2023*
- MSc thesis on image enhancement and object classification for security cameras in challenging light
- Developed Neural Architecture Search to design models for mobile devices while maintaining performance

BMW Group Computer Vision Research Intern   *(Munich, DE) Aug. 2022 – Nov. 2022*
- Adapted SOTA pose estimation algorithms to stereo vision thus reducing the dependency on depth cameras
- Developed a 3D synthetic data rendering tool reducing the need for manually labelled data by 90 percent

Krill Robotics Computer Vision Engineer   *(Delft, NL) Feb. 2019 – Sept. 2021*
- Developed MVP object detection and avoidance for a robotic system on the water
- Brought the first version to the market in 1.5 years and secured governmental and industry funding

Dutch Org. for Applied Science Software Engineering Intern   *(The Hague, NL) Feb. 2017 – Mar. 2018*
- Developed a robotic vehicle controlled using a VR system, enabling remote presence in hazardous situations
- Built an automated camera system tracking sports balls used for soccer game analysis

Sailing Institute Aalsmeer Senior Instructor   *(Aalsmeer, NL) Apr. 2015 – present*
- Trained 30+ adolescent instructors, fostering independence through self-reflection and confidence-building
- Led teams of 10 instructors to run sailing programs for 50 children, while teaching my own group

PUBLICATIONS

Pushing Joint Image Denoising and Classification to the Edge ⬈   ECCV24 - Workshop
- Thomas C. Markhorst, Jan C. van Gemert, Osman S. Kayhan

Topic: Multi-Person 2D-to-3D Pose Lifting using Diffusion   ICRA26 - [in review]
- Thomas C. Markhorst, Zhi-Yi Lin, Jouh Yeong Chew, Jan C. van Gemert, Xucong Zhang

Topic: Multimodal reaction generation for multi-person interaction   NeurIPS25 - [in review]
- Zhi-Yi Lin, Thomas C. Markhorst, Jouh Yeong Chew, Jan C. van Gemert, Xucong Zhang

ADDITIONAL INFORMATION

Programming	Python, PyTorch, NumPy, OpenCV, Java, Docker, ROS, C++
Interests	Sailing, Running, Hiking, Skiing, Glass Working, Goldsmithing
Languages	English (Fluent), Dutch (Native), German (Intermediate), Greek (Beginner)