Nicolas Wagner

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About

I am Nicolas, a Ph.D. student who is about to defend his dissertation.

Over the past years, I have developed and applied the latest AI methodologies in various fields. From embedding LLMs with interactive avatars and animating them photorealistically (see me as an example on the left), explainable AI and computer vision, to reinforcement learning and agentic behavior, I gained comprehensive experience. Therefore, I am also familiar with various software stacks and have broad knowledge in the handling and conception of self-hosted GPU clusters, as well as different cloud solutions. By heading and coordinating various industry and university participants in a joint research project over the last few years, I have also been able to develop valuable skills in the area of project management.

I am passionate about all technologies that integrate artificial intelligence, complex data, and challenging applications. Even if I do not perfectly meet all your requirements, I am confident that I can fulfill a role with you very well. As, apart from my technical experiences, I have always been able to familiarize myself very quickly with novel, wide-ranging, and complex topics.

Education

	Johannes Gutenberg-University Mainz	
2016 - 2019	Bachelor of Science in Computer Science - 1.5	Mainz
	> Thesis: Explainable CNNs with a Deep Convolutional DNF Learner	
	Technical University Darmstadt	
2019 - 2021	Master of Science in Visual Computing - 1.0 with honors	Darmstadt
	> Thesis: Federated Semi-Supervised Learning in Digital Pathology	
	Hessian Doctoral Center of Informatics	
2022 - 2025	Pursuing the degree of Doctor of Natural Sciences	Wiesbaden
	> Thesis: Anatomically-Constrained Physics-Based Simulations for Facial Animations	

Working Experience

	Teaching Assistant	
Oct 2017 - Mar 2018	Johannes Gutenberg University Mainz	Mainz
	> Giving tutorials in technical computer science.	
	Java Backend Developer	
Mar 2018 - Jul 2018	anytips GmbH	Mainz
	> Implementing from scratch the backend for a newly founded start-up.	
	Student Research Assistant Machine Learning / Deep Learning	
Jul 2018 - Sep 2019	Johannes Gutenberg University Mainz	Mainz
	> Making CNNs explainable. > Organizing conference workshops.	
	Student Research Assistant Computer Vision / Deep Learning	
Oct 2019 - Sep 2021	RheinMain University of Applied Sciences Wiesbaden	Wiesbaden
	> Deep Learning for irregular data structures. > Administrating multi-GPU clusters and distributed training systems.	

	Research Associate	
Oct 2021 - Dec 2024	Technical University Dortmund	Dortmund
	> Mainly focused on developing a sota deep learning animation framework. > Collaborative work in a mixed university-industry team. > Planning and administrating sever hardware for large-scale datasets and distributed deep learning.	
	Research Associate	
Dec 2024 - Today	RheinMain University of Applied Sciences Wiesbaden	Wiesbaden
	> Continuation of the work above.	
	Lecturer GenAI	
Dec 2024 - Today	RheinMain University of Applied Sciences Wiesbaden	Wiesbaden
	> From theoretical foundations to todays models.	

Publications (Scholar Link)

	Rule extraction from binary neural networks with convolutional rules for model validation	
2021	S Burkhardt, J Brugger, N Wagner, Z Ahmadi, K Kersting, S Kramer	Frontiers in AI
	Federated stain normalization for computational pathology	
2022	N Wagner, M Fuchs, Y Tolkach, A Mukhopadhyay	MICCAI
	NeuralQAAD: an efficient differentiable framework for compressing high resolution consistent point clouds datasets.	
2022	N Wagner, U Schwanecke	VISIGRAPP
	SoftDECA: computationally efficient physics-based facial animations	
2023	N Wagner, M Botsch, U Schwanecke	SIGGRAPH on MIG
	SparseSoftDECA: efficient high-resolution physics-based facial animation from sparse landmarks	
2024	N Wagner, M Botsch, U Schwanecke	Computers & Graphics
	AnaConDaR: anatomically-constrained data-adaptive facial retargeting	
2024	N Wagner, M Botsch, U Schwanecke	Computers & Graphics
	NePHIM: a neural physics-based head-hand interaction model	
2025	N Wagner, M Botsch, U Schwanecke	Eurographics

Skills

Programming Languages	Python	(Very) Sound Knowledge
	C++	(Very) Sound Knowledge
	CUDA	Sound Knowledge
	Java, C#	Sound Knowledge
Frameworks - Excerpt	Weights & Biases, MLFlow, PyTorch, Numpy, Scipy, Sklearn, Pandas, Scikit, Tensorflow, FAISS, FastAPI, Streamlit, HF Transformers, FAISS, OpenMPI, OpenMP, Matplotlib, Determined, Apache Spark, Slurm	
Software - Excerpt	Terraform, LMStudio, Docker, Kubernetes, Enroot, Git, CMake, VSCode, CLion, PyCharm, Unity3D, Blender, Adobe Creative Suite, MySQL, SQLite, MongoDB, LangChain, LanceDB, Tableau	
Cloud	Azure, GCP	