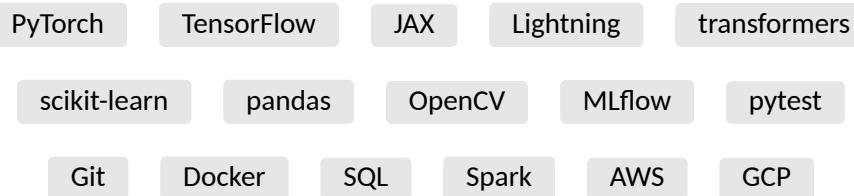


Dr. Joseph Nagel

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Experience

- since 2025 **Associate Director (Staff ML Engineer), Moody's Analytics, Munich**
Computer Vision on Aerial Imagery for Property Risk
• Finetuned ViT-based foundation models with LoRA and other PEFT techniques
• Ensured the quality of model predictions at new geographic locations in the context of international expansion
- 2024–2025 **Cofounder / Head of AI, Validaitor, Munich**
Startup for Safe and Trustworthy AI
• Helped raising €700k of pre-seed funding
• Implemented a platform for adversarial robustness assessment in the context of tabular data
• Finetuned LLMs for detecting and classifying toxicity of AI-generated texts
- 2021–2023 **ML Research Engineer, Epic Games, Munich**
R&D in Generative AI for 3D Animation
• Productized the C++ optimization problem solver of the Unreal Engine MetaHuman Animator®
• Improved motion capture through VAE-based prior models (90% reduction of end user complaints)
• Developed RNN and CNN algorithms for time series forecasting of future animation frames
• Enabled the style transfer between different emotions in an animation with GANs and DDPMs
- 2018–2021 **Senior Data Scientist, Airbus, Munich**
R&D for Robust Deep Learning and Computer Vision
• Initiated and led a research project on safety-critical AI
• Realized a confidence estimation POC for predicting the landing distance based on Bayesian neural networks
• Conducted a project on the robustness of visual collision avoidance during autonomous aircraft taxi
• Developed a 3D detector for material defects in CT scans of additive manufacturing (30% cost reduction)

Education

- 2012–2017 **PhD in Computational Science & Engineering, ETH Zurich, Switzerland**
Research in Machine Learning for Physical Simulations
Thesis: "Bayesian Techniques for Inverse Uncertainty Quantification" ([doi:10.3929/ethz-a-010835772](https://doi.org/10.3929/ethz-a-010835772))
Distinctions: ETH Medal, Prize by the Swiss Community for Computational Methods in Applied Sciences
Topics: Uncertainty Quantification • Statistical Inference • MCMC • Inverse Problems
Projects: Forecasting of urban river floods for risk assessment and decision-making • Dam breach uncertainty analysis from simulations and historical failure data • Prediction of the structural performance of masonry walls with brick-level data • Damage identification for a civil NASA aircraft from in-flight measurements
- 2005–2011 **Diploma in Physics, University of Bonn, Germany**
Specialization in Theoretical Physics and Scientific Computing
Thesis: "Lattice Quantum Chromodynamics on GPUs", **Grade:** 1.4