PAUL STARKE

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ABOUT

Paul Starke is a Research Engineer at Meta working on data-driven motion synthesis. Prior to Meta, he worked as a ML Engineer at Electronic Arts and has 4+ years of industry experience in AI/ML engineering, graphics, and vision. He completed a M.Sc. and B.Sc. in Informatics and his recent work on motion synthesis has been published on scientific venues and presented at industry media releases.

TECHNICAL SKILLS

Animation:	Neural Motion Generation, Inverse Kinematics, Character Controllers, Motion Matching, Motion Phase Alignment, Mocap Visualization, (Hand) Object-Interaction, Body Tracking
Programming:	C#, Python, PyTorch
Technology/Tools:	Unity3D, Unreal Engine, LaTeX, Blender
Artificial Intelligence:	Deep Learning, AI-assisted coding

EXPERIENCE

META **03/2025 – Present**
Research Engineer *Zurich, Switzerland*

- Owned first-generation models of GenAI Emotes, presented at Meta Connect 2025 and shipped to millions of Meta Horizon users. Led the end-to-end system into product; from data processing through training and inference. Built a novel algorithm that reduced body jitter and foot sliding from corrupted pose-estimated keypoints.
- Built and open sourced AI4AnimationPy, an R&D Python framework for motion data processing, training, and inference.
- Led mocap data capture and quality assurance (QA) workstreams with external vendors for optimal data quality.

KINETIX **11/2024 – 03/2025**
Research Engineer *Zurich, Switzerland*

- Development of (video-to-motion) model and a synthetic-data pipeline in Unreal Engine.

META **05/2023 – 11/2024**
Research Engineer *Zurich, Switzerland*

- Developed an AI-driven augmentation tool in Unity to generate novel character motion from mocap data, increasing Digital Human motion diversity by $O(N^9)$.
- Built a framework to learn motion evaluation from user feedback. Model detects motion artifacts such as foot sliding and unnatural movement; integrated it into animation workflows to speed up QA.
- Learning collision avoidance from random noise without requiring real geometry during training, enabling full-body, hand-to-hand, and hand-to-object collision avoidance behaviors in real time.
- Developed a contact-aware inverse kinematic based hand motion variation pipeline for generating hand-object interactions.
- Designed VR body tracking for a "generative legs" solution (see SIGGRAPH 2024 paper) and adapted the research to company needs such as ML-based NPC animation.

ELECTRONIC ARTS **10/2021 – 04/2023**
Machine Learning Engineer *Cologne, Germany*

- Owned an AI-driven animation authoring framework for cinematic sequence creation, saving 90% of animator time versus traditional keyframing and 99% versus mocap sessions.
- Researched state-of-the-art motion in-betweening for arbitrary skeletal characters (see SCA 2023 paper).
- Supported the integration of phase-based motion generators with mocap data for AAA titles such as FIFA 23.

UNIVERSITY OF HAMBURG **01/2021 – 06/2021**
Student Research Associate *Hamburg, Germany*

- Research on neural question answering and question generations.

DEPARTMENT OF APPLIED COMPUTER SCIENCE LEIPZIG **09/2019 – 10/2020**
Student Associate *Leipzig, Germany*

- Development of front- and backend for the university social network.

EDUCATION

UNIVERSITY OF HAMBURG **10/2020 – 02/2023**
Master of Science in Informatics *Hamburg, Germany*
- Specialization in Computer Vision, Machine Learning, Robotics, Game Programming, and NoSQL systems.
- Master thesis on developing a state-of-the-art AI-driven motion in-betweening system (see Projects).
- GPA: 1.6 (Germany)

UNIVERSITY OF LEIPZIG **10/2017 – 10/2020**
Bachelor of Science in Informatics *Leipzig, Germany*
- Specialization in 3D Graphics/Geometry and Database Management.
- Bachelor thesis on developing an Authoring tool for AI-driven quadruped animations (see Projects).
- GPA: 2.5 (Germany)

PUBLICATIONS

CATEGORICAL CODEBOOK MATCHING FOR EMBODIED CHARACTER CONTROLLERS **2024**
*Sebastian Starke, **Paul Starke**, Nicky He, Taku Komura, Yuting Ye* *ACM SIGGRAPH / TOG*

MOTION IN-BETWEENING WITH PHASE MANIFOLDS **2023**
***Paul Starke**, Sebastian Starke, Taku Komura, Frank Steinicke* *ACM SCA / TOG*

PROJECTS

AI4AnimationPy: Deep Learning for Character Animation [GitHub | 1800 stars] **2026 – Present**
Python, PyTorch, Raylib

AI4Animation: Deep Learning for Character Control [GitHub | 8.5k stars] **2020 – Present**
Unity3D, C#, PyTorch

Motion In-Betweening for Skeletal Characters [GitHub | 213 stars] **2022 – 2023**
Unity3D, C#, Frostbite, C++, PyTorch

Animation Authoring for Neural Quadruped Controllers [GitHub | 95 stars] **2020 – 2021**
Unity3D, C#, TensorFlow

SELECTED MEDIA

- **Two Minute Papers (Codebook Matching)** – YouTube
- **Unite 2024 – Runtime AI with Unity Sentis (AI4Animation)** – YouTube
- **Unity 6 (VR Motion Tracking)** – Unity release notes, YouTube

REFERENCES

Sebastian Starke, Research Scientist, Meta, sebastian.starke@mail.de
Aayush Prakash, Head of Machine Learning for Synthetic Data, Meta, aayushp@meta.com
Yilei Li, Research Scientist Manager, Meta, liyilui@gmail.com
Taku Komura, Professor, University of Hong Kong, taku@cs.hku.hk