Yunhan Wang

yunhan.wang@student.uni-tuebingen.de | Personal webpage

Education

University of Tübingen — **Tübingen, Germany**
MSc Machine Learning — *Expected Jul 2025*

- Specialize in machine learning and computer vision.
- Amazon Future Engineer Scholarship & Deutschlandstipendium.

Delft University of Technology — **Delft, Netherlands**
BSc Computer Science (Honours & Cum Laude) — *Sep 2020 - Jul 2023*

- Cumulative GPA: 8.7 (top 5%).
- Honours Programme Graduate.
- Minor in Mathematics & Finance: GPA 9.0.

Research Experience

Real Virtual Humans Group, Tübingen AI Center — **Tübingen, Germany**
Research Assistant; Advisor: Prof. Gerard Pons-Moll. — *April 2024 - Current*

- Simulated Kinect noise on 3D human point clouds to enhance robust data-driven 3D human registration.
- Contributed to SMPLAug, a library to augment 3D human data. Evaluated its effectiveness with SOTA models.
- Established a pipeline to estimate biomechanical data from large-scale mocap datasets.
- Investigated text-to-motion diffusion models with guided control for synthesizing 4D human-scene interaction.
- Leveraged the DINOv2 foundation model for non-rigid object registration from RGBD images.

Computer Vision Lab, TU Delft — **Delft, Netherlands**
Undergraduate Researcher (honours programme); Advisor: Prof. Xucong Zhang. — *May 2022 - Aug 2023*

- Researched multi-view Bayesian gaze estimation methods.
- Investigated vital factors that can boost gaze estimation performance. Developed state-of-the-art gaze estimation models in PyTorch.
- Contributed to GazeTech, an open-source gaze estimation framework for data preprocessing and model training.
- Research conducted in collaboration with Dr. Shalini De Mello (NVIDIA) and Prof. Hyung Jin Chang (Birmingham).

Thesis Researcher; Advisor: Prof. Jan van Gemert. — *April-Aug 2023*

- Researched efficient temporal action localization via vision-language modeling.
- Benchmarked the data and computational efficiency of recent temporal action localization models.
- Subsequent research has been accepted by the 2023 International Conference on Computer Vision, Workshop on AI for Creative Video Editing and Understanding.

Publication

Investigation of Architectures and Receptive Fields for Appearance-based Gaze Estimation
Yunhan Wang, Xiangwei Shi, Shalini De Mello, Hyung Jin Chang, Xucong Zhang. arXiv, 2023.

Benchmarking Data Efficiency and Computational Efficiency of Temporal Action Localization Models
Jan Warchocki*, Teodor Oprescu*, **Yunhan Wang***, Alexandru Damacus, Paul Misterka, Robert-Jan Bruintjes, Attila Lengyel, Ombretta Strafforello, Jan van Gemert. International Conference on Computer Vision, Workshop on AI for Creative Video Editing and Understanding, 2023.

(* denotes equal contribution)

Skills

Programming: Python, C++, Java, Scala, SQL, Unix, and R.

ML/3D stacks: PyTorch, NumPy, Scikit-learn, Pandas, OpenGL, Open3D, OpenCV, and SMPL.

Mathematics: Stochastic Calculus and Processes, Monte Carlo methods, Numerical methods, and Time Series.

Work Experience

Scenwise **The Hague, Netherlands**

Software Data Engineering Intern *April-June 2022*

- Developed a backend framework to extract and geolocalize data from social media channels to analyze crowd behaviors using computer vision and natural language processing methods.
- Developed a crowd counting and object detection tool to analyze crowd behaviors from public camera recordings
- Utilized the system to reduce city managers' crowd-managing efforts on a city-wide scale and the costs associated with collecting data from government physical sensors.
- Tech stacks: GeoPy, GeoPandas, OpenCV, NumPy, Spring Boot, PostGIS, and Docker.

CS Department, TU Delft **Delft, Netherlands**

Teaching Assistant *Sep 2022 - Feb 2023*

- Assisted *Algorithms and Data Structures*, *Big Data Processing*, and *AI Capstone Project*.
- Supervised student groups in developing AI-centered research projects proposed by academic staff.
- Assisted lecturers with course development to promote a positive learning environment.
- Helped students retain course knowledge using personalized teaching methods.