# Zheming Yin

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## Education

**University of Stuttgart (Currently enrolled in)** Stuttgart, Germany
*Electromobility (M.Sc)* *Apr. 2022 – Apr. 2025*
- GPA: 1.8 / 5.0 (1.0 is the best)
- Core courses: Deep Learning, Computer Vision, Detection and Recognition Pattern, Signal Processing, Communication NW

**German course at Agi Stuttgart** *Nov. 2021 – Feb. 2022*

**Northeastern University (985 & 211 Project)** Shenyang, China
*Vehicle Engineering (B.Sc)* *Sep. 2017 – Jun. 2021*
- GPA: 3.79 / 5.0 (Ranking 1 & 5.0 is the best)
- Core courses: Structure of Automobile, Design of Automobile, Machine Principle, Vehicle Intelligent Control Technology

## Experiments

**Working Student (Bosch, Feuerbach, Germany)** *Apr. 2024 – Apr. 2025*
- Extract vehicle signals from the database in Azure through API, preprocess and generate the required DataFrame with Pandas.
- Train and test the model using manually labeled or database tags, perform inference using the well-trained model
- Develop the inference processor and update the tags of sequences with the inference results through the database API.

**Research Assistant (IMSB & CAI Institutes, University of Stuttgart)** *May 2023 – Nov. 2024*
- Preprocess and visualize various datasets for training, such as ADT, Boxrr-23, Egobody, and other dataset.
- Optimize the models's hyperparameters and analyze the potential of dataset.
- Visualize the results for the paper, providing an intuitive comparison of the paper's advancements over other methods.

## Research

**HOIMotion: Forecasting Human Motion During Human-Object Interactions Using Egocentric 3D Object Bounding Boxes**
*Accepted at **ISMAR 2024** as **Best Journal Paper*** *Zhiming Hu, **Zheming Yin**, Daniel Haeufle, Syn Schmitt, Andreas Bulling*
- Extract and load the time-series signals from the ADT dataset, such as pose, quaternion, objects interacted with user, etc.
- Convert obj files to smpl files and plot multiple poses as well as objects in Egobody dataset with MeshLab application.
- Visualize the dataset dynamically and statically, draw the figures in the paper to show the comparity over multiple methods.

**HaHeAE: Learning Generalisable Joint Representations of Human Hand and Head Movements in Extended Reality**
*Accepted at **IEEE TVCG** in 2025* *Zhiming Hu, Guanhua Zhang, **Zheming Yin**, Daniel Haeufle, Syn Schmitt, Andreas Bulling*
- Extract the dataset of Boxrr-23 and develop a new visualization approach.
- Add the Gaussian noise to the dataset and plot the stochastic representation as well as clustering.

**Hybrid baseband simulation for single-channel radar-based indoor localization system**
*Submitted at **IRS 2025**, Dec.2024* *Sven Hinderer, **Zheming Yin**, Athanasios Papanikolaou, Jan Hesselbarth, Bin Yang*

**Research thesis: Ray tracing channel simulation for millimeter wave indoor localization system**
*Grad: 1.3 / 1.0, at ISS institute, University of Stuttgart* *Jan. 2024 – Jul. 2024*
- Apply the raytracing in Matlab to simulate the channel impulse response and received signal in the room built with Blender.
- Design and simulate the anisotropic antenna's radiation pattern and radar cross section.
- Evaluate the received baseband signal with range-Doppler map and constant false alarm rate target detection.

**Master thesis: Range-Doppler map upsampling for single channel chirp sequence radar using Deep Learning**
*Grad: 1.3 / 1.0, at ISS institute, University of Stuttgart* *Oct. 2024 – Apr. 2025*
- Collect high-resolutional data cubes using Infineon radar sensor.
- Proposal to design the Transformer and GAN networks as well as a novel loss function to improve upsampling capability.
- Evaluate the super-resolutional data with different visualisations and compare with other models and classical methods.

**Bachelor thesis: Braking System Design based on Polestar 1**
*Grad: A, at Vehicle Engineering, Northeastern University* *Nov. 2020 – Jun. 2021*
- Calculate and design the parameters of the braking system based on the basic parameter of the Polestar 1 model.
- Draw 2D and 3D drawings with AutoCAD and Solidworks, and verify the braking force and thermodynamics with ANSYS.

## Projects

**Diabetic Retinopathy Detection & Human Activity Recognition** *Oct. 2022 – Feb. 2023*

- Import fundus images and time-series sequential signals with the format TFRecord, augmentate and balance the dataset.
- Build the models VGG, ResNet, LSTM, etc. using Tensorflow, ensemble learning, tune the hyperparameters with WandB.
- Evaluate and visualize the results with confusion matrix, ROC curve, Grad-CAM, cluster classes with dimension reduction.

**Automobile Path Tracking and Cruising** *Sep. 2020 – Dec. 2020*

- Set the simulation scenery and car information such as speed and angle of steering wheel in CARSIM.
- Build the PID and fuzzy control algorithm in Matlab/Simulink, combine with CARSIM to visualize the car operations.

## Skills & Interests

**English**: IELTS 6.5 (Listening 6.0, Reading 7.5, Writing 6.5, Speaking 6.0), CET-6, CET-4

**German**: Goethe Certificate C1, TestDAF 17 (Reading 5/5, Listening 4/5, Writing 4/5, Speaking 4/5)

**Chinese**: Native speaker

**Interests**: Photography, Travel, Car