Ahmet Hamdi Güzel

ahmet.guzel.23@ucl.ac.uk ahmethamdiguzel
https://aguzel.github.io Google Scholar

PhD candidate in Foundational AI at UCL developing curriculum learning and synthetic data generation methods for open-ended agent training that scales to real-world environments. My NeurIPS 2025 work (IMAC) uses world models to generate diverse imagined environments, enabling zero-shot generalization without environment interaction. Currently extending these world model and curriculum learning approaches to improve embodied agent performance in real-world applications. Additionally completed a year as an AI research intern developing real-time rendering systems and computer vision application. Brings a decade of experience from motorsport and automotive engineering, where I bridged traditional numerical methods with deep learning for real-time performance optimization and accelerated design cycles.

Employment History

09/2024 – · · · · **Teaching Assistant,** University College London Computer Science Department
Open-Endedness and General Intelligence, Deep Learning for Natural Language Processing, Object-Oriented Programming for Robotics and AI

09/2022 – 08/2023 **AI Research Intern,** Huawei Technologies Research UK Ltd.
Developed deep learning methods for real-time computer graphics rendering and procedural virtual world generation, achieving 3x inference speedup for interactive environments.

06/2022 – 09/2022 **Computer Vision Research Intern,** University College London VECG Lab.
Optimized deep learning models for real-time AR/VR rendering, achieving low-latency inference for immersive applications on edge devices.

10/2020 – 09/2021 **Lead Research Engineer,** AEM Motorsports Division, UK
Built data-driven models for motor efficiency prediction in electric vehicles, accelerating design iteration cycles from days to hours.

10/2016 – 09/2020 **Principal Research Engineer,** Helix Motorsports Divison, UK
Designed numerical methods for electromagnetic performance calculation surrogate models for complex engineering systems, bridging traditional numerical methods with modern deep learning approaches.

09/2011 – 09/2016 **Research Engineer,** Ford Motor Company, Türkiye
Engineered large-scale simulation frameworks for internal combustion engine analysis.

Education

2024 – **Ph.D. University College London** Foundational Artificial Intelligence
Developing world models for synthetic data generation and curriculum learning to train generalist agents with zero-shot generalization capabilities.

2021 – 2023 **M.Sc. Artificial Intelligence, University of Leeds** with Distinction
Thesis title: *Designing an Efficient Image-to-Image Translation Artificial Neural Network Model for Segmenting Fashion Images*.

2007 – 2011 **B.Sc. Computational Engineering, Istanbul Technical University**
Thesis title: *Development of Numerical Methods for Multi-Joint Dynamic System Simulation.*

Research Publications

1. A. H. Güzel, M. T. Jackson, J. L. Liesen, *et al.*, "Imagined autocurricula," in *Accepted - NeurIPS 2025*, OpenReview, 2025. URL: https://openreview.net/forum?id=zXlB9A5xya.
2. A. H. Güzel, I. Bogunovic, and J. Parker-Holder, "Synthetic data is sufficient for zero-shot visual generalization from offline data," *Transactions on Machine Learning Research*, 2025, ISSN: 2835-8856. URL: https://openreview.net/forum?id=gFmSFa408D.
3. A. H. Güzel, J. Beyazian, P. Chakravarthula, and K. Akşit, "Chromacorrect: Prescription correction in virtual reality headsets through perceptual guidance," *Biomed. Opt. Express*, vol. 14, no. 5, pp. 2166–2180, May 2023. DOI: 10.1364/BOE.485776.
4. A. H. Güzel, P. Lai, and S. Westland, "Designing efficient image-to-image translation artificial neural network model for segmenting fashion images," in *Proceedings of the Intelligent Systems Conference (IntelliSys)*, Accepted, 2024.

Awards and Research Supervision

Master Thesis Supervision

2025
- Offline Diffusion World Models for Continuous, Visual Observations - UCL
- World Models for Scalable Planning at Inference Time - UCL

Awards and Achievements

- **3rd Place Winner**, UCL AI CDT Summer Research Poster Competition- UCL/G-Research

2024
- **Best Poster Award**, UKRI AI CDT Conference - UKRI

2023
- **UKRI Full Research Scholarship**, AI CDT Program, University College London

2022
- **Kaggle Competition Winner**, Image Classification on TinyImageNet30, University of Leeds https://www.kaggle.com/competitions/leedsimageclassification/leaderboard