Ahmed Tawfik Aboukhadra

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ATAboukhadra https://ataboukhadra.github.io/ GScholar

Experience

2021 – Present **Researcher,** DFKI — Augmented Vision, Kaiserslautern, Germany.
Designing fast and accurate models for hand–object 3D reconstruction using Deep Learning methods such as Transformers, Foundation Models, and Gaussian Splatting.

2021 **Research Intern,** CISPA Helmholtz Center, Saarbrücken, Germany.
Investigated robustness and adversarial defenses for deep neural networks.

2020 **Machine Learning Intern,** HackerOne, Groningen, Netherlands.
Improved duplicate vulnerability detection using BERT-based NLP systems.

Education

2021 – Present **Ph.D., Computer Science,** RPTU Kaiserslautern, Germany.
Research focus: Hand-Object 3D Reconstruction.

2019 – 2021 **M.Sc., Artificial Intelligence,** Maastricht University, Netherlands. GPA: 8.33/10.
Thesis: *Defenses Against Adversarial Attacks on Deep Convolutional Networks* (at CISPA).

2014 – 2019 **B.Sc., Computer Science & Engineering,** German University in Cairo (GUC), Egypt.
GPA: 1.06 (A).

Publications

1. A. T. Aboukhadra, M. Rogge, N. Robertini, *et al.*, "Ghost: Fast category-agnostic hand-object interaction reconstruction from rgb videos using gaussian splatting," **Under review at CVPR 2026. 1st Place Solution — ARCTIC Challenge, 9th HANDS Workshop @ ICCV 2025**.
2. A. T. Aboukhadra, J. Malik, N. Robertini, A. Elhayek, and D. Stricker, "Shapegraformer: Graformer-based network for hand-object reconstruction from a single depth map," *IEEE Access*, vol. 12, pp. 124 021–124 031, 2024.
3. A. T. Aboukhadra, N. Robertini, J. Malik, A. Elhayek, G. Reis, and D. Stricker, "Surgeonet: Realtime 3d pose estimation of articulated surgical instruments from stereo images using a synthetically-trained network," in *DAGM German Conference on Pattern Recognition*, Springer, 2024, pp. 199–211.
4. A. T. Aboukhadra, J. Malik, A. Elhayek, N. Robertini, and D. Stricker, "Thor-net: End-to-end graformer-based realistic two hands and object reconstruction with self-supervision," in *Proceedings of the IEEE/CVF Winter Conference on Applications of Computer Vision (WACV)*, Jan. 2023, pp. 1001–1010.

Skills

Programming — Python, PyTorch, Java, C/C++, Bash.

Deep Learning & Computer Vision — Foundational Models, Transformers, GCNs, Gaussian Splatting, 3D Reconstruction, Mesh Processing, Pose Estimation, Self-Supervised Learning.

Tools & Dev — Git, Linux, OpenCV, NumPy/Pandas, TensorBoard, HPC environments.