

# Ahmed Tawfik Aboukhadra

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📄 ahmed-tawfik-aboukhadra

🐙 ATAboukhadra

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🎓 GScholar



## Experience

- 2021 – Present **Researcher**, DFKI — Augmented Vision, Kaiserslautern, Germany.  
Research on hand-object 3D reconstruction using Gaussian Splatting, Transformers, GCNs, 3D CNNs, and Foundation Models — spanning pose estimation, depth-based shape reconstruction, and neural rendering. **GHOST** (CVPR Findings 2026): **1st Place** ARCTIC Challenge @ ICCV 2025. Co-supervised MSc students; guest lectures at RPTU on GCNs & Transformers for 3D Pose Estimation (Nov 2022, 2023).
- 2021 **Research Intern**, CISPA Helmholtz Center, Saarbrücken, Germany.  
Investigated robustness and adversarial defenses for deep neural networks (Master thesis).
- 2020 **Machine Learning Intern**, HackerOne, Groningen, Netherlands.  
Improved duplicate vulnerability report detection by +5% using BERT-based NLP systems.
- 2018 **Deep Learning Intern**, Ulm University, Germany.  
Bachelor thesis: Arabic OCR using CNNs (Python, TensorFlow/Keras).

## 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).

## Skills

- Programming **Python, PyTorch, C/C++, Java, Bash.**
- Deep Learning & Computer Vision **Gaussian Splatting, Transformers, GCNs, Foundation Models, 3D Reconstruction, Neural Rendering, Pose Estimation, Self-Supervised Learning, Segmentation (SAM2), Diffusion Models.**
- GenAI & LLMs **LLM API orchestration (Gemini, GPT), RAG pipelines, Agentic workflows, HuggingFace Transformers.**
- Tools & Infra **Git, Linux, OpenCV, TensorRT, SLURM/HPC, Docker, NumPy/Pandas,  $\LaTeX$ .**
- Awards **1st Place ARCTIC Challenge @ ICCV 2025 · UM Holland High-Potential Scholarship €58K · ECPC 2017 Finalist (13th) · ACPC 2017 Finalist (28th).**

## Publications

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- 1 **A. T. Aboukhadra**, M. Rogge, N. Robertini, *et al.*, “Ghost: Fast category-agnostic hand-object interaction reconstruction from rgb videos using gaussian splatting,” in *CVPR Findings*, 1st Place Solution — ARCTIC Challenge, 9th HANDS Workshop @ ICCV 2025, 2026.
- 2 H. A. Jillani, **A. T. Aboukhadra**, A. Elhayek, J. Malik, N. Robertini, and D. Stricker, “Fast-hamer: Boosting hand mesh reconstruction using knowledge distillation,” in *VISAPP*, 2026.
- 3 **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.
- 4 **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 GCPR*, Springer, 2024, pp. 199–211.
- 5 **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 *WACV*, Jan. 2023, pp. 1001–1010.