Mohab Kishawy

Portfolio: ErrorLogic1211.github.io
Github: ErrorLogic1211
Google Scholar: Mohab Kishawy

Email: KishawyM@mcmaster.ca
Mobile: +1-905-937-8708
LinkedIn: mohab-m-eid
OrcID: 0000-0003-0679-7068

Education

- **McMaster University** — Ontario, Canada
  Doctor of Philosophy in Engineering - Computer Engineering; GPA: 11/12 — *Sep 2023 - Aug 2026 (Exp)*
  Advisor: *Prof. Jun Chen*

- **Nile University** — Giza, Egypt
  Bachelor of Science in Engineering - Computer Engineering; GPA: 3.7/4 — *Sep 2018 - May 2023*
  Advisor: *Dr. Mohamed S. Darweesh*

Experience

- **Computer Vision Researcher** — Ontario, Canada
  McMaster University — *Sep 2023 - Present*
  - **Low Vision**: Designing unified image restoration and enhancement approaches.
  - **3D Vision**: Harnessing 3D representations as 3D Gaussian Splatting, Neural Radiance Fields (NeRFs) for 3D reconstruction, restoration, and editing using generative models as Diffusion and flow-based models.

- **Machine Learning Researcher** — Cairo, Egypt
  Helwan University - Electronics and Computer Engineering lab — *Dec 2021 - Dec 2022*
  - **Project**: Designed an automated lab evaluation system using mouse tracking.
  - **Optmization**: Reduced grading time by 32 hours per academic term.
  - **Impact**: Co-authored a research article in IEEE Access and a conference paper presented at the 14th CICN.

- **Research Assistant** — Giza, Egypt
  Nile University - WINC Research Center — *Feb 2021 - Aug 2021*
  - **Agriculture**: Developed a plant disease detection system using a modified CNN.
  - **AVs**: Researched and implemented a federated learning-based lane segmentation model for autonomous vehicles

Publications

2025 **Kishawy M.**, Hussein, A. A., and Chen, J. "RetinexDual: Retinex-based Dual Nature Approach for Generalized Ultra-High-Definition Image Restoration." *arXiv preprint* arXiv:2508.04797, 2025. arXiv:2508.04797

2025 L iu, X., Wu, Z., Vasluianu, F. A., . . . , **Kishawy, M.**, Chen, J., . . . , and Yu, C. "NTIRE 2025 Challenge on Low Light Image Enhancement: Methods and Results." In *2025 IEEE/CVF Conference on Computer Vision and Pattern Recognition Workshops (CVPRW)*, pages 1196–1206, 2025. doi:10.1109/CVPRW67362.2025.00114

2024 **Eid Kishawy, M. M.**, Abd El-Hafez, M. T., Yousri, R., and Darweesh, M. S. "Federated learning system on autonomous vehicles for lane segmentation." *Scientific Reports* **14**(1), 2024. doi:10.1038/s41598-024-71187-8

2024 Ancuti, C. O., Ancuti, C., Vasluianu, F.-A., Timofte, R., . . . , **Kishawy, M**, . . . , and others. "NTIRE 2024 Dense and Non-Homogeneous Dehazing Challenge Report." In *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR) Workshops*, pages 6453–6466, June 2024. doi:10.1109/CVPRW63382.2024.00646

2022 Abd El-Haleem, A. M., **Eid, M. M.**, Elmesalawy, M. M., and Hosny, H. A. "A generic AI-based technique for assessing student performance in conducting online virtual and remote controlled laboratories." *IEEE Access* **10**:128046–128065, 2022. doi:10.1109/ACCESS.2022.3227505

2022 Hassan, H. A., **Eid, M. M.**, Elmesalawy, M. M., and Abd El-Haleem, A. M. "A new intelligent system for evaluating and assisting students in Laboratory Learning Management System." In *2022 14th International Conference on Computational Intelligence and Communication Networks (CICN)*, 2022. doi:10.1109/CICN56167.2022.10008322

2022 El-Lamey, M. M., **Eid, M. M.**, Gamal, M., Bishady, N.-E. M., and Mohamed, A. W. "Using Machine Learning Algorithms for Breast Cancer Diagnosis." In *Research Anthology on Medical Informatics in Breast and Cervical Cancer*, pages 768–791. IGI Global, July 2022. doi:10.4018/978-1-6684-7136-4.ch041

2021 El-Lamey, M. M., **Eid, M. M.**, Gamal, M., Bishady, N.-E. M., and Mohamed, A. W. "Using Machine Learning Algorithms for Breast Cancer Diagnosis." *International Journal of Applied Metaheuristic Computing* **12**(4):117–137, October 2021. doi:10.4018/ijamc.2021100107

2021 Ibrahim, A. M., Bishady, N. E. H. M., Elghalban, S. H., Mostafa, N. N., **Eid, M. M.**, and Abdelhamid, K. M. "Modelling and Analysis the Population Density Effect on the Infectiousness Rate of COVID-19 Novel Virus and the Mortality Rate Percentage Regarding Oxford's Stringency Index Model of Governmental Response in MATLAB" In *Artificial Intelligence for COVID-19*, pages 437–462. Springer, 2021. doi:10.1007/978-3-030-69744-0_25

2020 Ibrahim, A. M., **Eid, M. M.**, Mostafa, N. N., Mohamed Bishady, N. E.-H., and Elghalban, S. H. "Modeling the effect of population density on controlling Covid-19 initial Spread . . . " In *2020 2nd Novel Intelligent and Leading Emerging Sciences Conference (NILES)*, October 2020. doi:10.1109/niles50944.2020.9257960

Skills Summary

- **Languages**: English (Fluent), Arabic (Native)
- **Programming Languages**: Python, C\C++, Bash, JAVA, MATLAB
- **Frameworks and tools**: PyTorch, TensorFlow, YOLO/SAM, Diffusers, Scikit, NLTK, HuggingFace, PyGame, timm, gTTS, MatPlotlib, WANDB, FireBase, OpenCV, Linux, Bash, Git/GitHub
- **Concepts**: Computer vision, Image Restoration, 3D Reconstruction, 3D Gaussian Splatting, NeRFs, NLP, Federated Learning, Distributed systems, Data Structures, Algorithms, Version Control, Object Oriented Programming, Embedded Systems

Selected Projects

- **RetinexDual (Low-Level Vision, Deep Learning)**: State-of-the-art deep learning model utilizes Retinex theory dual nature for UHD Unified image restoration and enhancement. Outperforms existing methods on multiple benchmarks. Tech: Python, PyTorch, CUDA, OpenCV, Mamba, WANDB, timm, BasicSR (2024)
- **Federated Learning System on Autonomous Vehicles for Lane Segmentation (Federated Learning, Deep Learning, Autonomous Driving)**: Distributed training of U-Net-based lane segmentation model across vehicle edge devices using federated learning to preserve privacy while improving global performance. Published paper with significant results on real-world driving datasets. Tech: Python, Tensorflow, Flower (FL framework), OpenCV, NVIDIA Jetson/TensorRT, distributed learning(2023)
- **A Generic AI-Based Technique for Assessing Student Performance (Educational Data Mining, Machine Learning)**: Published research proposing a novel AI framework for predicting and analyzing student academic performance using multimodal data. Tech: Python, Scikit-learn, Pandas, TensorFlow, Statistical Analysis (2022–2023)
- **Braille to Text & Text-to-Speech Converter (Computer Vision, Image Processing)**: Real-time system that detects Braille dots from images, decodes them into text, and converts the output to speech. Includes contour detection, custom sorting logic, and gTTS integration. Tech: Python, OpenCV, NumPy, imutils, gTTS, Pygame (2021)
- **Cancer Detection Through Handwriting Analysis (Deep Learning, Transfer Learning, Computer Vision)**: Developed a CNN model using VGG16 transfer learning to detect cancer indicators from handwriting patterns. Achieved 96% validation accuracy on a small dataset via feature extraction and fine-tuning. Tech: Python, Keras, TensorFlow, OpenCV, NumPy, Matplotlib (2020)

Honors and Awards

- **2nd Place**: NTIRE 2025 Challenge on Low-Light Image Enhancement, CVPR Workshops 2025
- **4th Place**: NTIRE 2024 Dense and Non-Homogeneous Dehazing Challenge, CVPR Workshops 2024
- **Full Scholarship**: Ph.D. Computer Engineering, McMaster University 2023–2027
- **1st Place Winner**: Hacktrick AI Hackathon, Dell Technologies 2023
- **Best Solution Challenge Chapter (Global)**: Google Developer Student Clubs 2022
- **Shield of Contribution**: School of Engineering & Applied Sciences, Nile University 2022
- **Dean's Honor List (GPA > 3.75/4.00)**: Fall & Spring semesters, Nile University 2021
- **Full Scholarship**: B.Sc. Computer Engineering, Nile University 2018–2023
- **3rd Place (Embedded Systems)**: Intel International Science and Engineering Fair (ISEF) 2017
- **Bronze Medal**: Egyptian Olympiad in Informatics (EOI) 2015

Leadership & Volunteer Experience

- **Lead, Google Developer Student Clubs (GDSC)** — Nile University, Cairo, Egypt
  Led 500+ students • Organized workshops,and hackathons with Google Community — *2021 – 2022*
- **Deep Learning Instructor, Root Student Club** — Nile University, Cairo, Egypt
  Designed & taught 6-month DL bootcamp to 120+ students — *2021*
- **Senator, Nile University Student Union** — Nile University, Cairo, Egypt
  Elected student representative • Advocated for academic and extracurricular reforms — *2019 – 2021*
- **Instructor, International Collegiate Programming Contest (ICPC)** — Nile University, Cairo, Egypt
  Trained competitive programming teams in advanced algorithms and problem-solving — *2019 – 2020*
- **Technical Member, IEEE Student Branch** — Nile University, Cairo, Egypt
  Contributed to technical events, seminars, and project exhibitions — *2018 – 2019*