Md. Kamrul Hasan

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https://med-ai.netlify.app/
https://github.com/kamruleee51
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[**Citations**: 1407, **h-index**: 20, and **i10-index**: 26] [**Scholar Profile Link**]

Education

2022 – Till date — **PhD in Computational Medical Imaging**, Imperial College London (ICL), London, UK.
Thesis title (tentative): *Congenital Heart Malformation Detection from 4D (3D+time) Fetal Echocardiography Using Deep Learning.*
Results: Running

2017 – 2019 — **MSc in Medical Imaging and Applications**, University of Burgundy (France), University of Cassino and Southern Lazio (Italy), and University of Girona (Spain).
Thesis title: *Detection, Segmentation, and 3D Pose Estimation of Surgical Tools Using Deep Convolutional Neural Networks and Algebraic Geometry [**Link**].*
[The thesis has been published in **Medical Image Analysis** (Elsevier)].
Results: Marks of **8.48** out of **10.0**

2015 – 2017 — **MSc in Electrical and Electronic Engineering**, Khulna University of Engineering & Technology, Khulna-9203, Bangladesh.
Thesis title: *Effective Electrode Position and Feature Selection for EEG-based Epilepsy Detection.*
Results: CGPA of **4.00** out of **4.00**

2009 – 2014 — **BSc in Electrical and Electronic Engineering**, Khulna University of Engineering & Technology, Khulna-9203, Bangladesh.
Thesis title: *A Direct Non-invasive Brain Interface with Computer Based on Steady-state Visual-evoked Potential with High Transfer Rates.*
Results: CGPA of **3.93** out of **4.00** [*Secured **first** position in the class out of **115** students*]

Employment History

2024 – Present — **Graduate Teaching Assistant.** Department of Bioenginnering, Imperial College London, UK.

2022 – Present — **Research Postgraduate.** Department of Bioenginnering, Imperial College London, UK.

2015 – Present — **Teaching Staff (On Leave).** Department of Electrical and Electronic Engineering, Khulna University of Engineering & Technology, Khulna-9203, Bangladesh.

2018 – 2019 — **Research Intern.** EnCoV research team, Clermont-Ferrand, France.

Skills

Languages — Strong reading, writing, listening, and speaking skills in English and native Bangla.

Coding — Python, MATLAB, C/C^{++}, R, and DL APIs (Pytorch, Keras, Tensorflow).

Frameworks — OpenCV, VLFeat, Nibabel, Pydicom, Elastix, ITK-SNAP, MITK, MeshLab, ImageJ, Jupyter Notebook, and KUKA Control Toolbox.

Image modalities — MRI (2D/3D), CT (2D/3D/4D), Ultrasound (2D/3D/4D), Mammography, X-ray, Dermoscopic, Laparoscopic, Fundus, and Natural Images.

Miscellaneous — Latex, MS Power-BI/word/window/kinect, Linux, academic research, teaching, training, team-work & collaboration, and student supervision.

Awards and Achievements

2022 — **EPSRC-DTP SCHOLARSHIP**, The Department of Bioengineering, Imperial College London, provides this award for covering the total tuition fees and a stipend of a Ph.D. student.

Awards and Achievements (continued)

2018 **UNIVERSITY GOLD MEDAL** from the Chancellor of KUET, the President of Bangladesh, for achieving a minimum CGPA of 3.75 (out of 4.0) and ranking first in class.

2017 **ERASMUS MUNDUS SCHOLARSHIP**, The Erasmus Mundus Program supports European top-quality Master Courses and enhances the visibility and attractiveness of European higher education.

2014 **DEANS AWARDS and HONORS (4-times)**, Deans Awards and Honors for securing a minimum CGPA of 3.75 or above (out of 4.0) in each academic year.

Selected Research Publications

1. Hasan, M. K., Zhu, H., Yang, G., & Yap, C. H. (2023). Multi-scale, data-driven and anatomically constrained deep learning image registration for adult and fetal echocardiography. *arXiv e-prints*, arXiv–2309.
2. Hasan, M. K., Alam, M. A., Elahi, M. T. E., Roy, S., & Martı, R. (2021). DRNet: Segmentation and localization of optic disc and fovea from diabetic retinopathy image. *Artificial Intelligence in Medicine*, *111*, 102001.
3. Hasan, M. K., Calvet, L., Rabbani, N., & Bartoli, A. (2021). Detection, segmentation, and 3d pose estimation of surgical tools using convolutional neural networks and algebraic geometry. *Medical Image Analysis*, *70*, 101994.
4. Hasan, M. K., Roy, S., Mondal, C., Alam, M. A., Elahi, M. T. E., Dutta, A., Raju, S. T. U., Jawad, M. T., & Ahmad, M. (2021). Dermo-DOCTOR: A framework for concurrent skin lesion detection and recognition using a deep convolutional neural network with end-to-end dual encoders. *Biomedical Signal Processing and Control*, *68*, 102661.
5. Hasan, M. K., Alam, M. A., Das, D., Hossain, E., & Hasan, M. (2020). Diabetes prediction using ensembling of different machine learning classifiers. *IEEE Access*, *8*, 76516–76531.
6. Hasan, M. K., Dahal, L., Samarakoon, P. N., Tushar, F. I., & Martı, R. (2020). DSNet: Automatic dermoscopic skin lesion segmentation. *Computers in Biology and Medicine*, *120*, 103738.

Selected Projects

- "Non-rigid 3D lung CT (4DCT) registration"; ***Supervisor:*** Dr. Robert Marti and Dr. Rafael Garcia Campos, UdG, Spain; ***Materials:*** MATLAB, Elastix, and ITK-SNAP.
- "Inverse kinematic controller to emulate a screwing movement of a KUKA manipulator (6-DoF)"; ***Supervisor:*** Prof. Dr. Gianluca Antonelli, UNICAS, Cassino, Italy; ***Materials:*** MATLAB and KUKA Control Toolbox.
- "3D scanner implementation using C^{++} and kinect-v2"; ***Supervisor:*** Prof. Dr. Y. Fougerolle, University of Burgundy (UB), France; ***Materials:*** C^{++}, OpenCV, SURF, SIFT, *etc.*

References

Available on request