MD ENAMUL HOQ

Quantitative Imaging | Machine Learning | Deep Learning | Foundation Model

+1 9856026909 mhoq@uams.edu https://github.com/Enamul-Hoq https://www.linkedin.com/in/mhoq89/
Little Rock, Arkansas https://enamul-hoq.github.io/myWebsite/index.html

SUMMARY

Innovative Biomedical Informatics researcher with over **3 years** of experience specializing in AI applications in medical imaging. Expertise in developing **foundation models** for lung cancer screening CT images, enhancing diagnostic accuracy and clinical workflows. International exposure in research and development in **Germany, Vietnam, and Taiwan**, with proficiency in **Python, TensorFlow, PyTorch**, and medical imaging standards like **DICOM** and **PACS**. Proven ability to lead interdisciplinary teams, manage large datasets, and collaborate with healthcare providers. Passionate about leveraging **quantitative imaging** and **machine learning** for real-world healthcare solutions.

EXPERIENCE

Graduate Researcher Assistant

University of Arkansas for Medical Sciences

07/2021 - Present Little Rock, AR

Working independently to apply AI in Medical Imaging. My PhD thesis is to build a Foundation Model for Lung Cancer Screening CT images.

- **Developing foundation models** for over **20M CT screening images**, resulting in a **Significant increase** in diagnostic accuracy.
- Built **end-to-end machine learning pipelines** for processing and evaluating medical images, improving analysis speed and efficiency.
- Applied **AI techniques** (segmentation, registration, classification) to multiple imaging modalities (MRI, CT, ultrasound).
- Integrated models into clinical workflows, ensuring compliance with **DICOM** and **PACS** standards.
- Collaborated with **15+ interdisciplinary teams** of radiologists, clinicians, and computer scientists.
- **Achievements**: **1) 2nd place** at the Datathon.org competition (Emory University).
- **2)** Presented a poster at the **NCI-EDRN Conference** (Caltech).
- **3) Led the AI in Imaging Informatics section** for the **Emory-CXR dataset** project and successfully completed **embedding of half a million images** using **RAD-DINO**.
- **4)** Received **two travel grants** (SCCM and HITLAB) to present research.
- **5)** Completed a project titled "Renal Replacement Therapy following IV Contrast Administration in Critically Ill Patients with CKD" at the **Society of Critical Care Medicine Conference** (SCCM).

Graduate Research and Teaching Associate

Southeastern Louisiana University

08/2019 - 12/2020 Hammond, LA

Assisted within the university's Physics and Chemistry faculty and worked independently to apply Digital Image Correlation in LDPE film deformation.

- Developed MATLAB algorithms for **digital image correlation** in LDPE film deformation analysis.
- Assisted in debugging codes for **13+ senior researchers** across physics and computer science faculties.
- Visualized deformation patterns using MATLAB, including mathematical modeling, **contour plots and animations**.
- Presented research to **200+ attendees** at the APTEC Conference, enhancing visibility and impact.
- Taught **undergraduate Physics 101 and 102**, providing hands-on lab instruction and lectures.
- Completed advanced coursework in computational physics through one-on-one mentorship with Prof. Dr. Sanichiro Yoshida.

SKILLS

Python C++ Java MATLAB
TensorFlow PyTorch Keras CNN
DL FM DICOM HL7 RADLEX
SNOMED 3D Slicer ITK-SNAP
HPC Google Cloud AWS

EDUCATION

Ph.D. - Biomedical Informatics (Imaging Track)

University of Arkansas for Medical Sciences

2021 - Present Little Rock, AR

Master in Physics (Computing)

Southeastern Louisiana University

2019 - 12/2020 Hammond, LA

B.S. in Mechatronics Engineering(Biomedical Track)

World University of Bangladesh

01/2010 - 04/2014 Dhaka, Bangladesh

TRAINING / COURSES

Certified The National Imaging Informatics Course (NIIC)
by RSNA, DPA and SIIM

Certified Documentation and Usability for Cancer Informatics and IIP BootCamp
by Johns Hopkins University and SIIM

Took numerous graduate-level courses ranging from Medicine to AI and Graduate Certificate in Medical Imaging
by University of Arkansas for Medical Sciences

INDUSTRY EXPERTISE

Medical Imaging

EXPERIENCE

Research and Development Engineer

TN Solution in Vietnam and Germany

08/2017 - 07/2018
Karlsruhe, Germany and Ho Chi Minh City, Vietnam

Worked with a team as a team leader in different projects ranging from image processing to signal processing

- Specialized in the design and implementation of various sensors, signal processing techniques, and Internet of Things (IoT) applications.
- Led **signal processing** projects to diagnose faults in PCBs, analyzing signals to detect open and short circuits.
- Improved signal-to-noise ratios by filtering interference, enhancing system reliability and performance.

Research Internship

National Cheng Cheng University

09/2018 - 02/2019 Chiyai, Taiwan

Worked as a Research Assistant in Prof. Dr. Wen-Nung Lie's Multimedia Lab

- Developed **depth estimation algorithms** for **2D to 3D video conversion**, enhancing depth perception in multimedia content.

INDUSTRY EXPERTISE

Programming Languages

AI,ML&DL

REFERENCES

Prof. Dr. Fred W Prior

Distinguished Professor and Chair
Department of Biomedical Informatics, UAMS
Mobile: +1 (314) 303-2485
e-mail: FWPrior@uams.edu

Prof. Dr. Sanichiro Yoshida

Professor at Department of Chemistry and Physics, SELU
Mobile: +1 (985) 549-3943
e-mail: sanichiro.yoshida@southeastern.edu