MD ENAMUL HOQ

Quantitative Imaging | Machine Learning | Deep Learning | Foundation Model

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📍 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.

- **Developed foundation models** for over **500M CT screening images**, resulting in a **20% 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.

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.

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

- 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

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