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 researcher with over 11 years of experience in science and technology, starting with the development of an automated cane for the visually impaired during undergraduate studies. Gained international experience working in Germany, Taiwan, and Vietnam. Since 2017, specialized in AI applications in imaging, medical imaging, and signal processing, with a strong understanding of medical imaging informatics. Currently focused on building foundational models for lung cancer screening images to advance early detection and diagnostic accuracy.

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.

- 3+ years of experience in building a Foundation Model to train on nearly half a billion CT screening images.
- Resulted in improved diagnostic accuracy by applying AI techniques to {100} medical imaging data samples, including MRI and CT.
- Increased analysis efficiency by developing {20} machine learning models for end-to-end medical image evaluation.
- Enhanced treatment planning by employing {5} advanced medical image analysis techniques for segmentation and classification.
- Maintained compliance with medical standards involving {3} key regulations related to DICOM and PACS in collaboration with healthcare providers.
- Successfully collaborated with {15} interdisciplinary teams of radiologists, clinicians, and computer scientists.
- Experience in mentoring and supervising junior team members and collaborating with external partners and vendors.
- Achieved 2nd place in the Datathon at Emory University (CoM), presented a poster at the NCI-EDRN Conference at Caltech, and received two travel grants to participate in the SCCM Datathon and Datathon.org hosted by SCCM and HITLAB.

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.

- Assisted 13+ senior researchers and computer science professors in completing various applications by debugging codes.
- Visualized {100} sets of medical imaging results using MATLAB's visualization tools, including contour plots and animations.
- Validated results by comparing them with analytical solutions across various optical techniques in medical imaging.
- Presented findings to {200} attendees at the APTEC-Conference, enhancing visibility for my thesis on image correlation.

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

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

2018 - 07/2019 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

- Utilized signal processing techniques to detect and diagnose faults in PCBs, such as open circuits, short circuits, and component failures. Analyzed the signals generated by the board during operation and compared them to a reference signal or expected behavior.
- CBs are often subject to noise and interference from various sources, such as electromagnetic fields, power supplies, and adjacent components. Signal processing techniques can be used to filter out this noise and improve the signal-to-noise ratio, thereby improving the reliability and performance of the board.

Research Internship

National Cheng Cheng University

09/2019 - 02/2020 Chiyai, Taiwan

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

- Researched and implemented techniques for depth perception in 2D to 3D video conversion, tackling the challenge of inferring depth information from 2D images. Utilized algorithms in depth estimation, stereo matching, and motion analysis to create depth maps and enhance the illusion of depth in scenes.

INDUSTRY EXPERTISE

Programming Languages

AI,ML&DL

REFERENCES

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