FAKRUL ISLAM TUSHAR

https://fitushar.github.io/

Medical Imaging AI PhD Candidate @Duke,CVIT

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fitushar | Fakrul Islam Tushar | fitushar

EDUCATION

PhD, Electrical and Computer Engineering
Duke University, NC, USA. Aug 2021- May 2025.
Research focuses on AI & In-*Silico* trials in lung.

MSc, Medical Imaging and Applications (MaIA)
Erasmus+, @uB in France, UNICAS in Italy, & UdG in Spain, @Duke in USA. Sept 2017-July 2019.

BSc, Electrical and Electronic Engineering
American International University-Bangladesh (**AIUB**), Dhaka, Bangladesh. Jan 2013 – Feb 2017.

EXPERIENCE

Research Fellow, Duke Radiology, Oct 2019 – Feb 2021.
Summer Internship, Duke Radiology, July-Sept 2018.

PROJECTS

Lung Cancer Longitudinal AI with Rule-Based Interpretability (CLARITY) [in-progress]
Development of a foundational-AI with Synthetic *In Silico* longitudinal Digital Humans.

AI in Lung Health
AI algorithms for comprehensive lung cancer diagnosis.
Benchmarks: Duke Lung Nodule Dataset. GitHub, Zenodo
Publications: Rad.AI [UR], arXiv. **Details@ GitHub**

Virtual Lungs Screening Trials (VLST)
In Silico alternative to clinical trials, through Digital Human Twin, Virtual Scanner and AI readers.
Publications: RSNA24, SPIE24 (Travel Award), VITM24 (Best Poster), Med.AI [UR].
Details@ https://fitushar.github.io/VLST.github.io/

Transparency In Health AI
Understanding the transparency & limitations of AI
Publications: IEEE Access (UR), SPIE22.
Details@ https://fitushar.github.io/ReviCOVID.github.io/

Weakly Supervised Classification
Weakly-supervised classification of Body CT.
Publications: Rad.AI 2022, BMC 2022, SPIE 2021,2020.
Details@ GitHub

REFERENCES

Prof. Joseph Y. Lo (PhD Supervisor), joseph.Lo@duke.edu
Prof. in Radiology, ECE, BME, Duke University.
Prof. Ehsan Samei (PhD Mentor), esi.samei@duke.edu
Prof. in Radiology, ECE, BME, Duke University.

KEY PUBLICATIONS

F. I. Tushar *et al.*, "**AI in Lung Health: Benchmarking Detection and Diagnostic Models Across Multiple CT Scan Datasets**," *arXiv:2405.04605*, 2024. [UR]
Project-page, GitHub, Zenodo

F. I. Tushar *et al.*, "**Virtual Lung Screening Trial (VLST): An In Silico Replica of the National Lung Screening Trial for Lung Cancer Detection**," *arXiv:2404.11221*, 2024.[UR]
Project-page, Video-Presentation

F. I. Tushar *et al.*, "**Virtual Human Twins in Lung Health: A Comprehensive *In Silico* Screening Approach**," *RSNA Annual Meeting, Scientific Poster #T5A-SPPH-2*, Chicago, IL, Dec. 2024. Presentation

F. I. Tushar *et al.*, "**Beyond Detection: Bridging the Gap Between Virtual Imaging Trials and Clinical Impact**," in *Proc. Virtual Imaging Trials in Medicine 2024*, p. 202, 2024. arXiv:2405.05359. Poster

F. I. Tushar *et al.*, "**Virtual NLST: towards replicating national lung screening trial,**" in *Proc. Phy. of Med. Imaging*, vol. 12925: SPIE, pp. 442-447, 2024.Poster

F. I. Tushar *et al.*, "**Virtual Imaging Trials Improved the Transparency and Reliability of AI Systems in COVID-19 Imaging**", arXiv:2308.09730, 2023. [UR] Project-page, GitLab,

F. I. Tushar *et al.*, "**Classification of Multiple Diseases on Body CT Scans Using Weakly Supervised Deep Learning**," *Radiology: AI,* vol. 4, no. 1, p. e210026, 2022. GitHub

V. M. D'Anniballe* & F. I. Tushar* *et al.*, "**Multi-label annotation of text reports from computed tomography of the chest, abdomen, and pelvis using deep learning**," *BMC Med. Inf.,* vol. 22, no. 1, pp. 1-12, 2022.
***co-first authors**. GitHub

F. I. Tushar *et al.*, "**Co-occurring Diseases Heavily Influence the Performance of Weakly Supervised Learning Models for Classification of Chest CT**," in *Proc. CAD SPIE,* vol. 12033, 2022. Poster

AWARDS

Best Poster @ *Virtual Imaging Trials in Medicine 2024*
Travel-award @ *SPIE Medical Imaging Conference* 2024
Master Thesis Scholarship @ *Duke Radiology*
EU Erasmus+ Master Scholarship 42,000 EUR
Dean's Award for *undergrad final year project.*
Cum Laude @ *AIUB's 17th Convocation.*
Undergrad Merit Scholarship @ AIUB (3000$)