**Mitigating the selection bias in AI for healthcare applications**

*Submitted in partial fulfillment of the requirements for the degree of*

Bachelor of Technology

in

**Information Technology**

*by*

## MRIDUL JAIN

**21BIT0377**

## Under the guidance Prof. Kishoreraja P C

**SCORE**

**VIT, Vellore.**



October, 2024

**DECLARATION**

I hereby declare that the thesis entitled “Thesis title" submitted by me, for the award of the degree of *Bachelor of Technology in Information Technology* to VIT is a record of bonafide work carried out by me under the supervision of Prof. Kishore Raja P C.

I further declare that the work reported in this thesis has not been submitted and will not be submitted, either in part or in full, for the award of any other degree or diploma in this institute or any other institute or university.

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This is to certify that the thesis entitled “Mitigating Bias in AI for Healthcare Applications” submitted by **Mridul Jain & 21BIT0377**, SCORE, VIT, for the award of the degree of *Bachelor of Technology in Information Technology*, is a record of bonafide work carried out by him / her under my supervision during the period, 01. 12. 2018 to 30.04.2019, as per the VIT code of academic and research ethics.

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**Internal Examiner External Examiner**

Head of the Department Information Technology

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**Student Name**

# Executive Summary

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## List of Abbreviations

3GPP Third Generation Partnership Project

2G Second Generation

3G Third Generation

4G Fourth Generation

AWGN Additive White Gaussian Noise

## Symbols and Notations

f CFO

 NCFO

### INTRODUCTION

* 1. OBJECTIVE

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## References

1. Sergiy Fefilatyev, “Algorithms for Visual Maritime Surveillance with Rapidly Moving Camera”, Doctoral dissertation, University of South Florida, 2012.
2. Domenico Bloisi, Luca Iocchi, Michele Fiorini, Giovanni Graziano, “Automatic Maritime Surveillance with Visual Target Detection”, International Defense and Homeland Security Simulation Workshop (DHSS), September 2011.
3. Domenico Bloisi, Luca Iocchi, Michele Fiorini, Giovanni Graziano, “Camera Based Target Recognition for Maritime Awareness”, Information Fusion (FUSION), 15th International Conference, July 2012.

[4]. Rodrigo Da Silva Moreira, Nelson Francisco Favilla Ebecken, Alexandre Soares Alves, Frédéric Livernet4, Aline Campillo-Navetti, “A Survey on Video Detection and Tracking of Maritime Vessels”, IJRRAS 20, July 2014.

1. Digi-key Corporation. <http://www.digikey.com/>
2. Alldatasheet. <http://www.alldatasheet.com/>