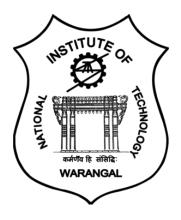# Computational Approaches for the Design of Biosensors for Early Detection of Alzheimer's Disease

Submitted in partial fulfillment of the requirements
of the degree of
Bachelor of Technology

by
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Approval Sheet

This Project Work entitled "Computational Approaches for the Design of Biosensors for Early Detection of Alzheimer's Disease" by Rishikes R is approved for the degree of Bachelor of Technology.

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Date of Examination:

DECLARATION

I declare that this written submission represents my ideas in my own words and where others'ideas and words have been included, we have adequately cited and referenced the original sources. We also declare that we have adhered to all principles of academic honesty and integrity, and havenot misrepresented or fabricated or falsified any idea/data/fact/source in our submission. We understand that any violation of the above code will be a cause for disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed.

Rishikes Ragunathan
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CERTIFICATE

This is to certify that the dissertation work entitled "Computational Approaches for the Design of Biosensors for Early Detection of Alzheimer's Disease" is a Bonafide record of work carried out by Rishikes Ragunathan (188154) of "Department of Biotechnology ", in partial fulfilment of the requirements for the award of the degree of Bachelor of Technology in Biotechnology at National Institute of Technology, Warangal during the academic year 2022-2023.

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Abstract

Alzheimer's disease is a neurodegenerative disorder characterized by cognitive decline and memory impairment. Early detection of Alzheimer's disease is crucial for effective intervention and treatment. Biosensors have emerged as promising tools for the early detection of Alzheimer's disease due to their sensitivity, specificity, and potential for non-invasive detection. In this article, I present a comprehensive review of computational approaches used in the design of biosensors for the early detection of Alzheimer's disease. We discuss various strategies employed in biosensor design, including the selection of appropriate biomarkers, molecular docking simulations, and machine learning algorithms. Furthermore, I highlight recent advancements in the field, such as the integration of nanomaterials and microfluidics in biosensor platforms. By leveraging computational approaches, researchers can optimize biosensor performance, enhance detection sensitivity, and improve the accuracy of early Alzheimer's disease diagnosis. This preprint provides valuable insights into the current state of computational approaches for biosensor design and their potential impact on early detection strategies for Alzheimer's disease.

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