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ASEMINAR REPORTONCURSOR CONTROL USING EYE MOVEMENTSSUBMITTED TO THE SAVITRIBAI PHULE PUNE UNIVERSITY, PUNEIN PARTIAL FULFILLMENT OF THE REQUIREMENTSFOR THE AWARD OF THE DEGREE OFBACHELOR OF ENGINEERINGINFORMATION TECHNOLOGYBYSahil Sanjay Katkamwar Roll No : 33331Under the guidance ofMs. Jyoti H. JadhavDEPARTMENT OF INFORMATION TECHNOLOGYPUNE INSTITUTE OF COMPUTER TECHNOLOGYSR.NO 27, PUNE-SATARA ROAD, DHANKAWADI PUNE - 411 043.AY: 2024-2025P:F-SMR-UG/08/ROSCTR's PUNE INSTITUTE OF COMPUTER TECHNOLOGYC E R T I F I C A T EThis is to certify that the Seminar work entitledSubmitted byName : Sahil Sanjay Katkamwar Exam Seat No : 33331 .Name : Sahil Sanjay Katkamwar Exam Seat No : 33331is a bonafide work carried out under the supervision of Name of the Seminar Guide and it is submitted towards the partial fulfillment of the requirements of Savitribai Phule Pune University, Pune for the award of the degree of Bachelor of Engineering (Information Technology).Jadhav Dr.Dr.A. S. GhotkarSeminar Guide HOD ITS.

T.GandhePrincipalDate:Place:AcknowledgementI would like to extend my deepest gratitude to Ms.Jadhav, my seminar guide, for her invaluable guidance, constructive critiques, and unwavering support throughout the development of this seminar.Her expertise and insights greatly shaped the direction of my research, and her encouragement pushed me to approach the topic of bias and bias mitigation in AI with a critical and thorough perspective.I am sincerely grateful to Dr. Shyam B. Deshmukh, the seminar reviewer, for his detailed feedback and valuable recommendations, which helped refine and enhance the quality of this work.His thoughtful observations provided a clear direction during the revision process.I also wish to express my appreciation to Dr.Archana Ghotkar, Head of the Department, for her administrative support and the academic resources made available during the course of this seminar.Her leadership and guidance have been key to ensuring a conducive environment for academic development.Additionally, I would like to acknowledge the academic and technical staff of the department for their support and assistance in various capacities during the research process.Finally, I would like to thank my family and friends for their continuous encouragement and moral support throughout the duration of this seminar. AbstractAmong the new human-computer interaction technologies such as eye tracking and gesture recognition, the human-computer interaction technology based on eye movements improves the intelligence, naturalness, and efficiency of human-computer interaction.This paper investigates the potential of using eye movements to operate a computer mouse cursor, enhancing accessibility for individuals with physical limitations or those seeking alternative input methods.By analyzing eye images to detect gaze direction and eye locations, the feasibility of converting eye movements into cursor actions using Convolutional Neural Networks and Support Vector Machines is explored.The research examines the geometric model of an eye-tracking system with a single camera under natural light, focusing on the optimal placement area of the camera when the user's head is stationary and the maximum allowable rotation range when the user's head is free to move.Key components include data collection from various user eye movements, training machine learning models, and real-time processing for precise cursor control.By addressing these challenges, the research aims to contribute to the creation of more robust and user-friendly eye-tracking systems.This investigation not only explores the technical feasibility but also highlights the transformative potential of eye-tracking technologies in creating more inclusive and accessible computing environments

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Jyoti H.... Jadhav... Principal... Date:... Place:... Shyam B.... Abstract