



IEEE 4th International Conference on Computing and Machine  
Intelligence  
April 05-06, 2025  
Central Michigan University

# CERTIFICATE of Participation

**This certificate is presented to**  
**Zainab Mohanad Issa**

**For participating and presenting the  
paper titled:**

**Investigation of various modulation techniques for  
optical systems concerning different channel spacing  
values**

A handwritten signature in blue ink, appearing to read "Ah", located above the name of the General Chair.

**General Chair**  
**Ahmed Abdelgawad, PhD**