



IEEE 4th International Conference on Computing and Machine  
Intelligence  
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Central Michigan University

# CERTIFICATE of Participation

**This certificate is presented to**  
**Mustafa Bashar**

**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 be "Ah".

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