

Dr. Dennis Küster

Cognitive Systems Laboratory  
University of Bremen

University of Bremen Enrique-Schmidt-Str. 5 28359 Bremen

Enrique-Schmidt-Str. 5  
28359 Bremen, Deutschland  
Telefon: +49 421 218 - 64266  
Fax: +49 421 218 - 9864272  
E-Mail: [kuester@uni-bremen.de](mailto:kuester@uni-bremen.de)  
Web: <http://csl.uni-bremen.de>

Re: Mohamed Osama Mohamed Ismail Aboughazala

06.09.2019

To Whom it May Concern,

I am writing this letter to give my highest possible recommendation for Mr. Mohamed Aboughazala. Mr. Aboughazala has successfully completed his BA-thesis at the Cognitive Systems Lab (CSL) with us on the topic of "*Modeling sensory-motor experience during object manipulation in Augmented Reality (AR)*". As part of this work, he created a Unity-based object reaching -and manipulation task that had to integrate several challenging additional components in a real-time environment using Augmented Reality with the Meta 2 headset. More specifically, Mr. Aboughazala independently investigated several object recognition approaches, including color-based tracking, tracking with a RealSense depth camera, IMU-based tracking, hand-tracking with LeapMotion sensors, and finally with HTC Vive trackers to provide the best possible basis to meet the technical requirements of the underlying experimental psychological task. All these different approaches included significant challenges with respect to coding and integrating their inputs. Furthermore, Mr. Aboughazala successfully integrated and controlled the vibrotactile feedback provided by a CyberTouch II (CyberGlove Systems) into the experiment. He then conducted the full experiment, as planned, from a substantial sample of participants ( $N > 20$ ) and performed the subsequent statistical data analyses. His work involved several novel technical challenges in the field of Human-Computer Interaction (HCI), all of which he mastered admirably and with a high level of independence. In all the new challenges presented to him in this demanding programming -and experimental task, Mr. Aboughazala demonstrated excellent problem solving, teamwork, and organizational skills, and found creative solutions to lead this project to a successful conclusion. He successfully addressed several very challenging programming -and integration tasks, and he demonstrated a remarkable capacity for the required independent academic skills. At a personal level, it was always a great pleasure to work with him, as he showed great commitment to advancing and improving the project. We were overall very impressed with his competence and overall performance, and would gladly work with him again in the future if given the opportunity.

Yours sincerely,



Dr. Dennis Küster