Augmented Reality for Pediatric Simulations

PROJECT DESCRIPTION

The Faculty of Medicine (FoMD) Office of Simulation and the Alberta Health Services (AHS) Provincial Simulation Program collaborate to deliver immersive simulations to students, residents, and working health professionals. We are now working with a team of AHS Simulation professionals and Clinical Educators to develop a system that will project user-selected holograms mapped to the surface of a mannequin, so they are seen by the participants as surface features (such as rashes or wounds) on the mannequin’s skin. Under user control, the specific texture of the hologram may change in real time (such as a spreading rash or a bubbling wound).

We are now developing the version 0 of the system, with the following functionalities: (1) registering the mannequin through the participant's glasses, (2) manipulating the mannequin’s mesh model to match the participant's view, (3) applying the desired texture on the model, and (4) rendering the textured model on the participant’s glasses. The USRA student will take this version0 to the level required for an empirical trial. The student will (1) develop a more detailed model of the mannequin and improve the precision of the registration, texture application, and rendering functionalities; (2) develop a repository for scenario-specific assets, i.e., textures, instructions on where to apply them, questions to ask of the participants; (3) develop two scenarios, corresponding to two different related diagnoses, so that we can evaluate the usefulness of the system in improving the simulation realism by comparing whether students are more likely to reach the correct diagnosis with the system than without.

The student will collaborate with the AHS and FoMD team members to ensure that their requirements are properly captured and prioritized. She will also extend and test the existing code base while, at the same time, expanding the system design with additional functionalities. She will also participate in the design of the empirical trial and the corresponding protocol and ethics application.

FACULTY-DEPARTMENT

Science- Computing Science

DESIRED FIELD OF (STUDENT) STUDY

Software Engineering, Unity 3D, AR glasses

INTERNSHIP LOCATION

University of Alberta Main Campus – Edmonton

Contact: Brendan Cavanagh, Internship Coordinator (Inbound) University of Alberta International intern@ualberta.ca
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<thead>
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<th>NUMBER OF INTERNSHIP POSITIONS</th>
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<td>INTERNSHIP START DATE</td>
<td>January 2, 2018</td>
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<td>INTERNSHIP END DATE</td>
<td>12 weeks after start date</td>
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<td>ARE THE DATES FLEXIBLE?</td>
<td>Yes</td>
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