Project Title: Integration of MoCap and VR into a system for measuring human movement

Subtitle: Theses proposal(CS4490Z)

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Thesis CS4490Z

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1. Synopsis:
   1. Scientific / technical OBJECT
   2. Approach
   3. New knowledge/ expertise/ technology could be created
   4. Benefit to Canadian industry/ academic institution/ scientific discipline

The project is aim to build a VR environment by integrate a 3D camera to capture human’s motion. Through people’s responses in different VR setting and analysis the human’s movement to decide whether the patient is recovered from injury and has the ability to go back to the competition or the training level. We will use oculus rift as a VR equipment, Orbbec camera as an external motion sensor. This project can benefit the Orbbec 3D body tracking camera development. Improving doctor’s analysis of injured athlete/patient recovery condition more precisely, more productive.

1. Background:

**3. Detailed proposal:**

* **3.1 Research Objectives**: [0.5 page max.]
  + Describe the general or overall “goal” first.
  + Describe the research “objectives” related to this goal. Note: goal and objectives are NOT the same thing. Goal is the final target (sometimes open-ended, e.g., improve a process); objectives are concrete, intermediate points along the way.

(see: <https://rapidbi.com/the-difference-between-goals-objectives/> )

* + Explain the objectives, including:
    - Significance of the objectives to the field of research
    - Significance of the objectives to the field of practice
  + Give the research hypothesis and/or important questions relating to the objectives
* **3.2 Research Plan**: [1 page max.]
  + Discuss the scientific/technical issues, research problems or technical complexities
  + Identify third-party systems, languages, and technologies used as part of your solution (e.g., incorporating an open source system or a software platform into your solution)
  + If creating a system, identify third-party tools and technologies used in the process of creating the system.
  + Give citations to the literature in the textual descriptions above
    - Use APA Style. See: <http://pitt.libguides.com/c.php?g=12108&p=64730>
  + Identify any threats to the validity of your study results or solution making
  + Describe how you intend to mitigate these threats
* **3.3 Research methodology**: [0.75 page max.]
  + Describe the research methodology and experimental design to achieve your goals and objectives.
  + If creating a system, explain:
    - its probable design and give justification
    - how you will validate the resultant system.

**4. Value of the results and industrial relevance:**[0.5 page max.]

* Describe the anticipated value of the project results *to the field of research*, i.e., how it advances any theory (or research baseline) in the field.
* Describe the anticipated value of the project results *to industrial practice*, i.e., how will it simplify decision-making or work-effort, save time and money, speed up task completion, etc. Be specific, giving technical details of the anticipated product or processes.

**5. References**

* Use APA Style. See: <http://pitt.libguides.com/c.php?g=12108&p=64730>