

'396' Undergraduate Research Project Application Form

Version: 200603

Office for Undergraduate Research in Science
Tel.: 514-398-5964 / Fax: 514-398-8102 / Dawson Hall, Room 211
Email: victor.chisholm@mcgill.ca Web: www.mcgill.ca/science/ours/

INSTRUCTIONS FOR STUDENTS

- **All fields are required, unless indicated otherwise.**
- Download and print this form. Complete Section C and sign.
- See "How students can apply" instructions in Section B.
- Your supervisor or department will tell you if you are selected for this project. If so, you will receive a code to register for a '396' course on MINERVA.

SECTION A: SUPERVISOR INFORMATION

Name: Paul Kry / Jeremy Cooperstock **Email:** kry@cs.mcgill.ca / jer@cim.mcgill.ca
Phone: 514-398-2577 / 514-398-5992 **Website:** <http://www.cim.mcgill.ca/sre/projects/niw/>
Supervisor's Dept or Unit: School of Computer Science / Dept. of Electrical and Computer Engineering **Course Number:** COMP396

SECTION B: PROJECT INFORMATION

Term: Summer 2008 **Project start & end dates:** t.b.d.

Project title: Natural Interactive Walking (Haptic Snow)

Project description: The Shared Reality Lab's Haptic Snow project aims to create a platform for simulating the sensation of walking on different ground textures, such as water, sand, gravel, and snow. A current single tile prototype successfully conveys both haptic sensations using a vibrotactile transducer, and creates auditory feedback based on the amount pressure exerted on the tile. Plans to create a larger, room-sized array of these tiles are underway. The student's role in the project is to create a graphical component that corresponds to the haptic simulation being experienced. The first goal of this media integration will be to create an immersive, three dimensional scene that can be projected onto the surrounding walls, such as a snowy landscape, or cobble stoned street. This scene will create a visual context for the texture the user is experiencing. The next aspect of the graphical component will be to create a dynamic, physical model of the ground texture. When a user steps on a tile, water will ripple, and snow will clump, for example. This model will then be projected in real time directly onto the tiles of the simulation floor, providing further context to the haptic sensations, and increasing visual immersion.

Prerequisites: 1 term completed at McGill + CGPA \geq 3.0; or permission of instructor.

Grading scheme: Presentation 20%, quality of implementation 30%, final report 50%.

Other: This project is heavily implementation-driven and as such, the quality of the graphic renderings produced and their appropriateness to the stimulus, tied to the other modalities of feedback, are a critical aspect of assessment. The final report will be expected to form the basis of a conference paper submission, in collaboration with other project members.

Status: Mark with an x. This project is...
[] Open to applicants
[x] Already taken; no more positions available this term
[] Taken, but contact me for other possible projects this term

Ethics, safety, and training: Which of the following, if any, is involved? Mark with an x.
[] Animal subjects
[] Human subjects
[] Biohazardous substances
[] Radioactive materials
[] Handling chemicals
[] Using lasers

For undergraduate students, ethics and safety compliance is the supervisor's responsibility.

How students can apply: Bring this application form and your advising transcript to me during office hours.

SECTION C: STUDENT INFORMATION. (1) PRINT LEGIBLY AND SIGN. (2) SEE "HOW STUDENTS CAN APPLY" IN SECTION B.

Name: _____ **McGill ID:** _____
Email: _____@mail.mcgill.ca **Phone:** _____
Program: _____ (e.g., B.Sc. Maj. Chem. Minor Biology) **Level:** (circle one) U0 / U1 / U2 / U3
I have not applied for another 396 course in this term.
Student signature: _____ **Date:** _____

SECTION D: APPROVALS. (1) PRINT NAMES & SIGN. (2) NOTIFY OFFICE FOR UNDERGRADUATE RESEARCH IN SCIENCE. (3) GIVE STUDENT CODE TO REGISTER FOR COURSE ON MINERVA.

Supervisor: _____ **Date:** _____
Unit Chair, Director, or designate - I certify that this project conforms to departmental requirements for 396 courses. _____ **Date:** _____