

MOVEMENT, MEDIA, AND MACHINES

COURSE NUMBER: DIG6744C	INSTRUCTOR: ANGELOS BARMPOUTIS, PH.D.
SEMESTER/YEAR: SPRING 2019	OFFICE LOCATION/HOURS: CSE E428 / T & TH 11:30-12:30
CREDIT HOURS: 2.0	CONTACT EMAIL: ANGELOS@DIGITALWORLDS.UFL.EDU
CLASS LOCATION: CSE E413	CONTACT PHONE: (352) 294-2000
CLASS MEETING TIME(S): T&TH 9:30-11:30	COURSE WEBSITE: elearning.ufl.edu

COURSE DESCRIPTION

The goal of this class is to expose the students to the current state-of-the-art of position and motion tracking systems. Advanced concepts on marker-less tracking and depth sensing will be analyzed, and several applications in Arts and Sciences will be discussed.

PREREQUISITE KNOWLEDGE AND SKILLS

- Admission to MiDAS program or instructor's consent.

PURPOSE OF COURSE

To learn the principles and technologies related to real-time position and motion tracking and discuss their applications in Arts and Sciences.

COURSE GOALS AND/OR OBJECTIVES: *By the end of this course, students will be able to:*

1. Learn advanced natural user interface concepts.
2. Learn the principles of depth sensing and position tracking.
3. Gain experience in skeleton tracking systems.
4. Develop embodied environments with real-time interaction.

COURSE SCHEDULE:

This schedule is only a guide and is subject to change. Unless otherwise indicated, assignments and readings are due the day they are listed on the syllabus, not the following day

Week	Topic	Assignments
1	Course overview / workspace setup	Setup your software development workspace
	Software development review	Test your development skills
2	Infrared light projection	Handle infrared cameras and light sources
	Depth sensing	Acquire depth measurements
3	Skeleton tracking	Use Kinect API

	Skeleton parameterization	Develop skeleton-based interaction
4	Multi-user skeleton tracking	Handle multiple streams
	Simulating interaction with virtual objects	Develop simple skeletal-based game
5	Marker-based tracking	Visualize VR headset infrared markers
	Head tracking with constellations	VR tracking APIs
6	Finger tracking	System installation and setup
	Leap sensor API	Adopt APIs for finger tracking
7	Motion-based applications	Review existing application in Arts and Sciences
	Skeleton tracking for physical therapy	Visualize body parameters
Exam Week	Completion of final project	Final project due

REQUIRED TEXTBOOKS AND SOFTWARE:

- MOZILLA DEVELOPERS NETWORK REFERENCE GUIDE: <https://developer.mozilla.org/en-US/>
- SOURCE CODE EDITOR: <http://research.dwi.ufl.edu/VN>
- Additionally, there will be several useful on-line tutorials and resources.

RECOMMENDED TEXTBOOKS AND SOFTWARE:

- TBD

COURSE FEES:

Course fees are assessed for certain courses to offset the cost of materials or supply items consumed in the course of instruction. A list of [approved courses and fees](#) is published in the Schedule of Courses each semester. (UF-3.0374 Regulations of the University of Florida).

Material and supply and equipment use fee information is available from the academic departments or from the schedule of courses (Florida Statutes 1009.24). The total course fee for this class is \$0.00

The total course fee for each course is listed on the UF Schedule of Courses.
[\(https://registrar.ufl.edu/soc/\)](https://registrar.ufl.edu/soc/).

EVALUATION OF GRADES

Assignment	Total Points	Percentage of Grade
Daily in class projects – Programming assignments that you have to complete every day in class.	56	56%
Final Project – Semester-long assembly of a larger project out of the daily in-class projects.	30	30%
Participation – Students are expected to actively participate in class discussions.	14	14%

GRADING SCALE:

Letter Grade	% Equivalency	GPA Equivalency
A	94 – 100%	4.0
A-	90 – 93%	3.67
B+	87 – 89%	3.33
B	84 – 86%	3.00
B-	80 – 83%	2.67
C+	77 – 79%	2.33
C	74 – 76%	2.00
C-	70 – 73%	1.67
D+	67 – 69%	1.33
D	64 – 66%	1.00
D-	60 – 63%	.67
E, I, NG, S-U, WF		0.00

More information on grades and grading policies is here:

<https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

COURSE POLICIES:**PARTICIPATION / ATTENDANCE**

In our course, attendance for On-Campus and RT On-Line students is mandatory. Students are allowed **three unexcused absences**. If you miss more than **three classes** during the semester, each additional absence will lower your overall grade by **100 points**. If you miss more than **six classes**, you will fail the course. Exempt from this policy are only those absences involving university-sponsored events, such as athletics and band, and religious holidays, family emergencies, and health issues for which **you must provide appropriate documentation in advance of the absence**.

Additionally, tardiness will not be tolerated. If you are tardy for three class periods, you will receive an

unexcused absence.

YOT On-Line students will be expected to stay in sync with the rest of the class, and to achieve their participation portion by recording/writing their responses to course material in advance of each lecture at least once a week.

MAKE-UP POLICY

Unless discussed at least 72 hours in advance of the deadline, late assignments will not be accepted. Excluded from this policy are any assignments missed due to medical emergencies.

Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found at:

<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>

COURSE TECHNOLOGY

The students will be required to have access to, and use a personal computer with the access to the Internet. Word editing software will be required for written assignments.

COURSE COMMUNICATIONS

Students can communicate directly with the Instructor regarding the course material through the course management system (CANVAS). Electronic communication must demonstrate a formal tone and style and, unless absolutely urgent, will be responded to M-F from 9 AM to 5 PM.

VIDEO LECTURE CAPTURE

High-quality video lecture capture of this course is available only for enrolled students. These video captures are edited and posted within 24-48 hours of the class meeting for the benefit of the Your Own Time [YOT] students and to offer the potential for review by on-campus and Real Time [RT] online students. For the on-campus and RT students, watching lectures in lieu of attending and participating in class is NOT acceptable.

Your Instructor will provide you with this semester's login information during the first week of class. It is not permissible to share or distribute video login information to anyone other than officially enrolled students of this course. Lecture videos can be found at <https://vimeo.com/digitalworlds>.

UF POLICIES:

UNIVERSITY HONESTY POLICY

UF students are bound by The Honor Pledge that states, "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received

unauthorized aid in doing this assignment.” The [Honor Code](#) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.

PLAGIARISM

Plagiarism is a violation of the UF honor code. A student shall not represent as the student's own work all or any portion of the work of another. Plagiarism includes but is not limited to:

“1. Quoting oral or written materials including but not limited to those found on the internet, whether published or unpublished, without proper attribution.

2. Submitting a document or assignment which in whole or in part is identical or substantially identical to a document or assignment not authored by the student.”

Students shall not use unauthorized materials or resources in an academic activity. Unauthorized materials or resources includes any paper or project authored by the student (or another student) “and presented by the student for the satisfaction of any academic requirement if the student previously submitted substantially the same paper or project to satisfy an academic requirement and did not receive express authorization to resubmit the paper or project.”

CLASS DEMEANOR

Students are expected to arrive to class on time and behave in a manner that is respectful to the instructor and to fellow students. Please avoid the use of cell phones and restrict eating to outside of the classroom. Opinions held by other students should be respected in discussion, and conversations that do not contribute to the discussion should be held at minimum, if at all.

STUDENTS REQUIRING ACCOMMODATIONS

Students with disabilities requesting accommodations should first register with the [Disability Resource Center](#) (352-392-8565) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

NETIQUETTE COMMUNICATION COURTESY

All members of the class are expected to follow rules of common courtesy in all email messages, threaded discussions and chats, more information can be found at: <http://teach.ufl.edu/wp-content/uploads/2012/08/NetiquetteGuideforOnlineCourses.pdf>

ONLINE COURSE EVALUATIONS

Students are expected to provide feedback on the quality of instruction in this course by completing [online evaluations](#). Evaluations are typically open during the last two or three weeks of the semester,

but students will be given specific times when they are open. Summary results of these assessments are available to students at [evaluation results](#).

CAMPUS RESOURCES

HEALTH AND WELLNESS

U Matter, We Care

If you or a friend is in distress, please contact umatter@ufl.edu or 352 392- 1575 so that a team member can reach out to the student.

Counseling and Wellness Center

<http://www.counseling.ufl.edu/cwc/Default.aspx>, 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.

Sexual Assault Recovery Services (SARS)

Student Health Care Center, 392-1161.

University Police Department, 392-1111 (or 9-1-1 for emergencies). <http://www.police.ufl.edu/>

ACADEMIC RESOURCES

E-learning technical support, 352-392-4357 (select option 2) or e-mail to Learning-support@ufl.edu. <https://lss.at.ufl.edu/help.shtml>.

Career Resource Center, Reitz Union, 392-1601. Career assistance and counseling.

<http://www.crc.ufl.edu/>

Library Support, <http://cms.uflib.ufl.edu/ask>. Various ways to receive assistance with respect to using the libraries or finding resources.

Teaching Center, Broward Hall, 392-2010 or 392-6420. General study skills and tutoring.

<http://teachingcenter.ufl.edu/>

Writing Studio, 302 Tigert Hall, 846-1138. Help brainstorming, formatting, and writing papers.

<http://writing.ufl.edu/writing-studio/>

Student Complaints Campus:

https://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf

On-Line Students Complaints:

<http://www.distance.ufl.edu/student-complaint-process>

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Disclaimer: This syllabus represents the instructor's current plans and objectives. As we go through the semester, those plans may need to change to enhance the class learning opportunity. Such changes, communicated clearly, are not unusual and should be expected.