COMPSCI 715
Advanced Computer Graphics

Course Outline

Burkhard Wuensche

- Originally from München, Germany
- My research interests:
  Computer Graphics, Computer Vision,
  Game Technology, Healthinformatics, HCI
- Contact details:
  burkhard@cs.auckland.ac.nz
  Phone: 373-7599 83705
  Office: 303-529
- Office hour: Open door policy, but better ring me or
  email me first in order to make sure I am around

Chia-Yen Chen

- From Taiwan

- My research interests:
  Computer vision, 3D reconstruction and modelling,
  visual odometry, augmented reality and other related
  3D applications

- Contact details:
  yen@cs.auckland.ac.nz
  Phone: 373-7599 89604
  Office: 303-528

Personal Support for Students

Ulrich Speidel
Tamaki Campus : 731.331
Ext: 85282
E-mail: ulrich@cs.auckland.ac.nz

Ann Cameron
Room: 303S.594
Ext: 84947
E-mail: ann@cs.auckland.ac.nz

Pat Riddle
Room: 303S.392
Ext: 87093
Email: pat@cs.auckland.ac.nz

Need to talk to someone?

We are here to listen & help!

Come and talk to us.

Paul Denny
Room: 303S.465
Ext: 87087
Email: paul@cs.auckland.ac.nz

Angela Chang
Tamaki Campus: 731-308
Ext: 86620
Email: angela@cs.auckland.ac.nz

Adriana Ferraro
Room: 303S.592
Ext: 87113
Email: adriana@cs.auckland.ac.nz

Andrew Luxton-Reilly.
Room: 303S.479
Ext: 85654
Email: andrew@cs.auckland.ac.nz

Class Representative

Who would like to be class rep?

- Approachable
- Collect feedback and relay to lecturer
- Student / staff meetings

Today's Mission

TOP SECRET

1. What is the course about?
2. How is it assessed?
3. What kind of project would you like to do and who could be in your team?

Learning Outcomes

This is a project-based course. The (possible) project topics require the following concepts: Virtual Reality/Augmented Reality, 3D model analysis, skeletonisation, animation, 3D modelling, texture completion, texture mapping

After the course you will be able to:
- Describe the fundamental concepts of the project topics
- Explain the motivations (and underlying psychological processes)
- Apply 3D technologies to develop a creative solution
- Critically analyze and refine a solution
- Use scientific methods to evaluate a solution
- Write a scientific paper about your solution
- Present your solution to a scientific audience

Schedule 1st Half

Week	Activities	Assignments
1	Mon: Course outline, Tue: Project topics, Thu: Project topics	Register teams
2	Mon: "Teddy algorithm" Tue: "Image and model analysis" Thu: Academic writing overview, abstracts	Abstract (2.5%)
3	Mon + Tue: Project related lectures, Thu: Introduction write-up	Introduction (4%)
4	Mon: Project related lecture, Tue: Project discussion, Thu: Related work write-up	Related work (5%)
5	Team meetings, Thu: Design & implement.	1st prototype (0%)
6	Team meetings, Tue + Thu: Demos (4%)	

Mid-semester break. So far 15.5% of individual assignments.

Schedule 2nd Half

Week	Activities	Assignments
7	Team meetings, Tue+Thu: Evaluation methods	2nd prototype (0%)
8	Team meetings, Thu: Evaluation write-up	Design & impl. (5%)
9	Team meetings	
10	Team meetings	Evaluation (5%)
11	Team meetings	Final report (7%) Slides for presentation
12	Mon+Tue+Thu: Final demos (6%) Exam prep / learning tips	Team project Repo freeze (20%) Video (1.5%)

Course Expectations

- Teamwork: be a part of an awesome team

- Workload: 10h per week ...not more, not less.

- It's a postgraduate course (see also postgrad profile)

  o Creativity: you create & "own" your project

  o Independent problem solving: find own solutions

  o Critical thinking / analyzing: see the difference

  o Academic literacy: hone your reading & writing skills

  o Communication: inspire others with your work

- Use the university resources to improve your skills,
  e.g. postgrad workshops at library
  http://www.library.auckland.ac.nz/services/student-learning/postgraduate

Lectorials & Meetings

Lectorial = combined lecture / tutorial
- Interactive
  - o Ask questions anytime
  - o Practical exercises during lectorial
  - o Give feedback after the class
- Teamwork encouraged (help your peers!)
- Encouraged to bring laptops (1 per group)

Meetings in your project teams
- "Personal training" for you to become researchers
- To deliver and discuss prototypes (see assignments)
- To get feedback & advice

Attendance & Catching Up on Missed Material

Lectorials / Demos / Guest lectures (?)
- It would be great if you could attend all the sessions :-)
  But we understand that this is not always possible :-(
- To help you catch up, there might be lecture recordings on Canvas (if our lecture rooms allow recordings)
- Lectorials about methodology (usually Thursday)
  (they are useful for your project, the assignments etc.)

Team Meetings
- We arrange a time that suits all team members
- Expected that you attend the meetings
- If you cannot come, please let Yen and Burkhard know so we can work around it

Assessment
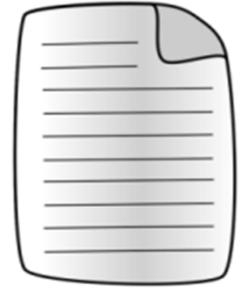

When?	What?	How much?	Where?
Every week (see schedule)	Writing assignments	28.5% in total	Assignment Dropbox
Week 6 + 11/12	Demos (2x) + Video	4% + 6% + 1.5%	Lectures, YouTube
Week 10	Source code	20%	GitHub
TBA	Exam	40%	TBA

All marks are individual. See schedule for rough deadlines. Exact deadlines might vary depending on project progress.

Writing Assignments (28.5%)

- Submitted individually through the assignment dropbox: https://adb.auckland.ac.nz/
- Should adhere to scientific standards as taught in the lectorials
  - Must use LaTeX (ACM or IEEE style), e.g. http://overleaf.com
  - Must not be plagiarized from someone else
- Aligned with your project - will help you!
  - Assignments break down full report into parts: 2.5% + 4% + 5% + 5% + 5% = 21.5%
  - By final report deadline mostly already complete, opportunity to improve the parts from feedback (7%)
  - Possibility of publishing at scientific conference

Demos & Video (11.5%)

- Week 6: Interim Demo (4%)
  - Present to your peers what you have achieved
  - Get feedback
  - Team members should present equally long
  - Main part: life prototype demonstration
    (slides possible, but only after prototype)
  - Slots are first come first served

- Weeks 11/12: Final demo (6%) - others may be present

- Week 12: Video (1.5%)
  - Screencast of your project with voiceover / music / captions, e.g.
    https://www.youtube.com/playlist?list=PLjnTE4jWQKxf-V8BsJ-uP1MWf2zhyLXWi

Source code (20%)

Coding Assignments (0%)
- Code/project review in team meetings
- Looking at your current prototype
- You explain your prototype and the code

Project (20%)
- Repo freeze (week 12) then marking starts
- Version control commit log:
  Individual marks based on recorded contributions
- Mandatory - penalty if not:
  - Usable, complete project folder with runnable project
  - `readme.txt` with working test instructions
  - Source code comments

Exam (40%)

- 2 hours, closed book
- Essay-style text questions about the projects
  - Covering the different topics
  - Know a little bit about every project
  - Questions most likely based on selected key papers for each project
  - Might also contain some short answer questions, e.g. related to key algorithms

- Prepare yourself by participating in the lectorials, team meetings, labs and your project
- Attend other teams' presentations
- Read some of the other team's reports & related works

Plagiarism

Cite, then summarize, paraphrase or quote
- Always cite sources (it's scientific and impresses your readers)
  - Same with copying images/figures: cite the source
  - Use an accepted citation standard and ideally bibliography management software (e.g. BibTex, EndNote)
- Summarizing cited content helps yourself and your readers
- Paraphrase if you cannot summarize (write it in your own words)
- Quote text as a last resort (always use quotation marks)

When copying code:
- Using small snippets of code from the web is OK
- Longer portions copied/used, e.g. libraries:
  - Check license, is it legal?
  - Cite source in report and source code

When in doubt, ask your lecturer :-)