Computer Games Laboratory
TUM I15, Kick-off
Instructors

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Course Goals

1. Learn central elements of modern computer game design and programming
2. Design & implement your own game project
3. Reinforce CS and graphics knowledge
4. Practice “soft skills” and project management
Course Goals

• Capstone course: cumulative knowledge transferred to task of creating video game
Prerequisites

• Strong interest in computer graphics and game tech
• Ideally, intro/advanced courses in computer graphics
• Ability and interest to work in teams
• Some artistic skills can help
• Time & motivation
Course Elements

• **Lectures:** background & basics, structure

• **Milestones:** delivery deadlines, documentation

• **Presentations:** get feedback, track progress
Grading

- We will track your performance
- Project plays most important role

- Each of you: private summary of own contributions

Criteria:
- Technical complexity of project
- Project plan and milestones met
- Assignments
- Presentations
- Teamwork
- Creativity
Resources

• Main Website:
  - https://www.in.tum.de/cg/teaching/ -> Semester -> Computer Games Laboratory
  - Schedule
  - Project structure / assignments
  - Lecture slides

• Wiki
  - https://wiki.tum.de/display/gameslab2022summer/Home
  - Edit access after forming groups
Project Structure
Teams

• 3-4 Students per team
• Every member should contribute equally
• Considerations
  – Interests
  – Skills
  – Working hours
  – Meeting locations...
“Design & implement your game”

- But ... that's very challenging!
- Detailed project management
  - Software engineering principles
  - Written project document
    - Actual idea/game documentation
    - Progress & timeline
  - Presentations / demos
  - Critiques, mutual feedback
Organization

• Project structure document *(written by us)*
• Detailed project notebook *(written by you)*

• All written documents in the course Wiki
• Written assignments due Sundays at 23:59
• Presentations in class on Mondays at 14:15
Iterative Design

• Keep game on track
Milestones

1. Game idea pitch
2. Formal proposal & prototype
3. Interim demo
4. Alpha release
5. Playtesting
6. Final presentation!
Milestone #1

• Game description
  – Describe essential design elements
  – Sketches, storyboards, or other visuals
  – Highlight and justify design choices

• Development schedule
  – Layered task breakdown
  – Timeline & milestones

• Assessment
  – Strengths, appeal, criteria for success...
Development Schedule

• Functional Minimum
  – Just enough to call it a game…

• Your Low Target
  – The least possible to feel “ok”

• Your Desired Target
  – This is what you’re aiming for

• Your High Target
  – If things go extremely well

• Your Extras
  – Things you know won’t fit, maybe for later…
# Development Schedule

<table>
<thead>
<tr>
<th>Task</th>
<th>Description</th>
<th>Who</th>
<th>Hrs</th>
<th>Actual</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Brainstorm design</td>
<td>All</td>
<td>4</td>
<td>8</td>
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<tr>
<td>2</td>
<td>Character modeling</td>
<td>Stan</td>
<td>12</td>
<td>26</td>
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<tr>
<td>3</td>
<td>Camera control</td>
<td>Kyle</td>
<td>6</td>
<td></td>
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<tr>
<td>4</td>
<td>Prepare presentation</td>
<td>All</td>
<td>6</td>
<td></td>
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<tr>
<td>5</td>
<td>Explosion effect</td>
<td>Kenny</td>
<td>12</td>
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</tbody>
</table>
## Development Schedule

<table>
<thead>
<tr>
<th>Task</th>
<th>Wk1</th>
<th>Wk2</th>
<th>Wk3</th>
<th>Wk4</th>
<th>Wk5</th>
<th>Wk6</th>
<th>Wk7</th>
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</table>
Advice

Think Small!

• Do one thing well
• Make game stand out!
• Better than doing lots of stuff half-way
Example

- www.linerider.org
Big Idea Sheet

• Keeps project focused, common ground
Big Idea Sheet

EPIC HOLLYWOOD DESTRUCTION

EVERY LAP IS DIFFERENT

SPLIT SECOND
Further Inspiration

- Previous course instances
- [https://store.steampowered.com/](https://store.steampowered.com/)
- [experimentalgameplay.com](http://experimentalgameplay.com)
- [https://www.etc.cmu.edu/projects/experimentalgameplay/games.php](https://www.etc.cmu.edu/projects/experimentalgameplay/games.php)

### Temperature

<table>
<thead>
<tr>
<th>Game</th>
<th>Description</th>
<th>Downloads</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fiery Pursuit</td>
<td>You're a flame on a heat-sensitive board. Keep on moving around to avoid burning holes, and collect bonuses.</td>
<td>exe, zip</td>
</tr>
<tr>
<td>Ice Fishing</td>
<td>Catch fish with nothing but a magnifying glass by melting snow into icicles and then dropping the icicles to hit the fish below.</td>
<td>exe, zip</td>
</tr>
<tr>
<td>Snow Day</td>
<td>Create ice for the penguins to walk on and lead them to safety.</td>
<td>exe, zip</td>
</tr>
<tr>
<td>Updraft</td>
<td>Navigate a paper airplane through a house using sources of heat.</td>
<td>exe, zip</td>
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</tbody>
</table>

### Airflow

<table>
<thead>
<tr>
<th>Game</th>
<th>Description</th>
<th>Downloads</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buggy Unit</td>
<td>Stop ants from walking off with your cookies by blowing them away with a hair dryer.</td>
<td>exe, zip</td>
</tr>
<tr>
<td>Flag Control</td>
<td>Maneuver the flags around the maze to the colored squares in order to get points. Maneuver balls by manipulating the maze and controlling the air flow.</td>
<td>exe, zip</td>
</tr>
<tr>
<td>Sandwiches</td>
<td>Use a cloud's wind to avoid and blow away evil smog clouds.</td>
<td>exe, zip</td>
</tr>
<tr>
<td>Tap Wolves</td>
<td>Blow a ship around the sea through buoyy, avoiding sharks. Can be played with a microphone or a mouse.</td>
<td>exe, zip</td>
</tr>
</tbody>
</table>
Milestones

1. Game idea pitch
2. **Formal proposal & prototype**
3. Interim demo
4. Alpha release
5. Playtesting
6. Final presentation!
Physical Prototype

• Finish design chapter
• Test core gameplay
Milestones

1. Game idea pitch
2. Formal proposal & prototype
3. Interim demo
4. Alpha release
5. Playtesting
6. Final presentation!
Interim & Alpha

• Interim report
  – Finished layer 2, well into layer 3
  – Functional minimum completed!
  – Report & demo

• Alpha release
  – Principle design long complete
  – Coding almost complete
  – “Freeze” version for play testing
Milestones

1. Game idea pitch
2. Formal proposal & prototype
3. Interim demo
4. Alpha release
5. Playtesting
6. Final presentation!
Final Stages

• Playtesting
  – Give your game to friends & relatives
  – Take notes & make interviews
  – Another chapter...

• Final presentation
  – Present your journey & results
  – Conclusion chapter, and video
Milestone Dates

- Groups formed (Apr. 27th)
- Game idea pitch (May. 5th)
- Formal proposal & prototype (May 23rd)
- Interim demo (June 13th)
- Alpha release (June 27th)
- Playtesting (July 11th)
- Final release (July 25th)
Re-cap Milestone #0

• Form teams
• Carefully (!) read project structure document
Re-cap Milestone #1

• Read project structure document – really!
• Include this year’s theme
• Game pitch presentations (aim for “exactly” 10 min)

• Critiques from everyone! (due one week later)
Project Structure Document

• Make sure to follow instructions
• Detailed deliverables
• Especially for milestones 1 & 2
Project Critiques

- Get feedback from “outsiders”
- Be constructive...
- Not used for grading!
Forming Groups

• If you already have a group – great...
• If not – stay behind, top priority
• Email us by Wednesday!
  – One mail per group
  – Name, matr.no., e-mail
  – All group members in CC
Platform

• No restrictions on development platform!
• But - technical contribution has to be clear
• If unsure, talk to us…
Game Theme

- 9 out of 10 designers agree:

  “Narrowing focus and imposing limits expands creativity immensely.”

- Starting point for visual design
- Avoid stereotypes & cliches
- Justify your design decisions against theme
Previous Themes

• Alien
• Historic Places & Events
• Large vs. Small
• The Seasons
• Together
• High Contrast
• Artificial Intelligence
Reflection