

Computer Games Laboratory - Kick-off



Instructors

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Adopted from: ETH GPL

<https://graphics.ethz.ch/teaching/gamelab14/home.php>

Acknowledgements:

M. Gross, B. Sumner, S. Heinzle, ...



The screenshot shows the website for the Game Programming Laboratory at ETH Zurich. The header includes the 'cgl computer graphics laboratory' logo and the 'ETH zürich' logo. A navigation menu contains links for Contact, People, Research, Teaching, Publications, Events, Industry Partners, and Internal. Below the menu, the breadcrumb trail reads 'CGL » Teaching » Game Lab' next to a search bar. A left sidebar lists various topics, with 'Game Lab' highlighted. The main content area is titled 'Game Programming Laboratory - SS 14' and features a large banner for the 'ETH Game Programming Lab 2014 FINAL PROJECT EXHIBITION'. The banner image displays a 3D game environment with a tree, a river, and a character.

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



Games Lab

GE Master

GE Bachelor

Prerequisites

Strong interest in computer graphics and game tech

Basic courses from Bachelor: Games Engineering

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 and Deliverables
- Presentations
- Teamwork
- Creativity

Resources

Main Website:

- <https://www.cs.cit.tum.de/cg/teaching/> -> Semester -> Computer Games Lab
- Schedule
- Project structure / assignments
- Lecture slides

Wiki

- <https://collab.dvb.bayern/display/TUMgameslab2324winter/Home>
- Edit access after forming groups

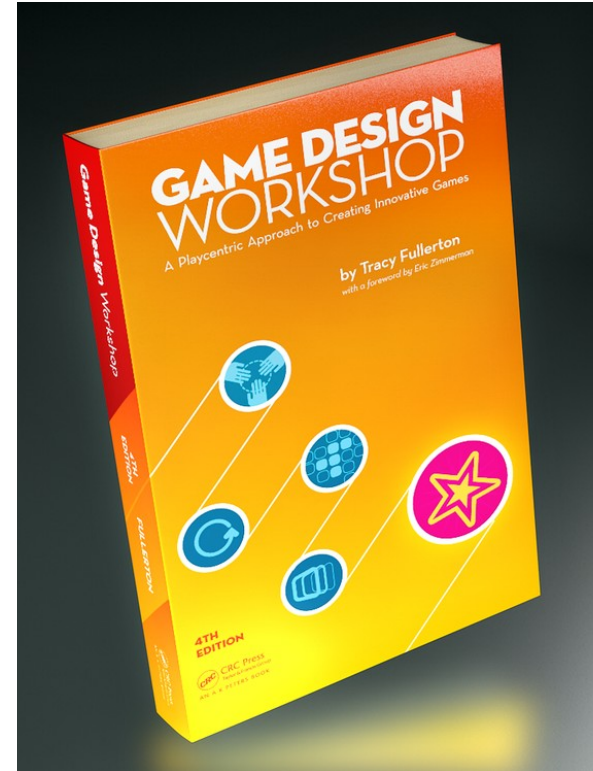
Book

Game Design Workshop

by Tracy Fullerton

<http://www.gamedesignworkshop.com/>

Available as e-book from the university library



Questions?

Project Structure



Teams

3-4 Students per team

Every member should contribute equally

Considerations

- Interests
- Skills
- Working hours
- Meeting locations

Formation of groups later today...

“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)

- Found on the course website
- Contains details about your assignments and deliverables

Detailed project notebook (written by you)

- Updated for each milestone
- Upload to course Wiki by Tuesday 23:59 before the milestone meeting

Presentations in class

- Upload slides to course Wiki by Tuesday 23:59 before the milestone meeting

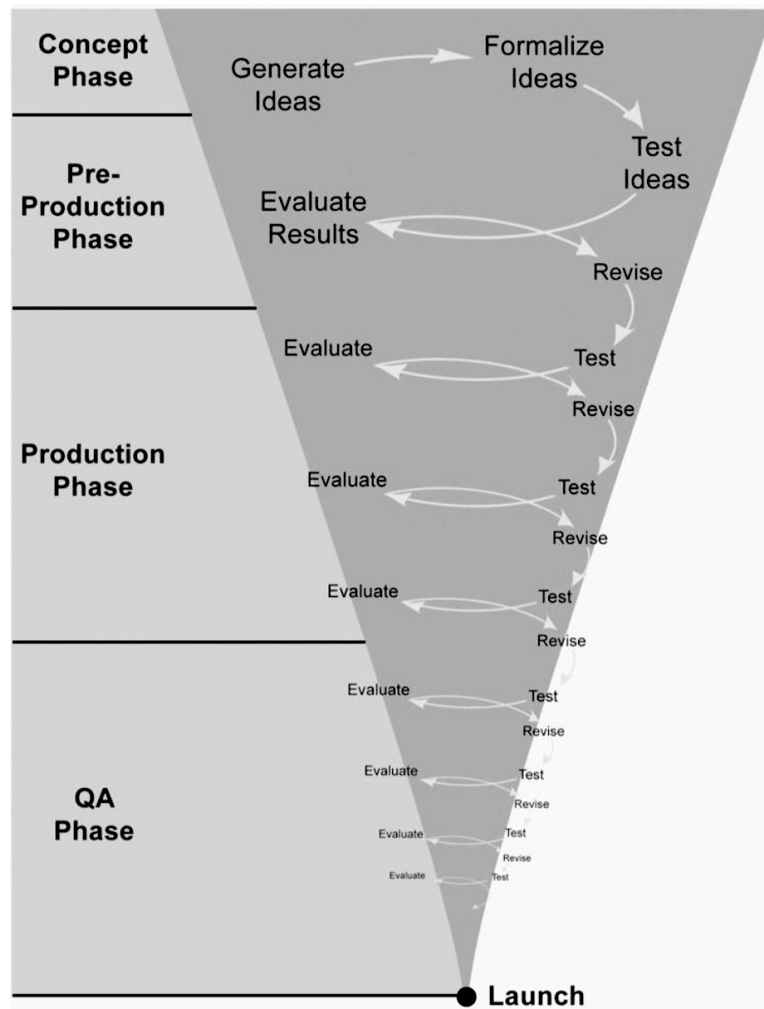
Iterative Design

Keep game on track

Improve upon initial concept

Incorporate feedback

Refine until release



Milestones

- 0. Brainstorming (new this semester!)**
1. Game idea pitch and formal proposal
2. Paper prototype
3. Interim demo
4. Alpha release
5. Playtesting
6. Final presentation!

Milestone #0

Brainstorm to come up with an initial idea

Refine and formalize idea in Milestones #1 and #2

Considerations:

- Think Small & Do One Thing Well
- Novelty & Technical Achievement
- Game Theme

Informal brainstorming presentations (aim for ~5 min), discussion after each presentation

Mutual Project Critiques

Every student gives individual feedback for every idea on the group's Wiki page

Answer at least these questions:

- What is your favourite aspect of the proposed game? Why?
- What is your least favourite aspect? Why?
- Which single change or addition would you suggest to most improve the game?

Consider the feedback when refining the game idea in Milestone #1

Due **2 days after meeting** for Milestone #0

Milestones

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Milestone #1

Game description

- about 1500 words (~3 pages)
- 3 pages sketches / mock-ups / visuals
- Highlight and justify design choices

Development schedule

- Layered task breakdown
- Timeline & milestones

Assessment

- Strengths, appeal, criteria for success...

Layered Task Breakdown

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

Task	Description	Who	Hrs	Actual
1	Brainstorm design	All	4	8
2	Character modeling	Stan	12	26
3	Camera control	Kyle	6	
4	Prepare presentation	All	6	
5	Explosion effect	Kenny	12	

Development Schedule

Task	Wk1	Wk2	Wk3	Wk4		Wk5	Wk6	Wk7	...
1	A				Part 3 Due				
2		L	L						
3			T						
...									

Advice

Think Small!

Do one thing well

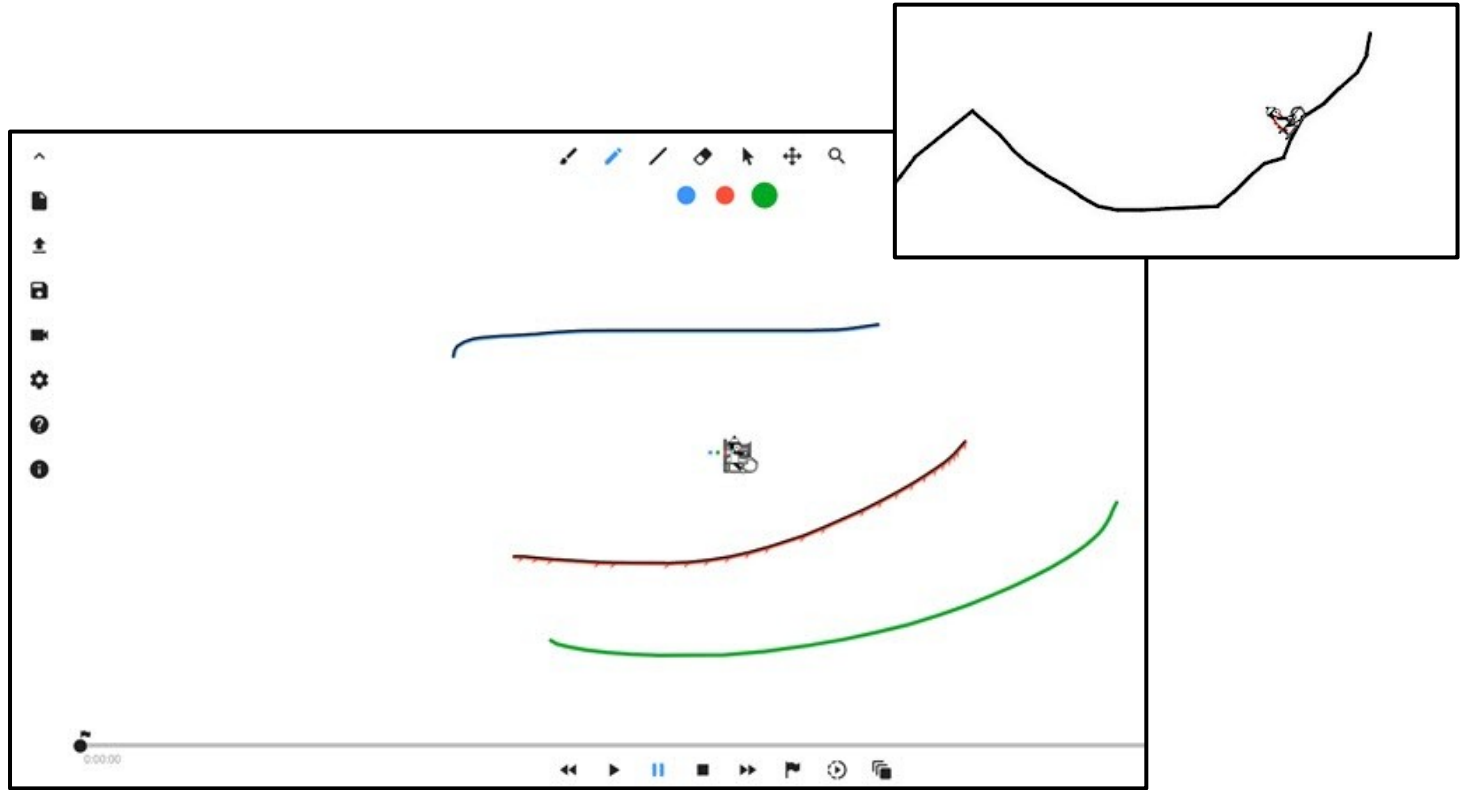
Make game stand out!

Better than doing lots of stuff half-way

Keep the scope of the course in mind

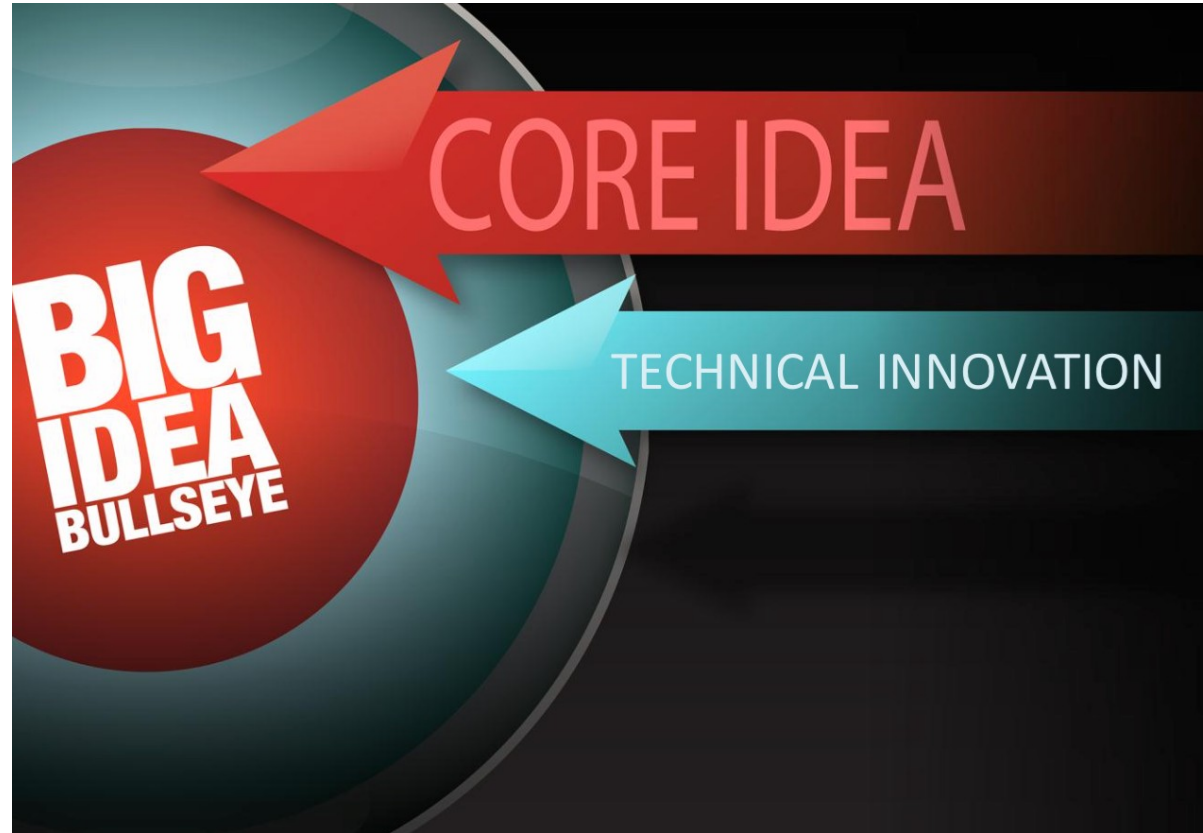
Example

www.linerider.org



Big Idea Sheet

Keeps project focused,
common ground



Big Idea Sheet

Example



Further Inspiration

Previous course instances

<https://www.etc.cmu.edu/projects/experimentalgameplay/games.php>

<https://store.steampowered.com/>

<https://itch.io/>

Temperature			
 <p>fiery pursuit by TJ Johnson</p> <p>You're a flame on a heat-sensitive board. Keep on moving around to avoid burning holes, and collect bonuses.</p> <p>Downloads: exe zip Post-mortem</p>	 <p>Ice Fishing! by Pauline Babin</p> <p>Catch fish with nothing but a magnifying glass by melting snow into icicles and then dropping the icicles to hit the fish below.</p> <p>Downloads: exe zip Post-mortem</p>	 <p>888 by Pauline Babin</p> <p>Create ice for the penguins to walk on and lead them to safety.</p> <p>Downloads: exe zip Post-mortem</p>	 <p>Updraft by SJML</p> <p>Navigate a paper airplane through a house using sources of heat.</p> <p>Downloads: exe zip Post-mortem</p>
Airflow			
 <p>BUGGY PAIR by SJML</p> <p>Stop ants from walking off with your cookies by blowing them away with a hair dryer.</p> <p>Downloads: exe zip Post-mortem</p>	 <p>FLOW CONTROL by Pauline Babin</p> <p>Maneuver the balls around the maze to the colored squares in order to get points. Move the balls by manipulating the maze and controlling the air flow.</p> <p>Downloads: exe zip Post-mortem</p>	 <p>CLOUDS by Pauline Babin</p> <p>Use a cloud's wind to avoid and blow away evil smog clouds.</p> <p>Downloads: exe zip Post-mortem</p>	 <p>TRADEWINDS by Pauline Babin</p> <p>Blow a ship around the sea through buoys, avoiding sharks. Can be played with a microphone or a mouse.</p> <p>Downloads: exe zip Post-mortem</p>

Milestones

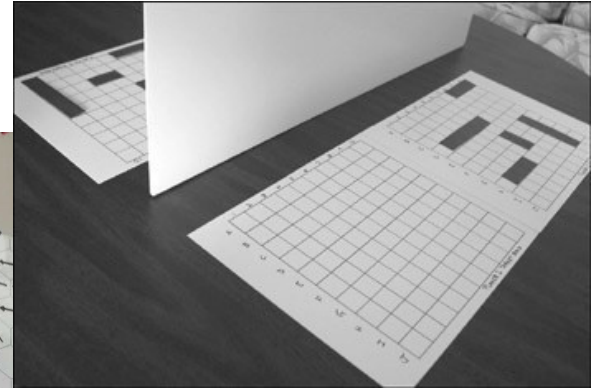
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Physical Prototype

Test core gameplay

Iterate and improve concept

Finish design chapter



Milestones

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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

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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

DemoDay

- Present your game to the public

Milestone Dates (also on website)

Brainstorming (Oct. 25th)

Game idea pitch & formal proposal (Nov. 8th)

Prototype (Nov. 15th)

Interim demo (Dec. 6th)

Alpha release (Jan. 10th)

Playtesting (Jan. 24th)

Final release & presentation (Feb. 7th)

Demo Day (tbd, probably Feb. 6th)

Re-cap: Project Structure Document

Make sure to follow instructions

Detailed deliverables for the wiki and presentations in class

Especially important for Milestones 1 & 2

Re-cap: Milestone #0

Register teams by **tomorrow 23:59** via email to us

Carefully (!) read project structure document

Brainstorming presentations next Wednesday (~5 minutes)

Critiques from everyone! (due 2 days later)

- Get feedback from “outsiders”
- Refine your initial idea
- Be constructive...

Re-cap: Milestone #1

Read project structure document - really!

Formalize game idea, incorporate feedback, iterate

Detailed game proposal chapter

Game pitch presentations (aim for 10 minutes)

Platform

No restrictions on development platform!

But - technical contribution has to be clear

If unsure, talk to us...



Forming Groups

Please stay behind after this presentation, until everyone found a group!

Quick introduction round

If you already have a group – great, maybe somebody else wants to join

If not – chat with the other students to find one

Email us your group at the latest by tomorrow 23:59

- Include name, email, TUM-ID (ab12cde) and matriculation number of every student

Game Theme

9 out of 10 designers agree:

“Narrowing focus and imposing limits expands creativity immensely.”

Starting point for visual design, game mechanics, or idea generation

Justify your design decisions against theme

Previous Themes

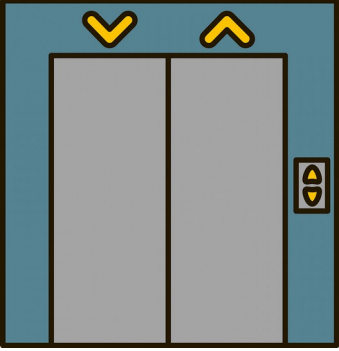
Alien
Historic Places & Events
Large vs. Small
the Seasons
Together
Artificial Intelligence
High Contrast
Reflection
Rollercoaster
Duplicate



Up

&

Down



Questions?

Introduction Round & Group Formation

Name and current semester (and course of study?)

Preferred platform (Unity, Unreal, own engine, other)

Focus area for this course (if you have one):

- Interest, specialization, or previous experience
- Learning a new aspect of game development
- E.g. procedural modelling, rigging, animation, shaders, networking code, etc.

Group (already have one or not yet)