

# Advanced Graphics and Interaction 2014: Lecture 12



The past and future of Space Survival and 2Pacs

Mario Romero  
2014/10/15



**VICSTHLM**  
VISUALISATION INTERACTION COLLABORATION

# Course Schedule

1.	Wed Sept 03 13-15	Lecture 1	Intro
2.	Fri Sept 05 15-19	Lectures 2-3	Group Formation and brainstorming
4.	Wed Sept 10 13-15	Lecture 4	Proposals
5.	Thu Sept 11 10-12	Lecture 5	Feedback on proposals
6.	Mon Sept 15 8:30-10	Lecture 6	Hello World! Demos
7.	Thu Sept 18 10-12	Lecture 7	Demo Day and ForskarFredag Planning
8.	Wed Sept 24 14-16	Lecture 8	Demo Day!!!
•	Thu Sept 25 16-20	Debaser Invation	Setup 16:00 – 20:00
•	Fri Sept 26 8-18	Debaser Domination	ForskarFredag 2014!!!
9.	Mon Sept 29 9-10	Lecture 9	Reflections of ForskarFredag
10.	Wed Oct 8 13-15	Lecture 10	The past and future of YA3 and PodRacer
11.	Mon Oct 13 8:15-10	Lecture 11	Epson Moverio – Project 2 industrial sponsor
<b>12.</b>	<b>Wed Oct 15 13-15</b>	<b>Lecture 12</b>	<b>The past and future of 2Pac and Space Survival</b>
•	<b>Wed Oct 29 16-23</b>	<b>Kista Mässan Invation</b>	<b>Setup 16:00 – 23:59</b>
•	<b>Thu Oct 30 -Sun Nov 2, 9-19</b>	<b>Kistamässan Domination</b>	<b>COMICON 2014!!!</b>
13.	Tue Nov 4 10-12	Lecture 13	Reflections on ComiCon
14.	Wed Nov 5 10-12	Lecture 14	New groups
15.	Fri Nov 7 15-19	Lectures 15-16	Epson Moverio Workshop
17.	Tue Nov 11 10-12	Lecture 17	<b>Proposals</b>
18.	Tue Nov 18 10-12	Lecture 18	Feedback on proposals. Early hello world dem os
19.	Tue Nov 25 10-12	Lecture 19	Hello world !demos
20.	Tue Dec 2 10-12	Lecture 20	<b>Demo Day!!!</b>
•	<b>Thu Dec 4 15-18</b>	<b>VIC Invation</b>	<b>Prepare Open House</b>
21.	<b>Fri Dec 5 15-19</b>	<b>Open House</b>	<b>AGI14-VIC Open House</b>

# Agenda

1. Reflection on Moverio
2. Space Survival
3. 2Pacs
4. Break (5 minutes)
5. Schedule Individual Meeting
6. Schedule Group Meeting
7. Volunteers for Kista Mässan Invasion
8. Comic Con Planning
9. Particle Systems
10. Volume Rendering

# Next Lecture: Epson Moverio for Project 2



## Vadim Couthon

National Sales Manager at **Epson** Europe



Augmented-reality see-through heads-up display.

# Remember: Deliverable Oct 28

- Working VIC Demo
- Code with good comments
- Webpage with:
  - Description
    - Goal and motivation of the project
    - Explanation and Justification of the graphics and interaction technologies used and developed
    - Challenges
    - Obstacles
    - Related work
    - Lessons learned
  - Photos
  - "Making of" documentary (2 minutes)
  - Demo Reel (30 seconds)
  - Optional PR material (logo, trailer, flyers, posters, catalog)
  - User testimonials (what did people say)

# Space Survival

- The Tiny Earth and The Mystery of Parallax
- Haptic Feedback
- Light Scattering

# 2Pacs

- Wii Mote Testing Interface
- Backups:
  - **Wii mote + nunchuck**
  - **Fresh Batteries**
  - **Keyboard**
  - **Wired game pads**
  - *What if? Kinect*

Awesomeness						<b>AUTHOR COLOR GUIDE</b> Linnea <span style="color: yellow;">■</span> Mattias <span style="color: green;">■</span> Ludwig <span style="color: blue;">■</span> Christoffer <span style="color: red;">■</span>			
General Categories	Input		Output			Level Design			
Specific Categories	Buttons	Motion	Haptics	Visuals		Audio	Holes in the Ground   Difficulty   Pellets		
Subcategories	Jump	Brake	Shake	Rotate	Vibrations	Level	Characters	GUI	Special Effects
Feedback	Use same button?   Great! No change   Awkward! Change		Looks professional!			What is my score?		I can't see the hole!   It is too difficult.   Difficult to catch!	
Features			Collision Vibrations Ghost Proximity Vibrations	Improved Skybox Translucency Reflections/refraction	Pac-Man Animations At End Show Score	Particle Effects Pac-Man Fire Trail Collision Sparks Pellet "poof" Effect EMP-effect	Intro Music Brake Sound Bug Pellet Pickup Combo Pitch	Make more visible! Levels with varying difficulties Magnetic Pac-Man Full Pellets	
Related Work	<a href="http://http.developer.nvidia.com/GPUGems2/gpugems2_chapter10.html">http://http.developer.nvidia.com/GPUGems2/gpugems2_chapter10.html</a>			<a href="http://http.developer.nvidia.com/GPUGems/gpugems_ch39.html">http://http.developer.nvidia.com/GPUGems/gpugems_ch39.html</a>		<a href="http://di.acm.org/citation.cfm?id=801167">http://di.acm.org/citation.cfm?id=801167</a>		<a href="http://graphics.stanford.edu/courses/cs448-01-spring/papers/ynge.pdf">http://graphics.stanford.edu/courses/cs448-01-spring/papers/ynge.pdf</a>	

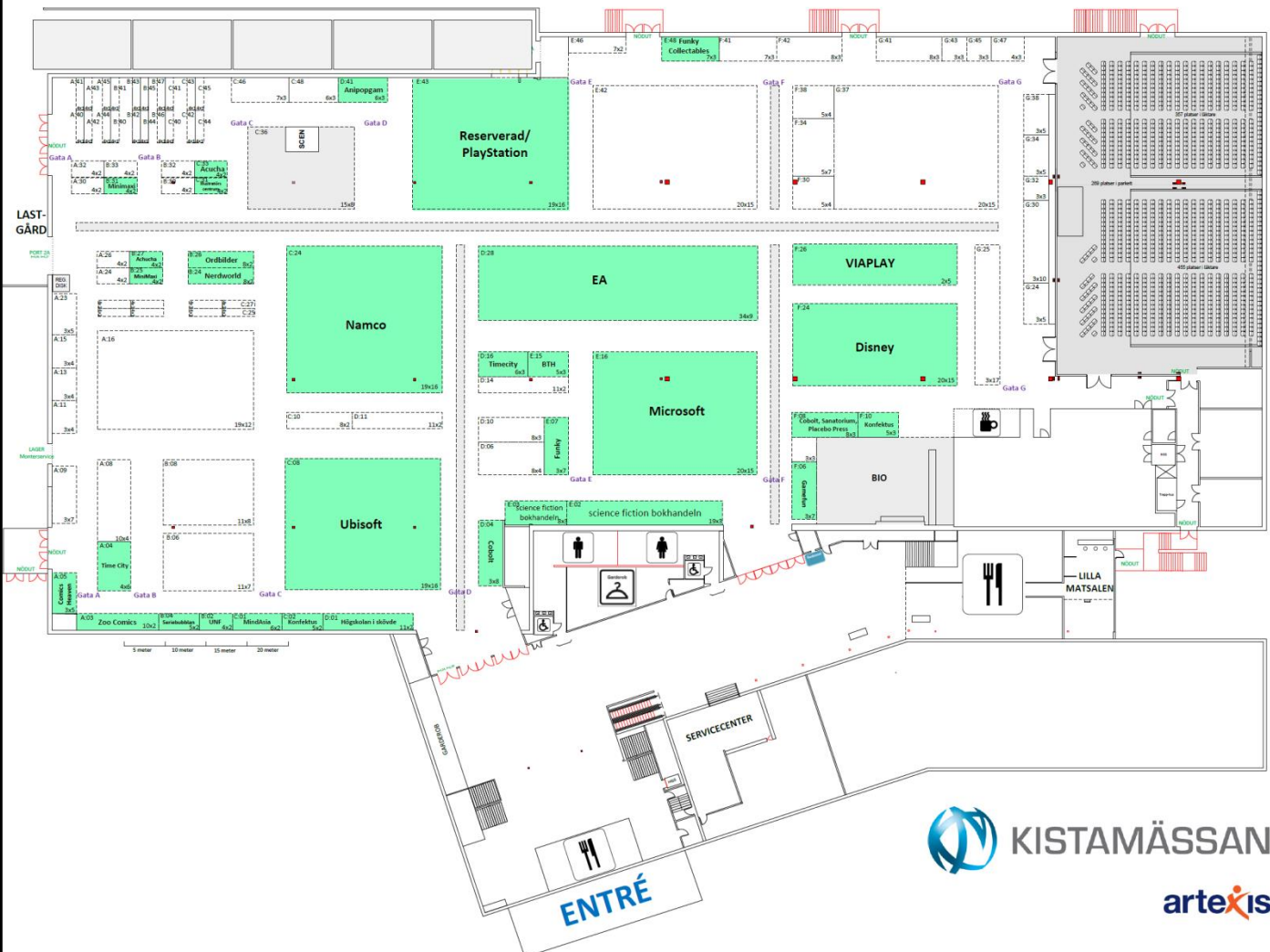


# Admin

1. Schedule Individual Meeting
2. Schedule Group Meeting
3. Volunteers for Kista Mässan Invasion

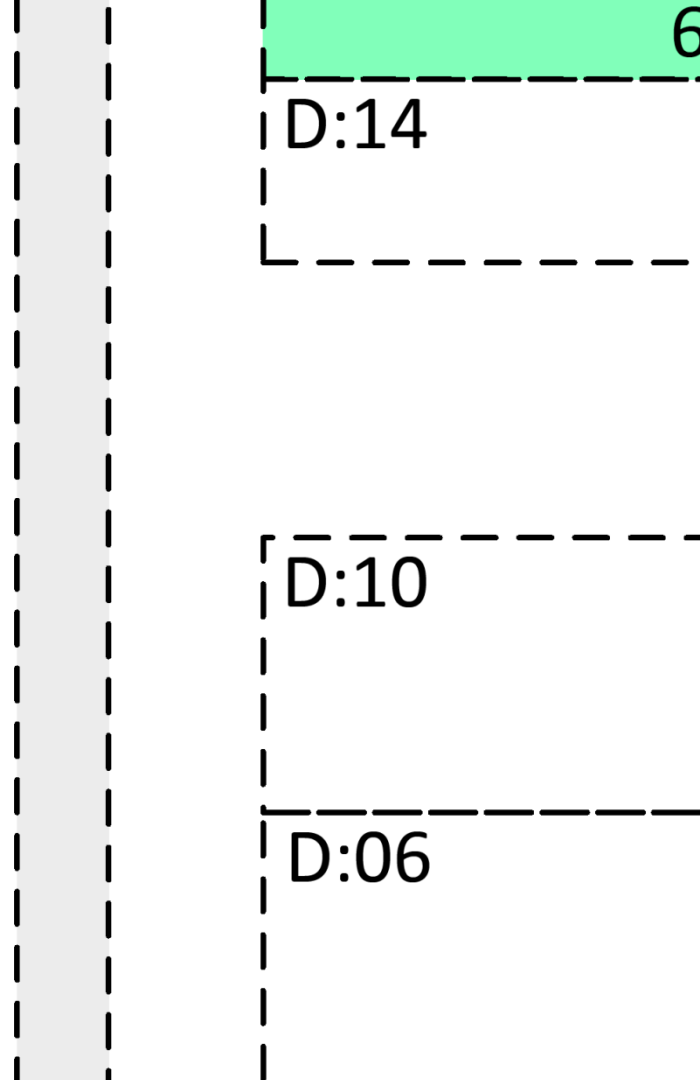
# Comic Con Planning

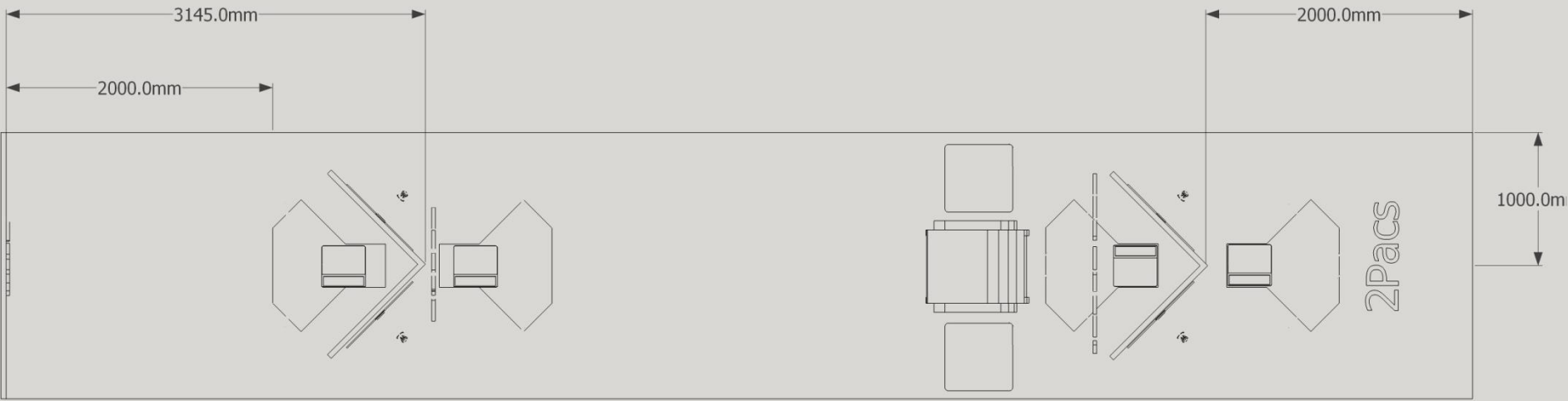
- Model
- Google Doc
- Scheduling

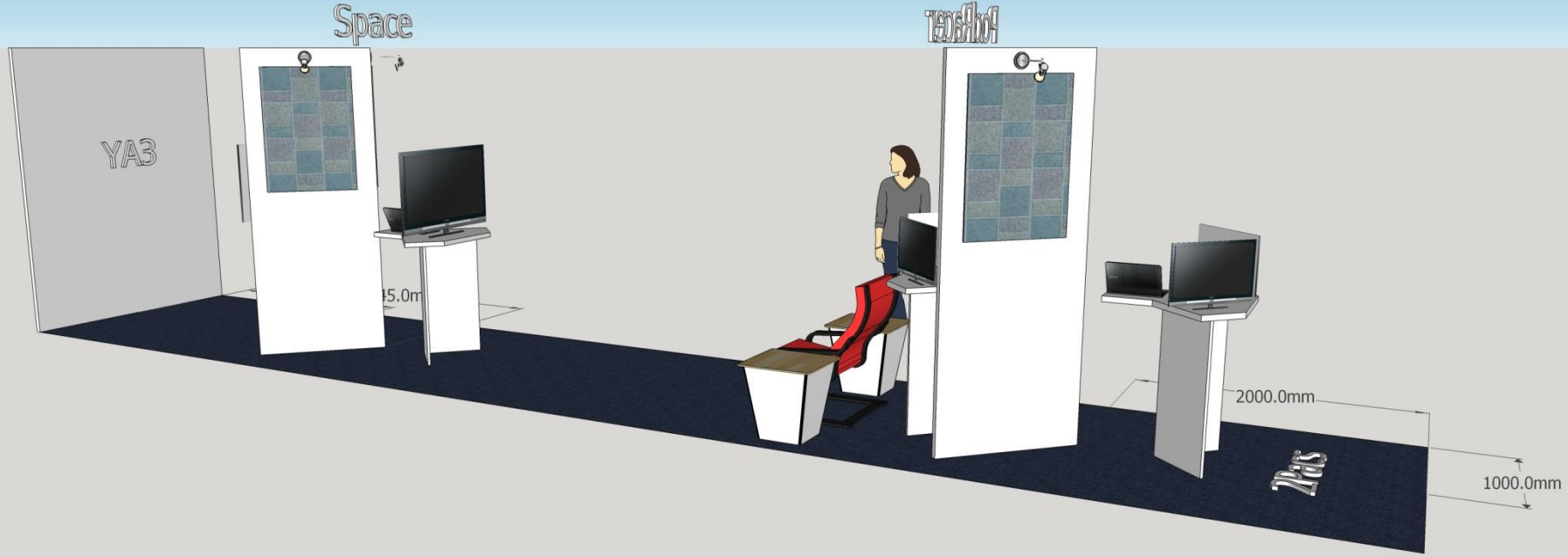


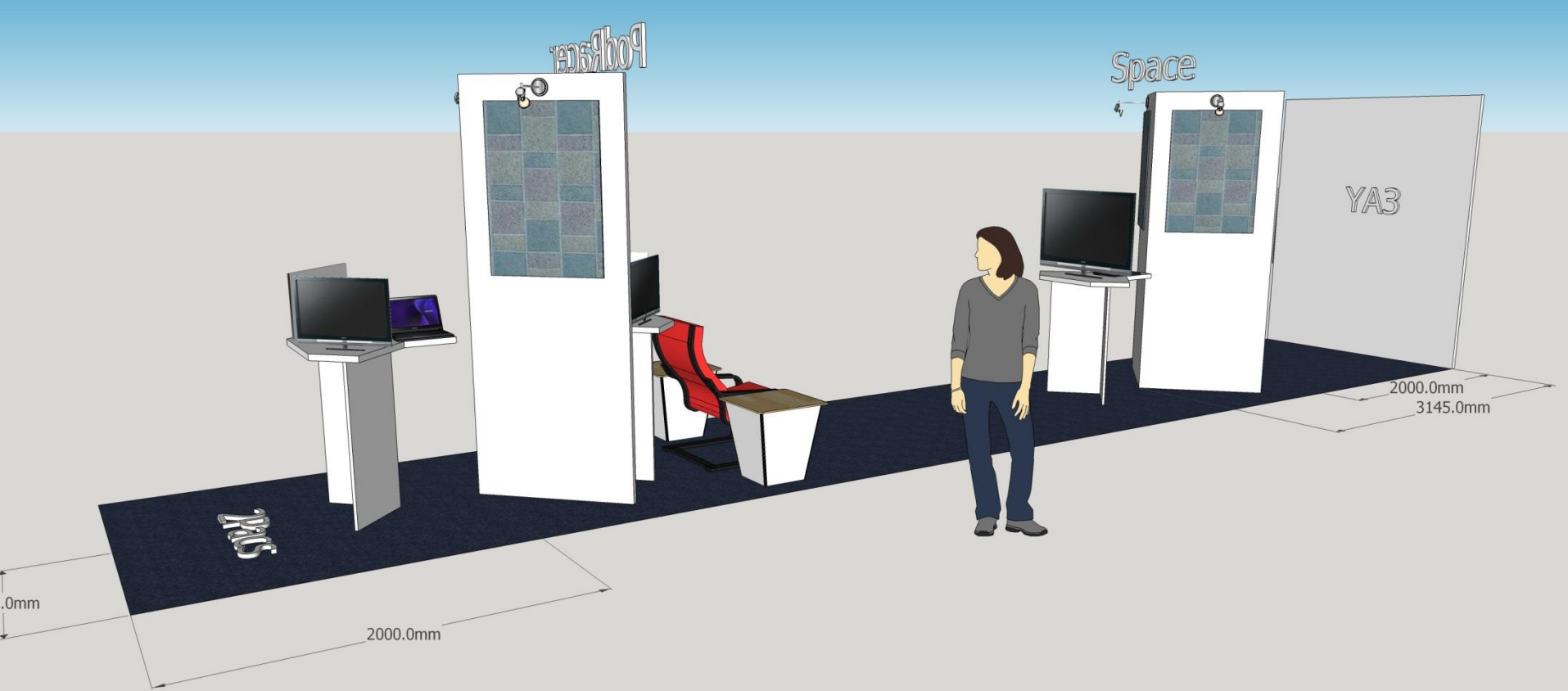
KISTAMÄSSAN

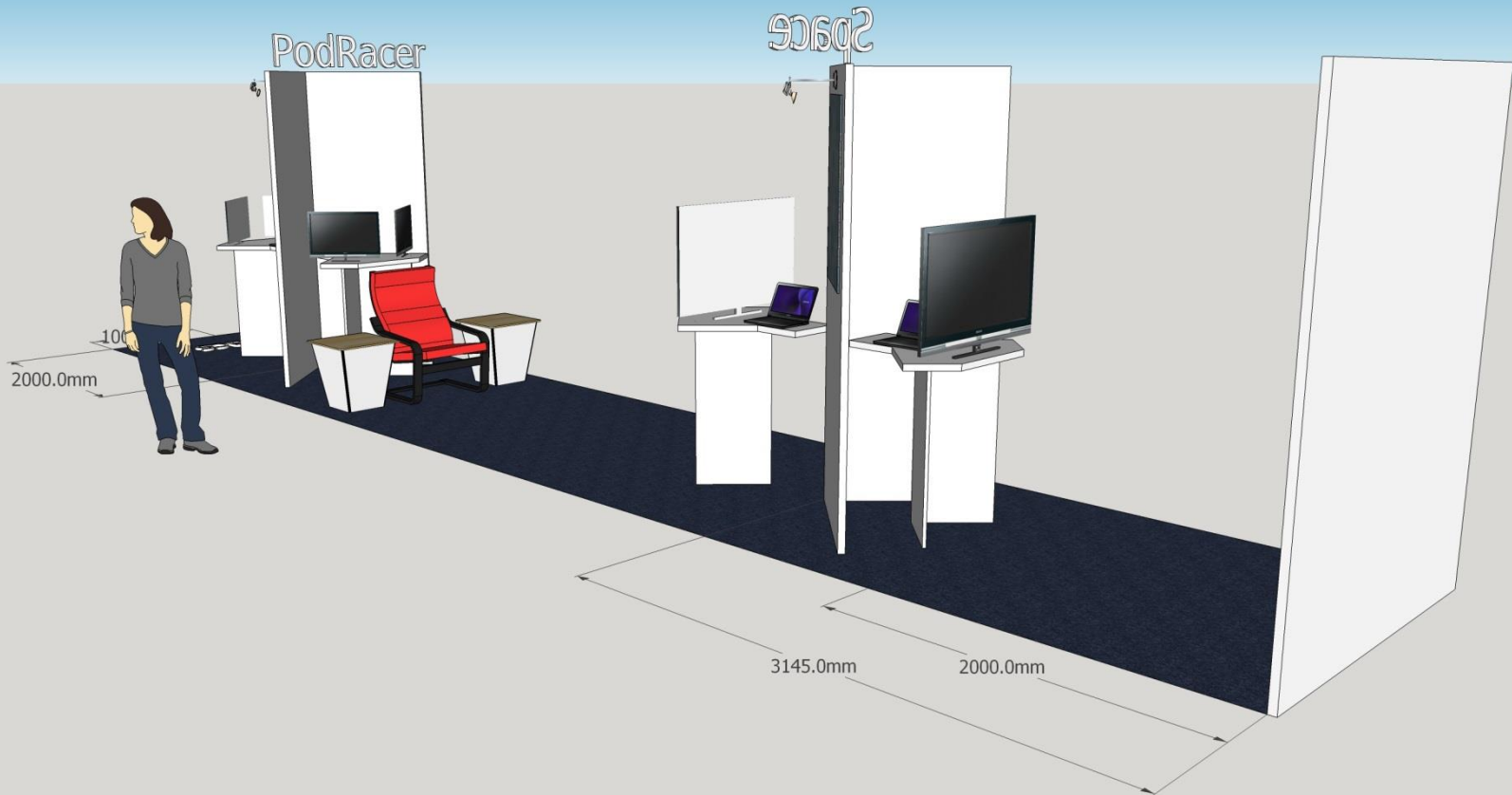
artexis













90602

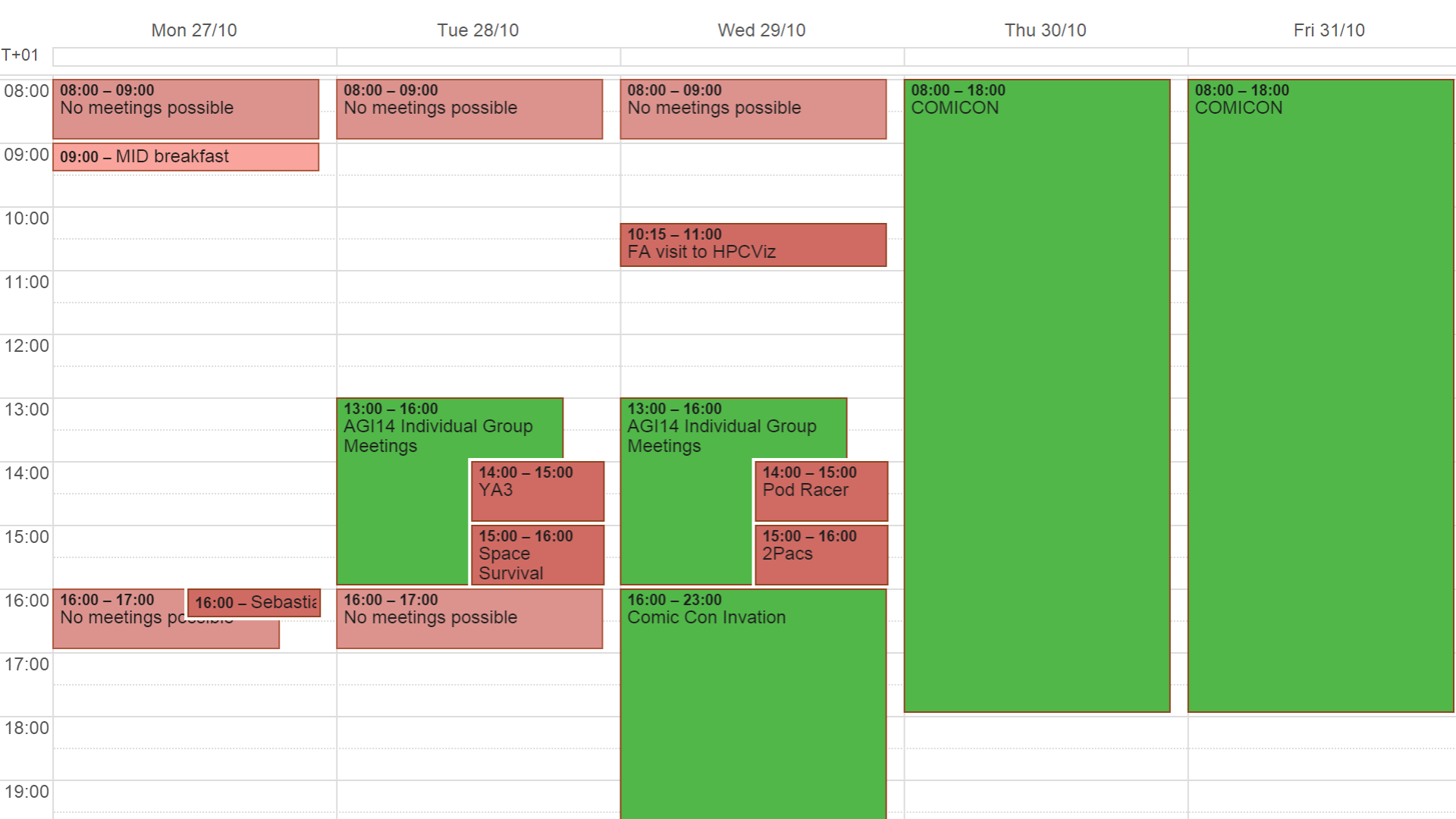
PodRacer



# Individual Meetings

	Mon 20/10	Tue 21/10	Wed 22/10	Thu 23/10	Fri 24/10
MT+01				Lauren	
08:00	08:00 – 09:00 No meetings possible	08:00 – 09:00 No meetings possible	08:00 – 09:00 No meetings possible	08:00 – 09:00 No meetings possible	08:00 – 09:00 No meetings possible
09:00	09:00 – MID breakfast 09:15 – Monday			09:00 – 10:00 Hanna	
10:00	10:00 – Ludwig 10:30 – Carl	10:00 – 11:00 Delft workshop Hanna			10:00 – 11:00 Erghis Technologies - Örs
11:00	11:00 – Johan 11:30 – Axel	11:00 – Christoffer 11:30 – Sören		11:00 – 12:00 Fortum - Joakim - Johan	11:00 – 12:00 Tove
12:00					
13:00	13:00 – Mattias	13:00 – Stefan 13:30 – Oskar		13:00 – 14:00 Björn defense	13:00 – Linnea
14:00	14:00 – 16:00 Reserved Max, Andreas				

# Group Meetings



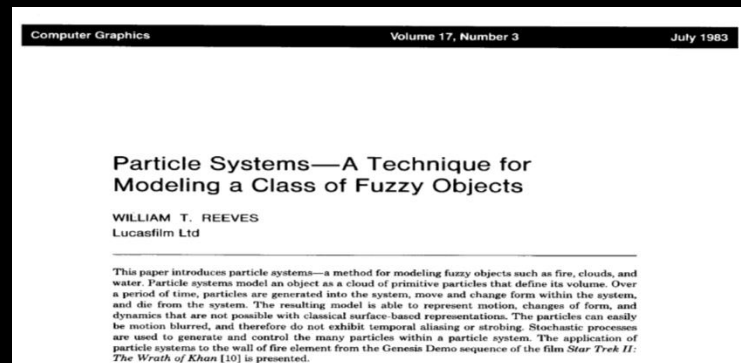
# Google Sheet for Self-Organization

- <https://docs.google.com/spreadsheets/d/1VjRsYTua9qE1nTTtOpr9emtVdfOCz4wi28VRtTqV3dw/edit#gid=106079050>

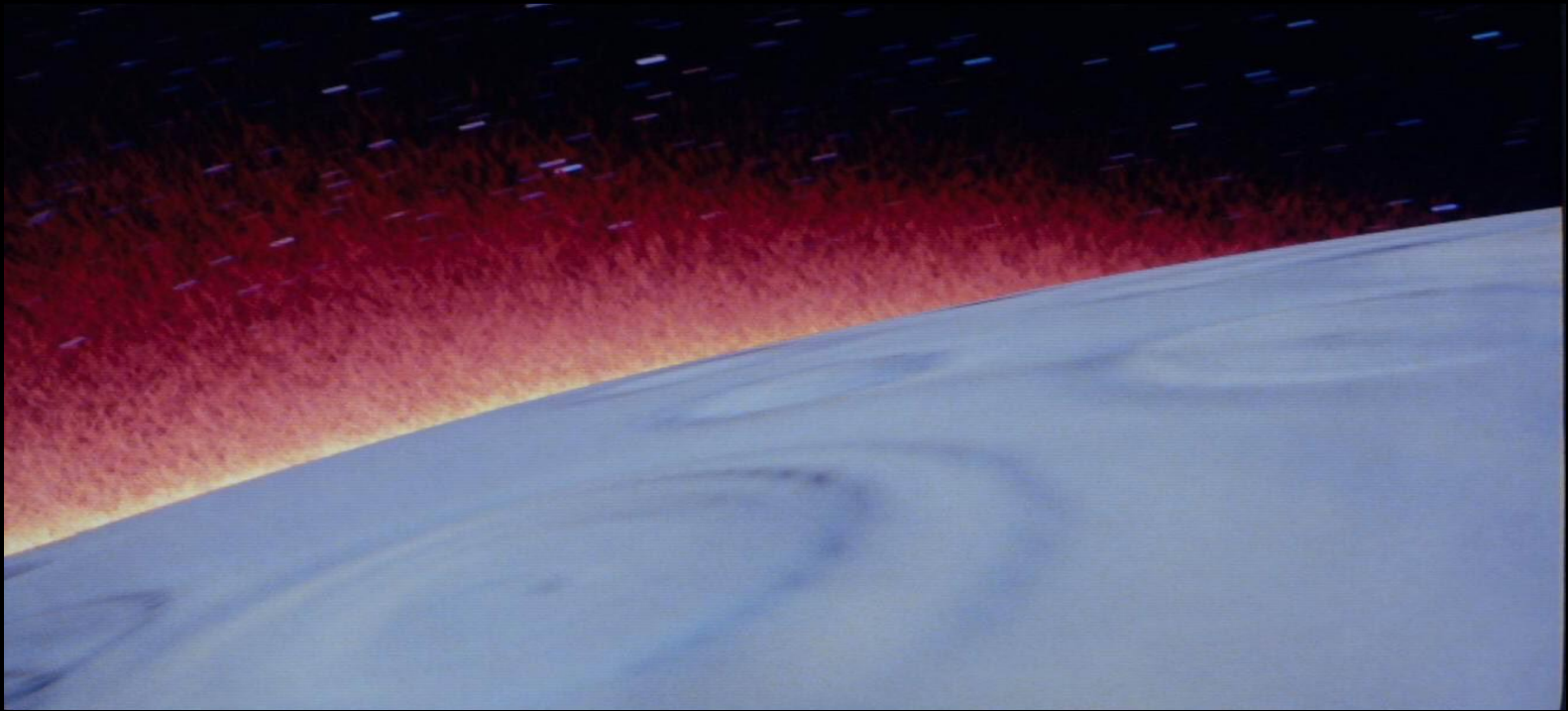
# Particle Systems

- Original Paper

- Particle Systems: A Technique for Modeling a Class of Fuzzy Objects
- ACM SIGGRAPH 1983
- William Reeves
- Let's read the paper



# Demo



# Paper's Abstract

- Model fuzzy objects
  - Fire
  - Clouds
  - Water
- Particles = primitives of a volume
- Shape of volume is non-deterministic (stochastic)
- In time:
  - Generated
  - Move
  - Change
  - Die

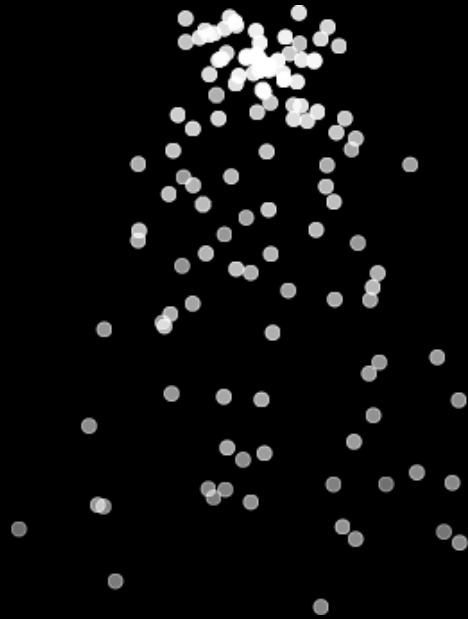


# Model (Algorithm)

1. Generate new particles
2. For all particles
  1. Assign individual attributes
  2. If too old, kill
  3. Else, transform =  $f(\text{dynamics})$
3. Render image of living particles

# Exercise at home

- Simple Particle System
  - [Link](#)
- Understand Code
- Modify to
  1. Simplify to one particle with simple trajectory
  2. Interactive Particle Cannon
- Share through FB wall



# Thank you!

[marior@kth.se](mailto:marior@kth.se)

Questions?