

# Thesis Prep

Games Programme, 2024

# All information is on <https://itustudent.itu.dk/>

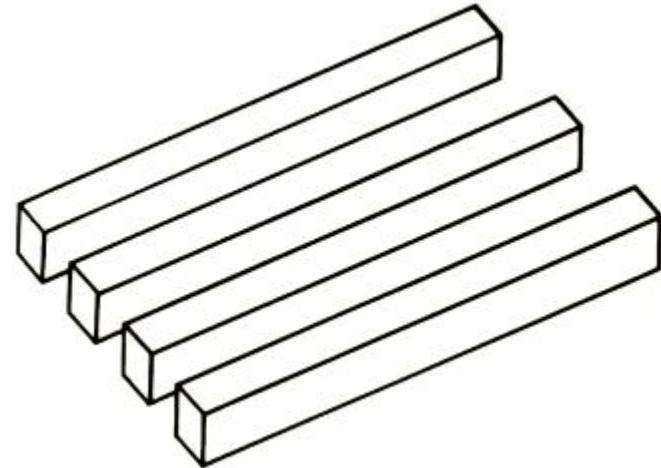
The screenshot shows the ITU STUDENT website interface. At the top, there is a dark header with the "ITU STUDENT" logo on the left and a navigation bar with links: LearnIT, Webmail, Time Edit, My Study Activities, IT Status, and a search icon. Below the header, there is a main navigation menu with tabs: Study Start, Your Programme (which is selected), Study Administration, Study & Career Guidance, and Campus.

The page content is organized into four main columns:

- Registration:** Includes links for Register for all your study activities, Changing a Registration, Specialisations, Pre-approval of courses, Credit Transfer, and Replace a Module.
- Exams:** Includes links for Course exams (mandatory activities), Course re-exam, Project/Thesis exams (highlighted with an orange border), Project re-exam, Thesis re-exam, Generative AI guidelines, Exam registration (re-exams), Illness at exams, Submission deadlines, Submit written work, Special examination conditions, Grades, Academic misconduct, Diploma, Graduation ceremony, SU, About SU, Study activity requirements, SU Abroad, Other, TimeEdit - how to find your course schedule, and LearnIT - How to submit assignments in LearnIT.
- Special Circumstances:** Includes links for Illness, Childbirth, Leave of absence, Exemptions, How to apply for an exemption, Special Educational Support (SPS), Project Work (highlighted with an orange border), Process for writing a project / thesis, Finding a supervisor, The project page (problem statement), Your supervisor and supervision, Intended Learning Outcomes, Workload and project size, Collaborating with companies, Project-related support and expenses, Especially about the Bachelor project, Especially about the Thesis, Supervision evaluation, Documents, Forms, and Transcripts and documentation.
- Rights and Requirements:** Includes links for Exam complaints, Complain about teaching or supervision, Legal right (How to apply to a MSc), Withdrawal, Re-enrolment, (No) Registration Requirement, The Progression Requirement, First year exam (BSc only), Code of Conduct, Appendix to the curricula, GDPR, GDPR and Responsibility, GDPR awareness course, Diversity and Inclusion, Here to help, If you experience something uncomfortable, Policies, Contact, and Student Affairs and Programmes.

# Third Semester = Thesis Prep Semester

- 4th semester = thesis writing semester  
(full-time, 30 ECTS, max. + 7.5 ECTS)
- Only 4 months long!
- 3rd semester:
  - Find topic
  - Find group
  - Find supervisor
  - Do initial research



# Definition of Master Thesis

“It is an independent project, which should show that you are able to work with a **topic of your own choosing** at a **high academic level**. The thesis is a **written submission** (either individual or in group) with an **oral exam** (50 minutes per student incl. voting and feedback).”

i.e. you are **not** graded on a practical product

# Intended Learning Outcomes Master Thesis Games

- To **identify, formulate, address, and reflect on a research problem** that relates to the study, design, and/or development of games and other playful and engaging experiences and/or their technological foundations and is relevant to the student's respective study track (Game Design or Game Technology).
- To **identify and analyse relevant means for resolving the research problem**, such as academic theories, methods, technology, programming and computational thinking competences, literature, tools, and other sources, as well as existing solutions to similar or the same problem.
- To **combine** the selected means, **develop** them further if necessary, and **apply** them towards the resolution or **advancement of the research problem**.
- To **evaluate** the achieved resolution.
- To **report** in a coherent and stringent way the research problem, the background research, the work towards the resolution, the achieved resolution, the evaluation, and other relevant material, while adhering to the **academic standards**.
- To **critically reflect** upon the research problem, the chosen approach, the achieved resolution, and other findings.

# Workload

The general syllabus guidelines are not suitable for the GAMES study programme. Because of the inherent interdisciplinarity of the programme, the syllabus is often a mix of technical papers, other academic articles and books.

A suitable guideline is that all reports should cite **at least as many sources as they have pages.**

If students develop a product as part of a project or exam assignment, the supervisor **can** reduce the syllabus as appropriate.

# Project Size

- 1 student: 50-75 standard pages
- 2 students: 75-100 standard pages
- 3 students: 100-125 standard pages
- 4 students: 125-150 standard pages

Standard page = 2400 characters (incl. spaces) per page

Project size = **body of the text** (text that is part of the original argumentation plus citations), **not** front page, colophon, table of contents, abstract, bibliography, appendices and illustrations and charts.

Project including practical work: page count reduced by up to 20% in agreement between supervisor and student(s).

# Example Table of Contents Game Design Project

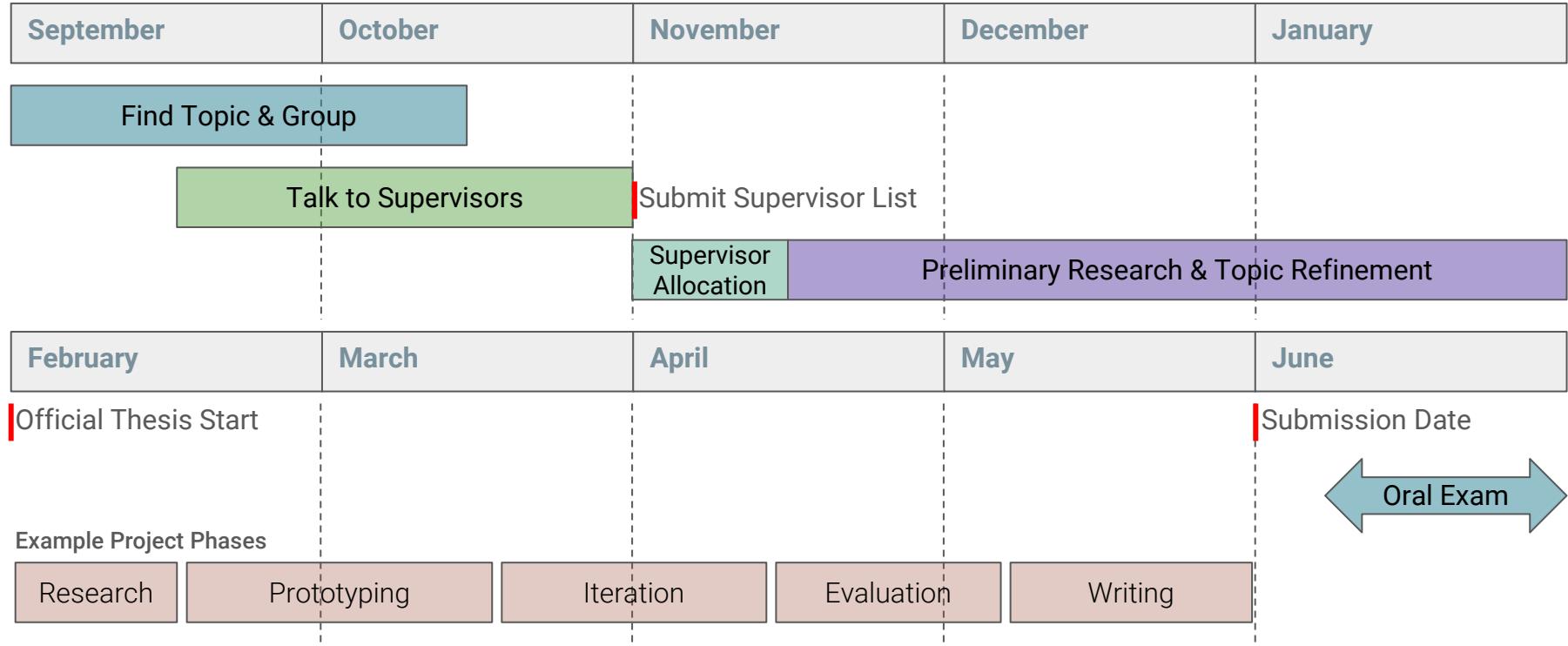
Introduction	2 p.
Problem Formulation	2 p.
State of the Art	5 p.
Fundamental Theory	8 p.
Design Considerations	5 p.
Initial Design	8 p.
Iterations	5 p.
Evaluation Method/Process	2 p.
Results	5 p.
Discussion	5 p.
Conclusion	3 p.

50 pages

# Supervisor Allocation

- You cannot freely choose your supervisor! We need to find a compromise between student wishes and available resources.
- Talk to several potential supervisors and submit a prioritized list of the supervisors you would want to work with most.
- Part-time lecturers and PhD students can (sometimes) supervise.
- Wishes of groups are prioritized.
- **Questions about thesis registration & LearnIT go to [SAP@itu.dk](mailto:SAP@itu.dk), questions about topic, method, supervisors etc. go to Hajo ([hanj@itu.dk](mailto:hanj@itu.dk)).**

# General Structure



# Supervisors

# DESIGN

**Game design projects**, especially with a focus on 'games for change'/**serious games**.

**Game jams**. Grassroots game dev.

Study of game development cultures in **Denmark**.

# PLAY THEORY

Theoretical and ethnographic projects on how play and games fit into **players' everyday life** and into other play practices.

**Professional play** from the point of view of the immediate player-game relations, not as a cultural phenomenon.

# PLAY THEORY

Projects specifically and loosely related to **the Other**, such as women and non-human animals.

**Fandom** and player co-creativity.

Hanna Elina Wirman

Associate Professor

[wirman@itu.dk](mailto:wirman@itu.dk) - Just write me!

Rune K. L. Nielsen  
(rkln@itu.dk)

Research interests and possible topics:

- Games and addiction
  - Games and gambling
  - Games and monetization
  - Dark design patterns in games
  - Loot boxes (we have the data!)
  - Esports
  - Swift!

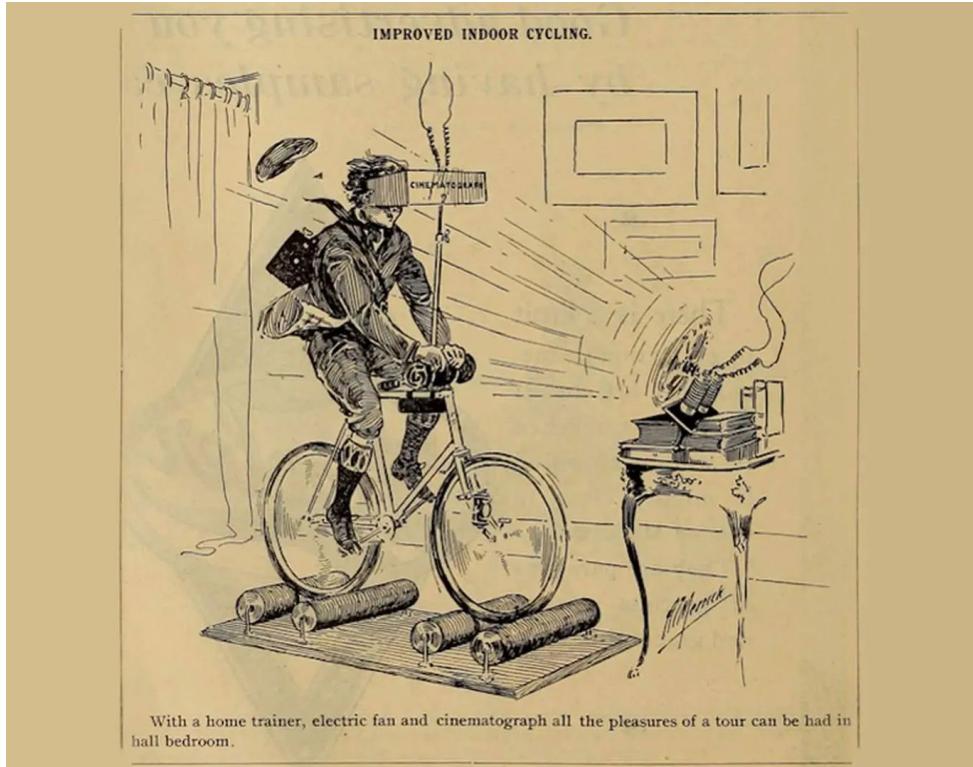


Photo credit: The Wheel and Cycling Trade Review, 1888

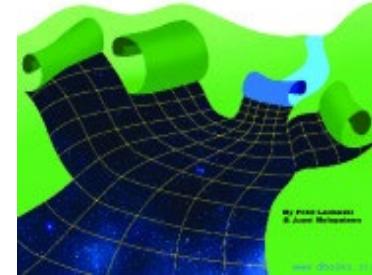
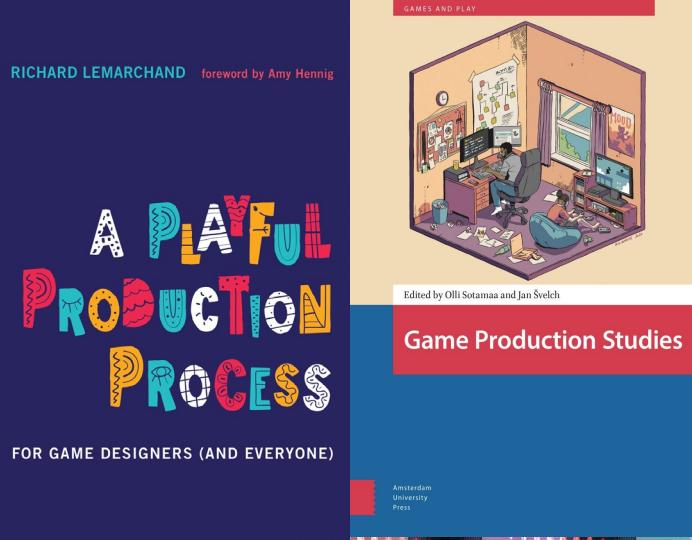
I'm open for almost any project, but am best at supervising the following topics (in no particular order):

- Game design projects
- Game hermeneutics and analyses (interpretation, model formulation, typologies)
- Specific discourses in games (e.g. age, alterity, gender, ecology)
- Game theories and ontology (esp. player-avatar relationships, agency, space and time)
- Games as narrative, games and other media, adaptation

# Mark Staun Poulsen, PhD (stpo@itu.dk)

Co-supervisor on game projects and  
qualitative research

- Game producer and project management
- The game industry and media industries
- Game design research
- Industry case studies



# Sebastian Risi ([sebr@itu.dk](mailto:sebr@itu.dk))

Neuroevolution, neural networks, collective systems,  
evolutionary algorithms, deep RL

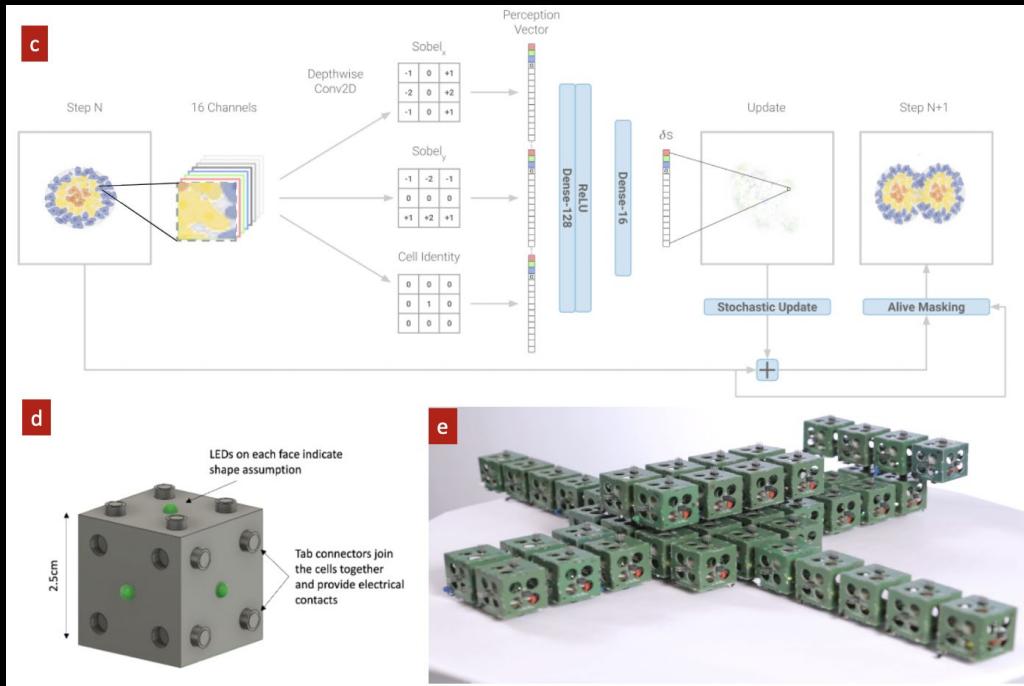


## Available Topics:

1. Repurposing existing games for crowdsourcing
  - Can you turn any game (e.g. Mario) into a game to solve some scientific challenge.
2. Automatically testing games for bugs and glitches with RL agents (in collaboration with modl.ai)
3. Self-attention reinforcement learning agents for match -3 tile games (in collaboration with modl.ai).
4. Analysing video games from pixels (e.g. automatically analysing game properties by tracking objects and their relations)
5. Different projects on GROW-AI ERC grant. More info [here](#).

Some more project ideas can be found in the slides at the end. Check out my homepage to get ideas of what my group is working on: <https://sebastianrisi.com/>

# “Cellular” robots that can infer their own shape and detect damage through neural cellular automata



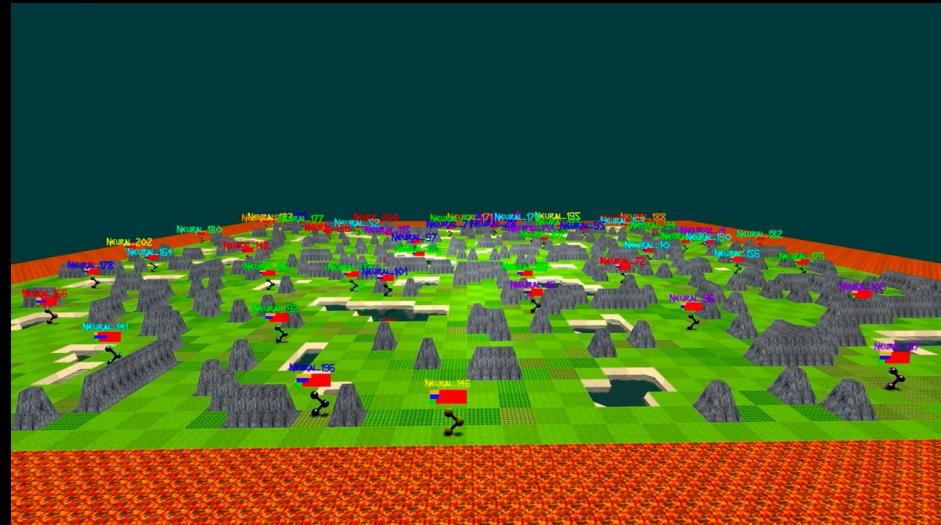
We have been building “cellular” robots that can be put together like Lego blocks and tell you the shape they are in. Looking for students to implement novel neural network-based algorithms that could determine when the structure is being damaged and how to repair it.

Also looking for students to develop new hardware with wireless communications (NFC or IR)

# Large -scale co -evolution in a Massively Multi -agent Game environment

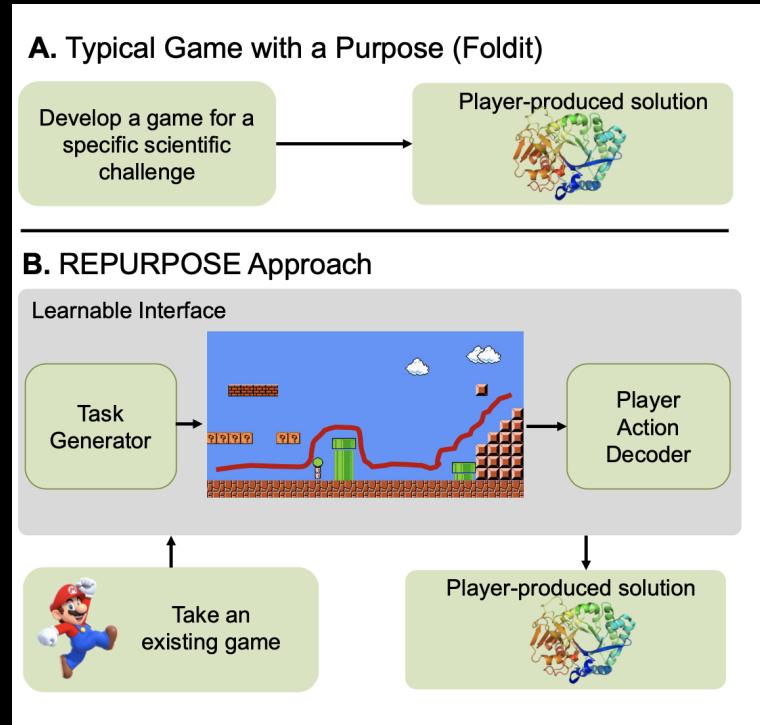
Use the Neural MMO environment (<https://openai.com/research/neural-mmo>) to co-evolve populations of thousands/millions of neural network-controlled agents.

Under what circumstances would interesting group dynamics evolve?  
What environmental factors drive agents to form different species or when would they start to collaborate?



# REPURPOSE Project: Repurposing Existing Video Games for Citizen Science

Instead of designing games for a specific scientific challenge, can we develop a *general interface* that allows us to repurpose already existing video games for crowdsourcing. Imagine the millions of players of popular video games contributing towards solving important scientific problems or complex computations while playing their favorite game.



# Elisa Mekler (elme@itu.dk)

Project topics that I'm interested in supervising:

- Applications of “theories” to games, e.g.,
  - What do game devs do with Self-Determination Theory?
  - Who uses the MDA framework anyway? And for what?
- How are emotions conveyed through game rules? (-> check the examples)
- Extrinsic motivation in gameplay, e.g., sidequests, 100% completion
- What is jank?



OMORI, 2020, Omocat LLC

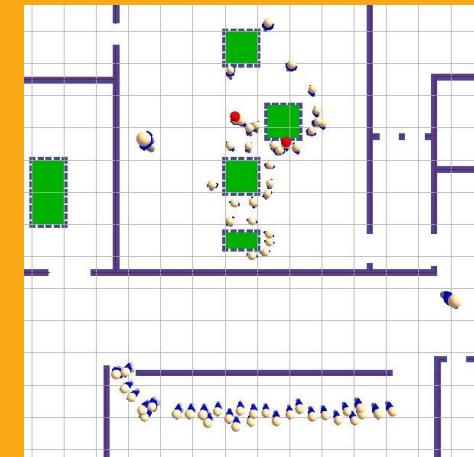


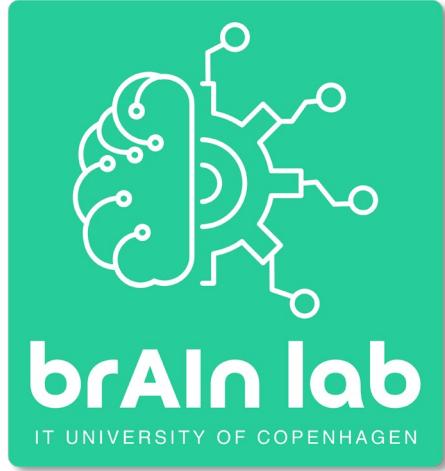
Who's Lilah?, 2022, Garage Heathen

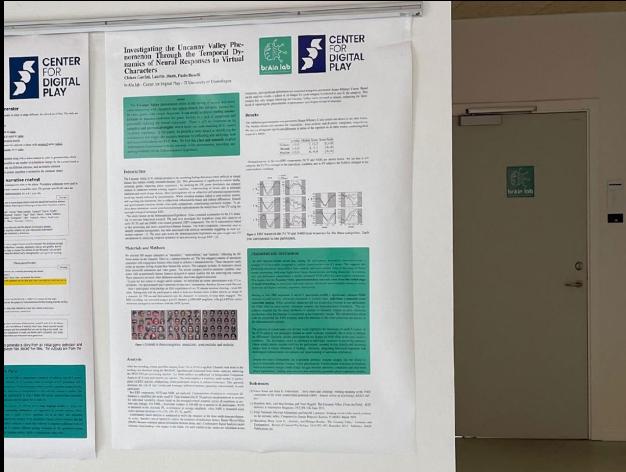
# Djordje Grbic (djgr@itu.dk)

I'm open for student suggestions,  
though my expertise lies in:

- Reinforcement Learning and AI in general
- Evolutionary computation
- Procedural content generation or algorithmic design
- Multi-agent systems







## Topics

Deep learning  
Psychophysiology  
Neuroscience  
User modelling  
Games

## Experiments

User research  
Usability  
Data collection

## Equipment

EEG  
Eye Tracking  
Heart Rate Monitoring  
More...?

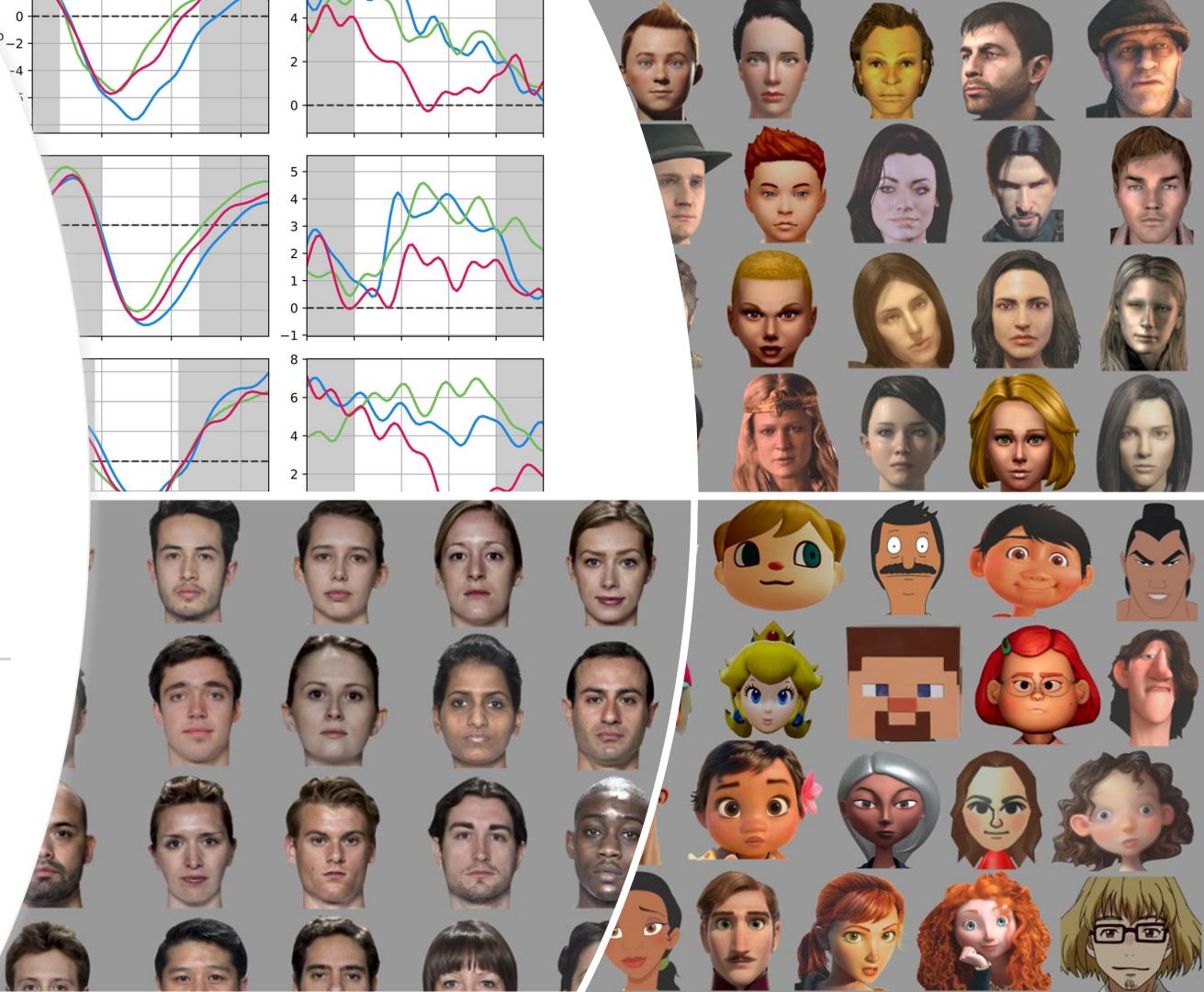
Previous Projects:  
**Modelling  
challenge  
through EEG**





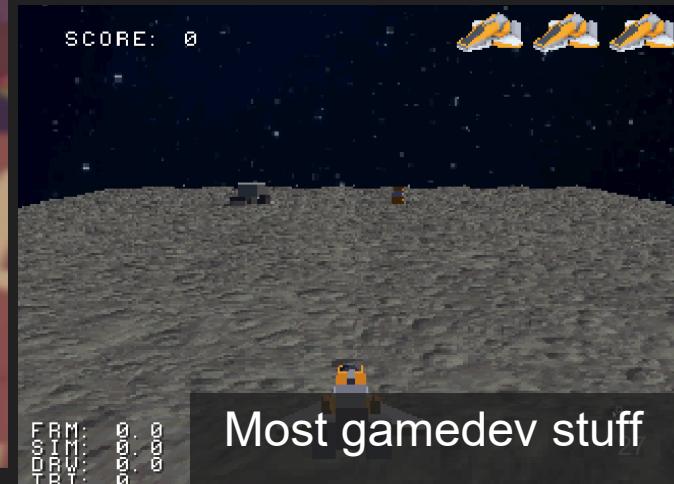
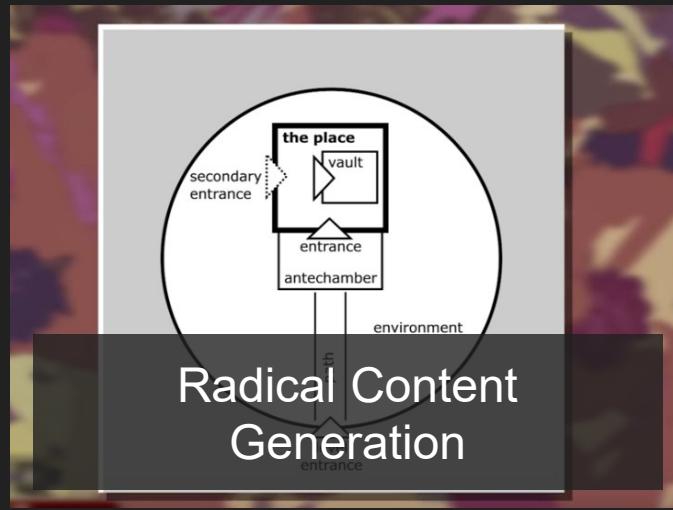
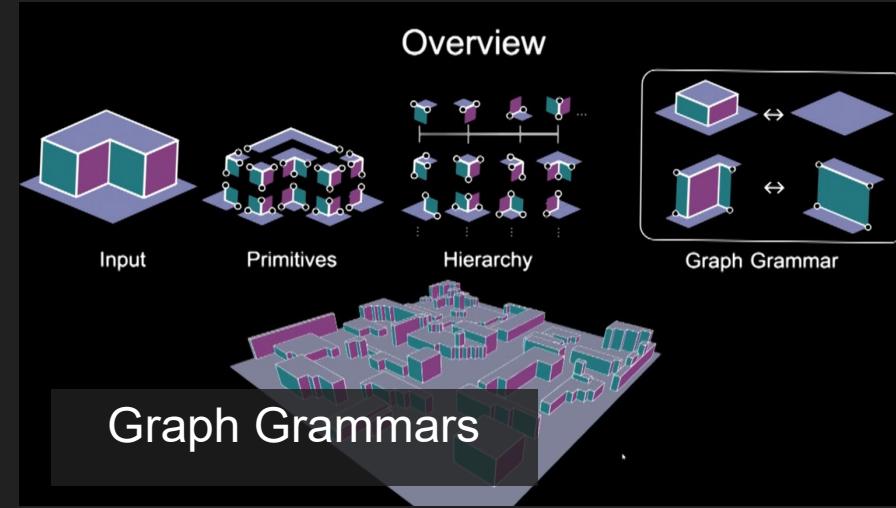
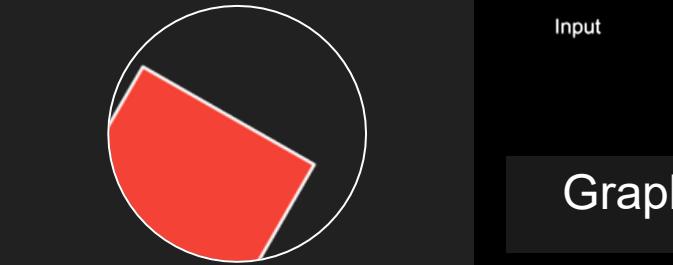
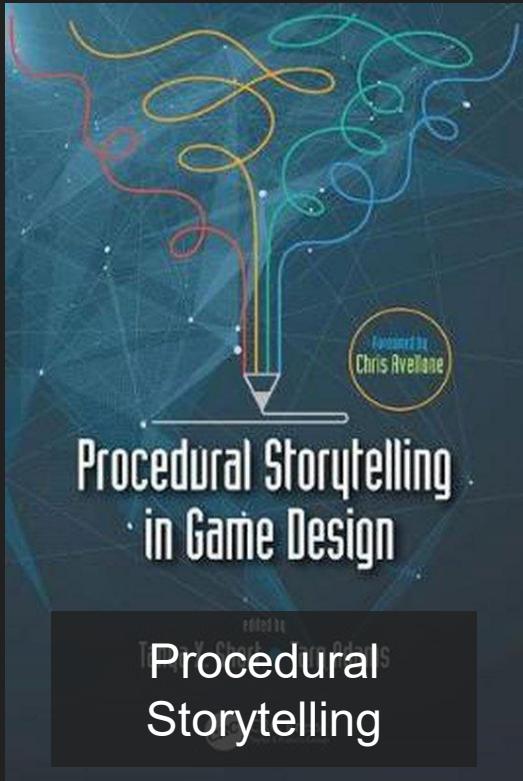
Previous Projects:  
**Investigating  
the Uncanny  
Valley  
Phenomenon**

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Chris Carvelli - [chca@itu.dk](mailto:chca@itu.dk)



# Mike Hyslop Graham

Postdoc

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## Players!

Games and Health(care) / Physical wellbeing

Single-player games and players  
Solo play  
Multiplayer  
Co-op play

## Qualitative Research

- Interview studies
- Microethnography
- Experimental methods

Games, Play, and Learning

- Education
- Simulation
- Identities /Self Transformation