Algorithmic Games

Summer Term 2018

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Building Blocks

1 – Theoretical Research

- main part (roughly 2/3)
- be creative, model algorithmic games, understand them
- find algorithms, study complexity
- come up with your own algorithmic games, study them

2 – Implementation

- should support your theoretical research
- think about how to do this best
  - simple, small ad hoc simulators
  - full-fledged, extendable simulation framework
  - app for algorithmic games + human computing
  - … <your own ideas> …

Some examples for games…
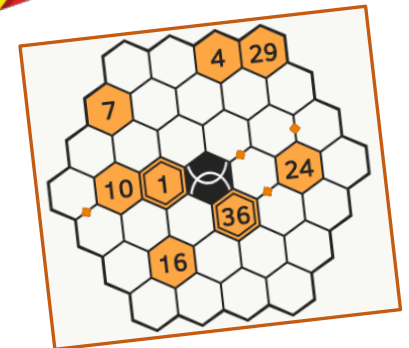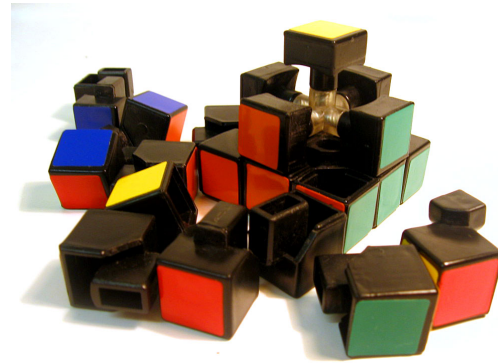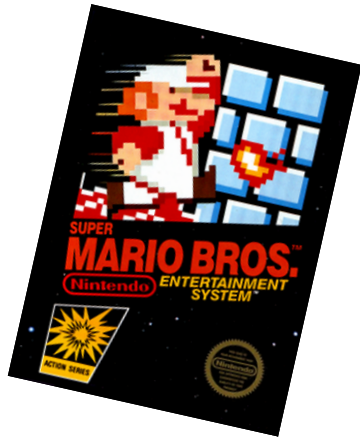
Give and take!

What we expect from you
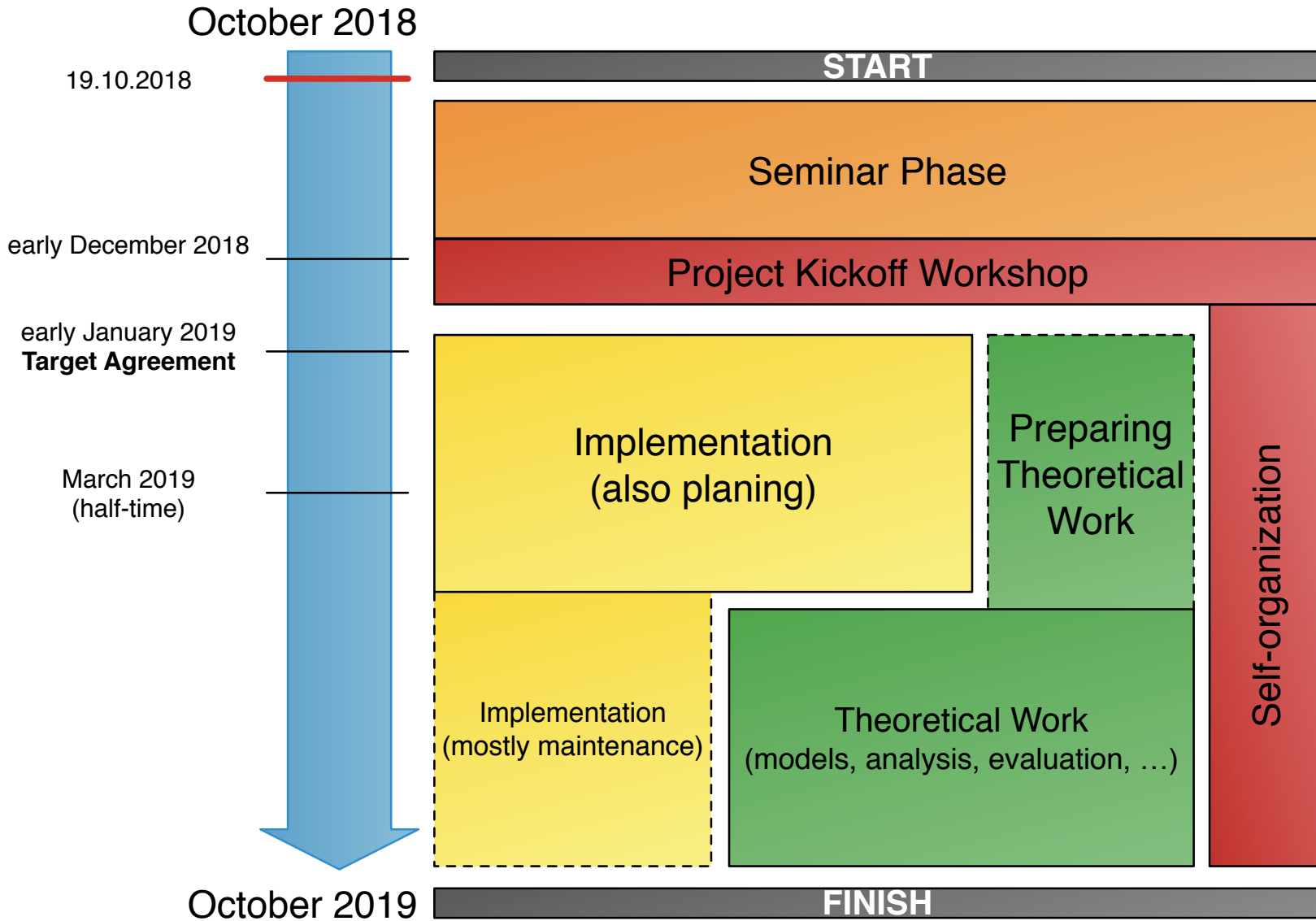
- participate actively, discuss, organize yourself, …

- be creative, do not refrain from challenging problems

- combine theoretical work with experimental evaluation

What you get in return

- support and guidance
- you can take part in active research topics
- gain experience and insight into theoretical research
- maybe some publications at conferences/workshops

Conceptual Timeline/Plan

This is an example, it will be influenced by your project decisions!

October 2018

19.10.2018

early December 2018

early January 2019
Target Agreement

March 2019
(half-time)

October 2019

START

Seminar Phase

Project Kickoff Workshop

Implementation
(also planing)

Preparing
Theoretical
Work

Self-organization

Implementation
(mostly maintenance)

Theoretical Work
(models, analysis, evaluation, …)

FINISH

The Seminar Phase

Some Exemplary Research Papers

- "Tetris is Hard, Even to Approximate" (2002)

- "Algorithms for Solving Rubik's Cubes" (2011)

- "Super Mario Bros. is Harder/Easier Than We Thought" (2016)

- "SUPERSET: A (Super)Natural Variant of the Card Game Set" (2018)

- "God Save the Queen" (2018)

Next Steps

- increase your number → advertise project

- until next Friday
  - look into the above papers
  - find similar papers you think might be of interest
  - give a brief overview of your literature research results

Some Hints…

…for your literature research

- every paper contains a literature overview
  - → read it and look interesting papers up
- use internet search (Google, Google Scholar, …)
  - → search for game/puzzle names, "research", "computer science", "complexity", "approximation", …
- take a look at your personal (board) games
  - → Any good candidates to study?
- use DBLP, ACM Digital Library, Google Scholar, Microsoft Academic Search, …
- look into proceedings of conferences
  - can be found at DBLP
  - e.g., FUN 2018 Proceedings
- talk to us