

COMPUTATIONAL GAME CREATIVITY

Georgios N. Yannakakis (yannakakis.net)

Institute of Digital Games

University of Malta



GAMES: THE KILLER APP FOR CC?

Games: the killer app for Computational Creativity ?

- **Multifaceted**
 - Visual art, audio, narrative, mechanics, level architecture, ...
 - Facets elicit different experiences
- Facets need to be well **orchestrated!**
- **Content-intensive** software applications
- **Rich interaction:** artifact/product needs to be experienced via interaction
 - Challenges: Multi-player games, user-generated content, dynamicity
- Games have a great value and an **massive industry** caring about autonomous creations! See Procedural content generation!
- Games challenge and expected to advance CC!

CC *within* and *for* Games

- Within: canvas for the study of CC
- For: design better games/artefacts/products
- Challenges:
 - Generation
 - Evaluation



PROJECTS: C2LEARN

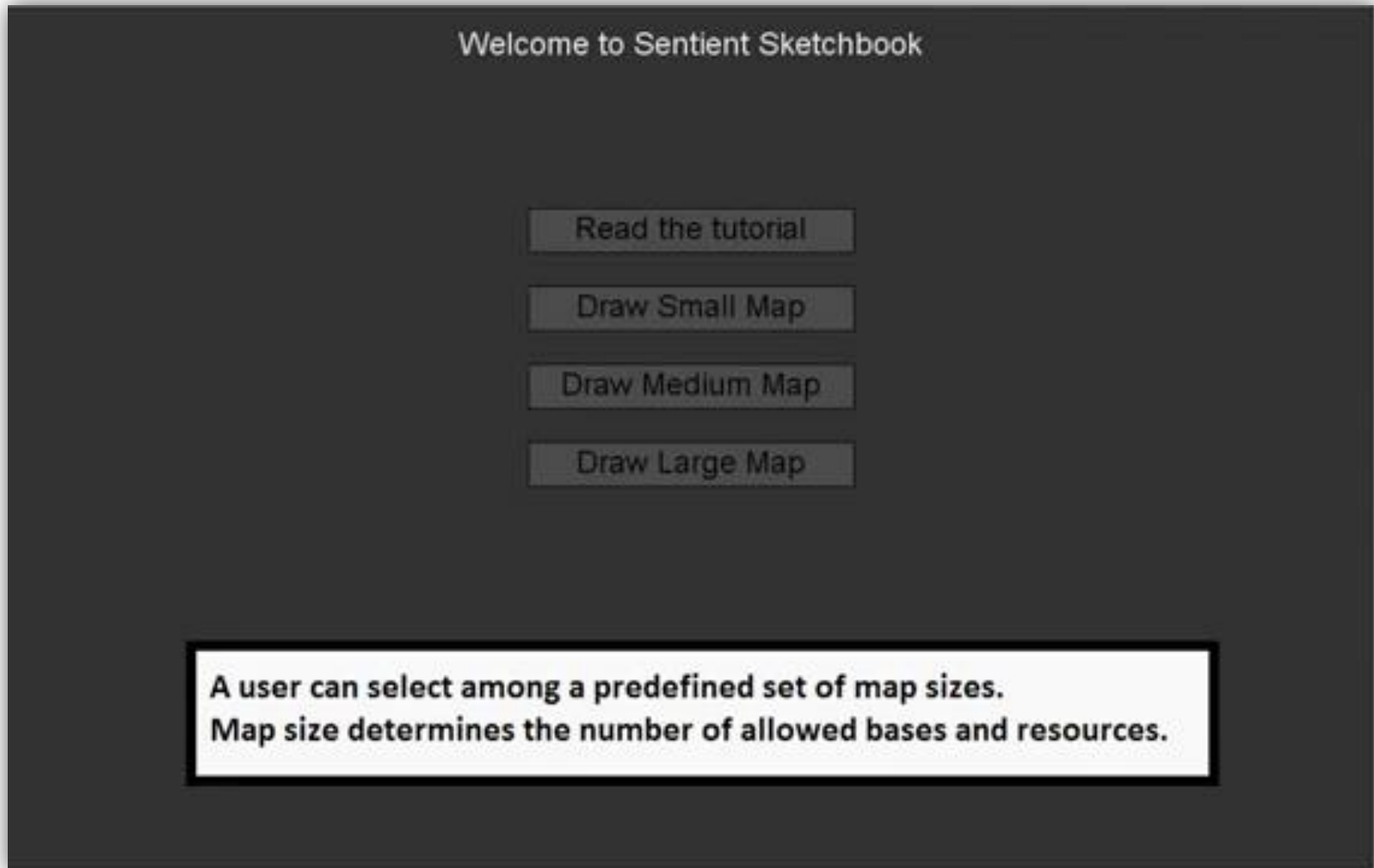
Mixed-Initiative Co-Creativity

- Mixed-Initiative Co-creation (MI-CC):
 - Creation Initiative 1: Human(s)
 - Creation Initiative 2: Machine(s)
- Machines suggest *novel* and *useful* content for humans to consider.
- Humans suggest creative input for the machines to consider
- MI-CC realizes ***diagrammatic lateral thinking*** (visual and analogical)
- MI-CC is more than an enabler for creativity – it is a tool for **fostering co-creativity**

Georgios N. Yannakakis, Antonios Liapis and Constantine Alexopoulos: "**Mixed-Initiative Co-Creativity**," in Proceedings of the ACM Conference on Foundations of Digital Games, 2014.

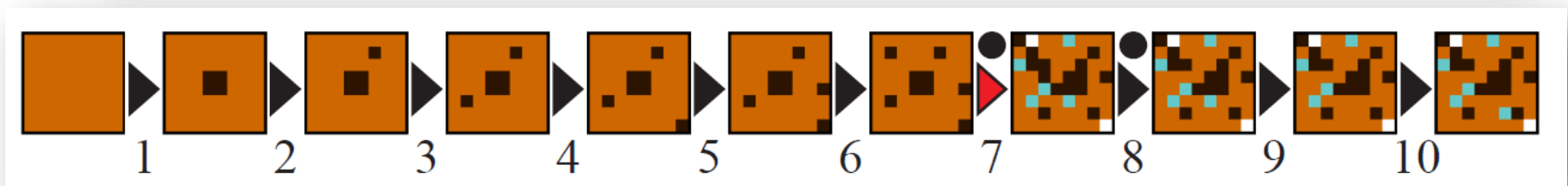
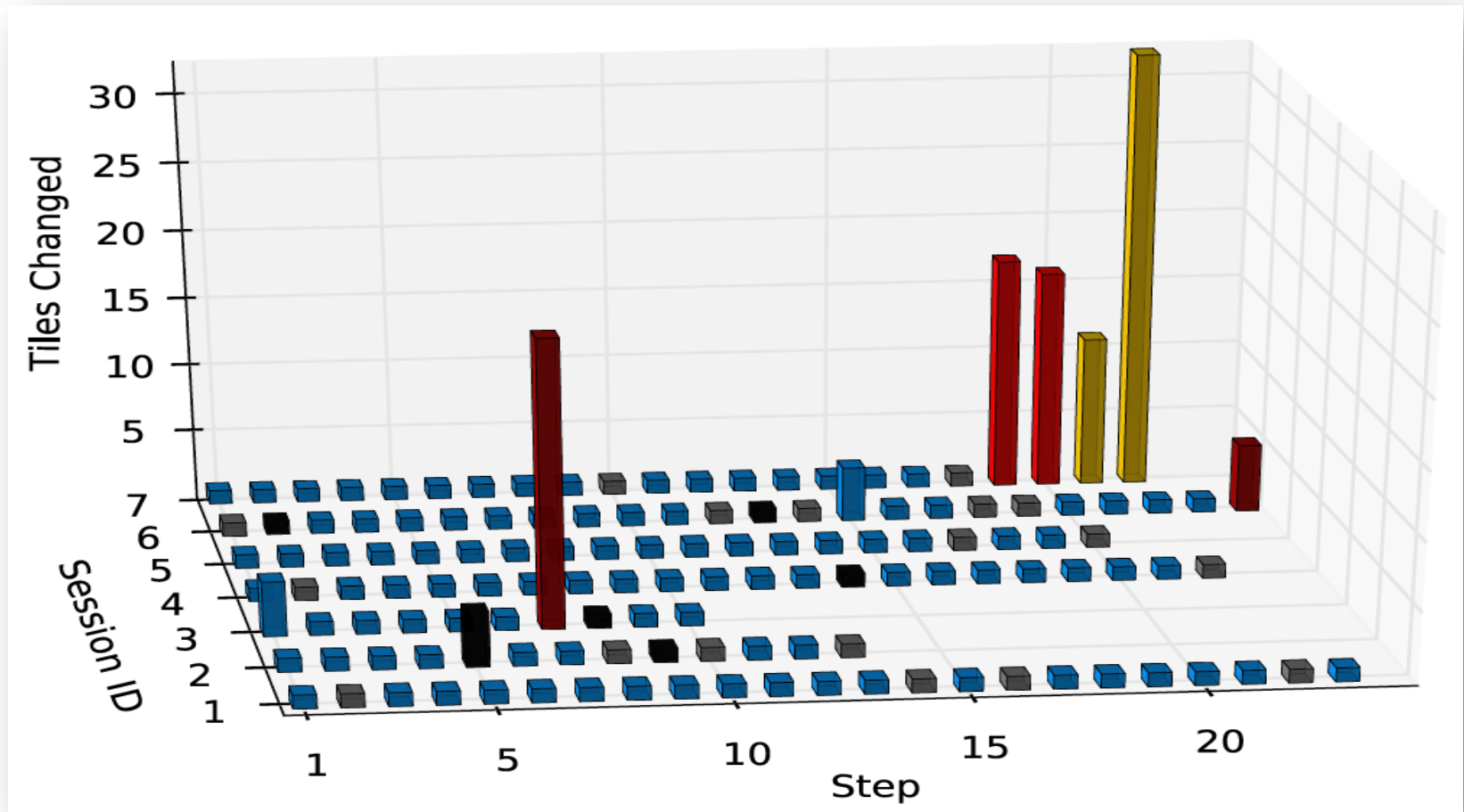


Sentient Sketchbook



Georgios N. Yannakakis, Antonios Liapis and Constantine Alexopoulos: "**Mixed-Initiative Co-Creativity**," in Proceedings of the ACM Conference on Foundations of Digital Games, 2014.

Evaluation: Use and Quality of Use



Moderate to Limited Human Initiative

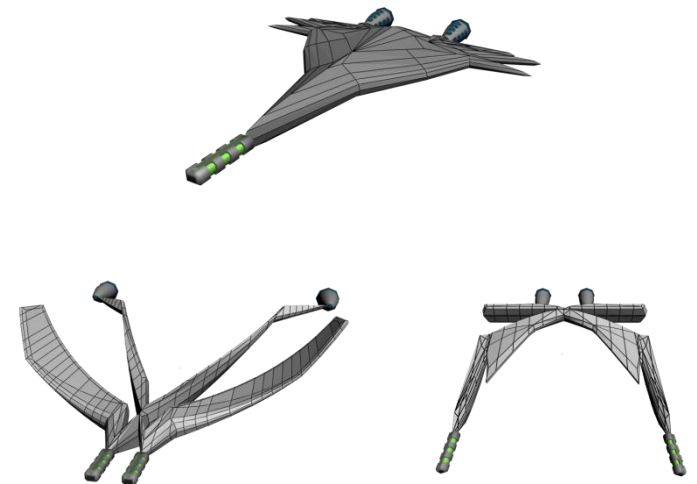
Antonios Liapis, Georgios N. Yannakakis,
Julian Togelius: "**Sentient World: Human-
Based Procedural Cartography**,"
EvoMusArt, 2013.

Co-creating Game Content
using an Adaptive Model of User Taste

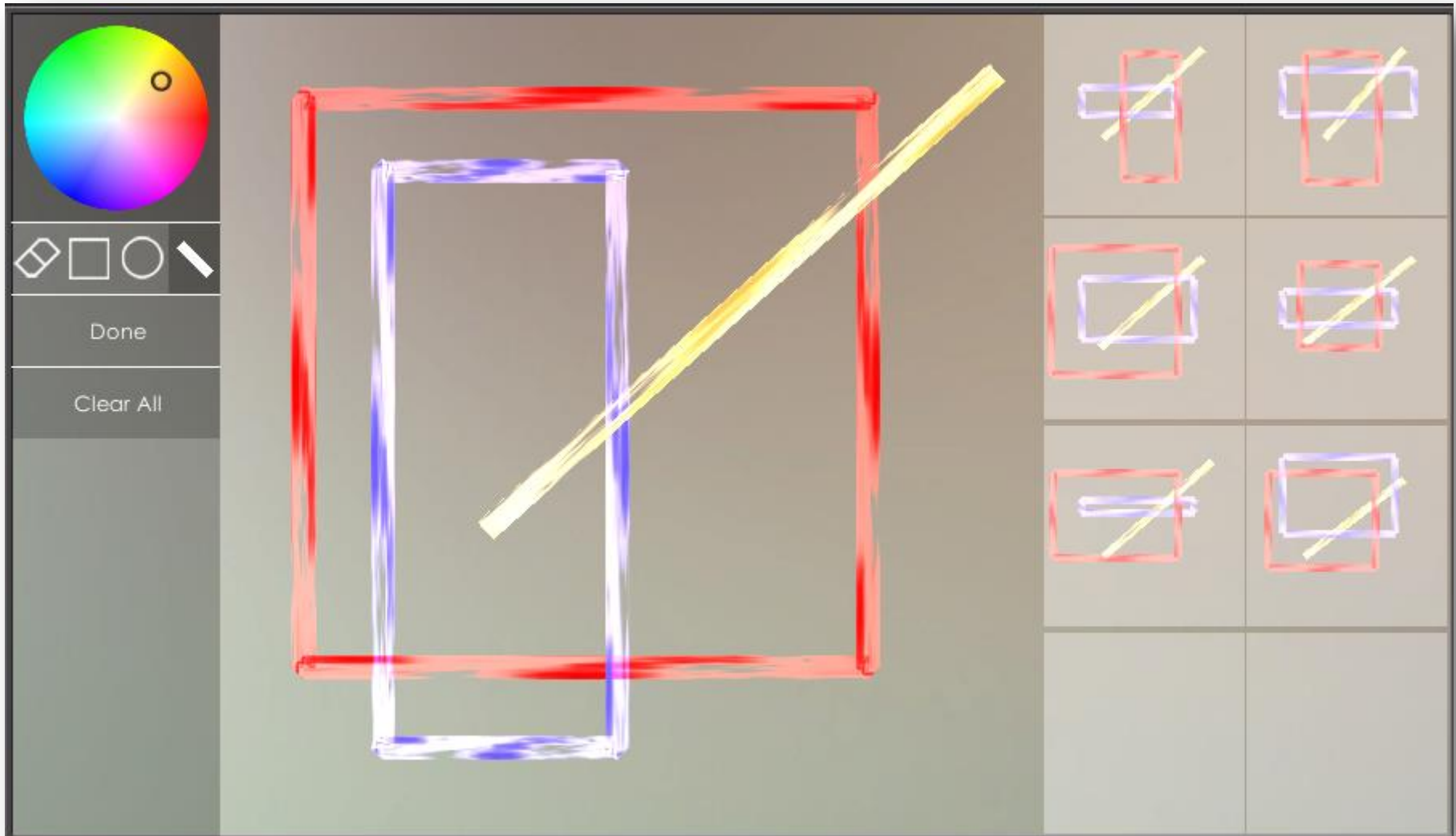
Antonios Liapis
Georgios N. Yannakakis
Julian Togelius

Welcome to the Map Detailer

New Map



Fostering Mixed-Initiative Co-Creativity

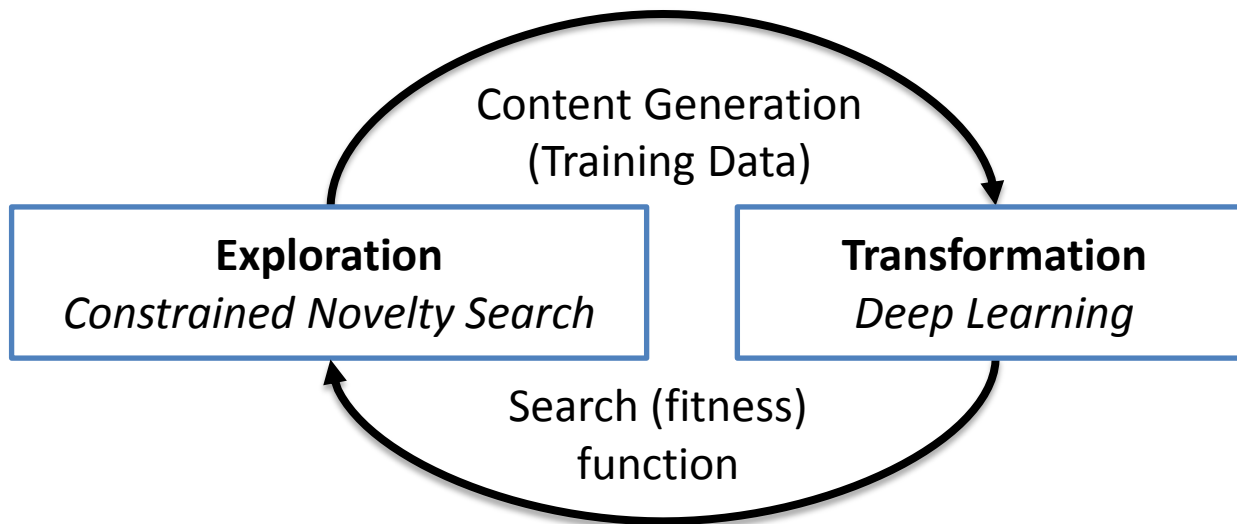


PROJECTS: AUTO_GAME_DESIGN











































AutoGameDesign

(Autonomous Computational Game Designers)

- Marie Curie CIG project: Starts Next Week
- The Core Idea: Transforming Exploration
 - Via: Constrained Novelty search, Deep Learning and Emotive Modeling



AutoGameDesign: The First Steps

Initial	1st	2nd	3rd	4th	5th	6th
						
						
						
						
						
						

Antonios Liapis, Héctor P. Martínez, Julian Togelius, Georgios N. Yannakakis:
"Transforming Exploratory Creativity with DeLeNoX," in Proceedings of the Fourth International Conference on Computational Creativity, 2013.

Thank you!

QUESTIONS?

GAME.EDU.MT

YANNAKAKIS.NET