Computational Game Creativity

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• **Position**: games are the killer application for computational creativity.
Presentation Outline

- **Position:** games are the killer application for computational creativity.

- **Contents:**
  - What makes games interesting?
  - Creative facets of games.
  - Synergies between facets: compound CC.
  - Open questions
What is CGC?

- The study of CC **within** and **for** digital games.
  - **FOR**: Games benefit as products from artifacts of CC.
  - **WITHIN**: Games as an ideal canvas for studying CC.
What is CGC?

- The study of CC **within** and **for** digital games.
  - **FOR**: Games benefit as products from artifacts of CC.
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Why Games?

- Games are interactive.
- Games are multifaceted.
- Games actually *need* CC.
- Games are sexy.
Games are sexy

- Games are now **accessible** and **fashionable**.
Games are sexy

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- Game **research** sought out.
  - Study lines, Conferences, Journals.
Games are sexy

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- Game **research** sought out.
  - Study lines, Conferences, Journals.
- Games for **societal change**.
  - Education/training, rehabilitation, awareness.
Games in need of CC

- PCG is a **commercial necessity**.
  - fast development cycles, replayability, retention.
- The game industry **proudly** displays its CC.

*What is Diablo 3:* "[previous] games established the series’ hallmarks: randomized levels, the relentless onslaught of monsters and events in a **perpetually fresh** world, [...]

"Experience Daylight, a procedurally generated psychological thriller for your PC."
Games are multifaceted

- **Games are art** – and more!
  - Creating games is a highly creative activity.
  - Notions of *typicality*, *novelty* and *quality*.

Edit Geometry Generator

Polygons : 29479 (60 per sec)
VArray Blocks : 1759
CommitCalls : 0

Howlett, Colton, Browne
Computational Creativity Group, Imperial College.
audio
Nameless One: "Stop. This is between Ravel and I. Look, Ravel--"

Ravel: "Skull, skull, skull..." Ravel clicks her tongue as her smile widens. "Your expression is difficult to read... but I feel your FEAR from here. It was *not* your choice."

Morte: "I didn't have anything BETTER to do except go to one of the Lady's mazes and meet one of the evilest creatures ever to set foot in Sigil, so I said 'sure! Why not?'"

1. "Morte, be quiet. Ravel, I..."
Grace, are you angry at Trip?!
You: FOLLOW SOMEONE:: Agent: DROPTOGROUP
Hasbundry improvement complete.
Pickaxe improvement complete.
Hand Axe improvement complete.
Hunting Dogs improvement complete.
Flood of the Nile improvement complete.
Heads of the Pharaoh improvement complete.
Grand Phoenix Egg improvement complete.
A new Pharaoh has arisen to lead your people!
Disable Atlantic Favor improvement complete.
You cannot build another Mercenary.
You cannot build a House there.
You cannot build another House.
Marry me?
Games: more than facets

Gestalt Game Creativity
Facet Orchestration

- One facet as **cause**, another facet as **effect**.
  - jump action → sound effect.
Facet Orchestration

- One facet as cause, another facet as effect.
- Usually, all facets interweave less clearly.
  - level design ↔ narrative ↔ game design
Facet Orchestration

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- How to achieve **compound** game creativity?
Facet Orchestration

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**game rules**

+ **level design**
Facet Orchestration

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- game rules
  + narrative*
  + visuals
Facet Orchestration

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narrative
++
visuals
++
audio
Claims & Questions

Computational Creativity
and Games
CC and Games

- Creating (even playing) games, as a human, is a highly creative activity.
- A machine able to create games (or parts of games) should also be considered creative.
CC and Games

• Games are artifacts stemming from creative activity because:
  
  – they fall into a large class
    (possibly with subclasses, e.g. casual, shooter, RPG)
  
  – this class has somewhat fuzzy boundaries
  
  – this class has extensive human-based evaluations of quality
CC and Games

• Game content generation and CC theories:
  – novelty, quality and typicality
  – exploration, combination and transformation
  – FACE model
Open Questions

• How can you achieve/measure compound computational game creativity:
  – intended affective response?
  – intended message?
  – what about serendipity?
Open Questions

- Where is *computational* creativity in a highly interactive experience?
  - *ascribed* creativity
Open Questions

- Where is *computational* creativity in a highly interactive experience?
  - ascribed creativity
  - "missed" creativity
Open Questions

• Where is *computational* creativity in a highly interactive experience?
  – ascribed creativity
  – "missed" creativity
  – **human** creativity
Resumé

• Games are the **ideal** canvas for CC.
  - popular, engaging, welcoming (to CC).
• Games are the **ideal** canvas for CC.
  - popular, engaging, welcoming (to CC).
• Computational Game Creativity is **challenging**.
  - how to handle **multiple facets**?
  - how to handle player-computer (or designer-computer) **co-creativity**?
Our next moves

Procedural Content Generation in Games

A textbook and an overview of current research
Thank you!