MAGRATHEA
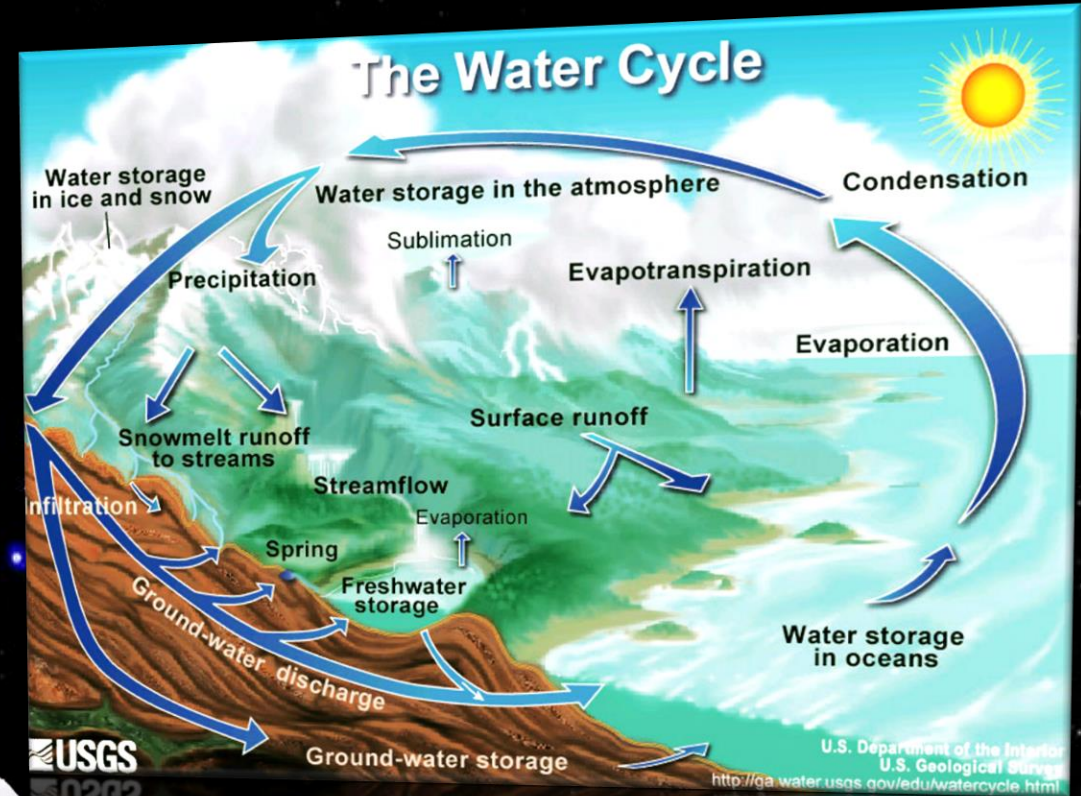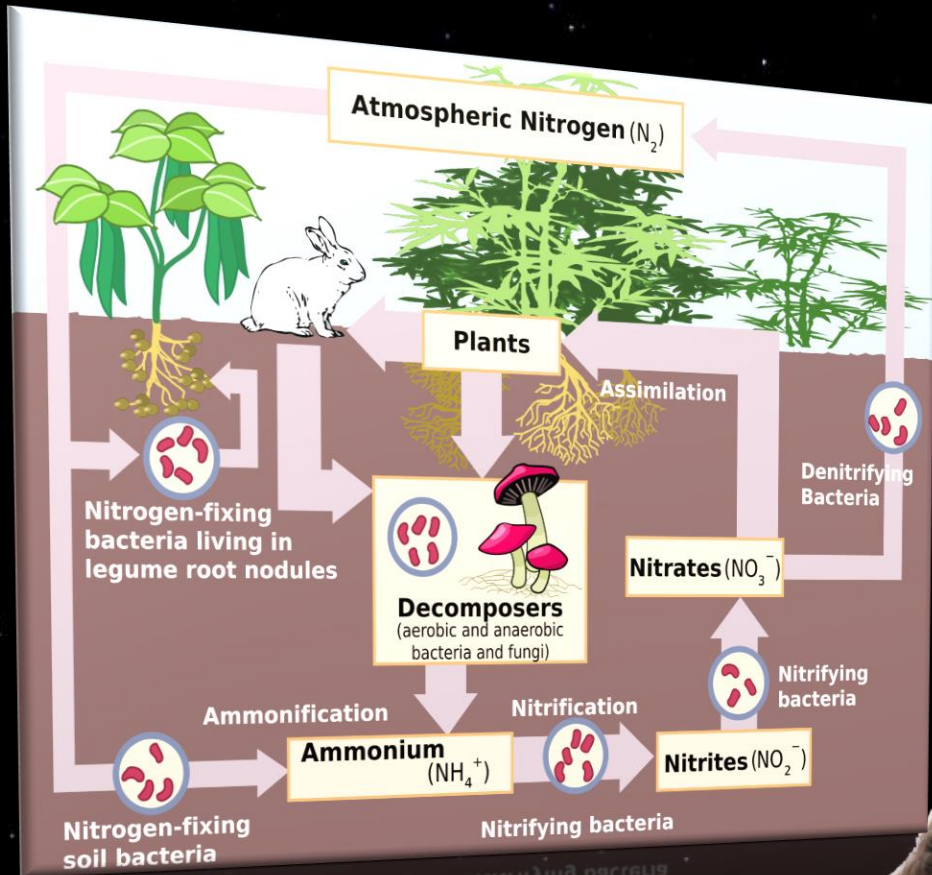
Greg Havlusch

Making *Magrathea*

- The Problem & Question

- Interdisciplinary Rationale

- Creative Approach

- Reflection

- *Magrathea* Launch Sequence

- Limitations & Conclusion

- Q&A

The Problem

The Question

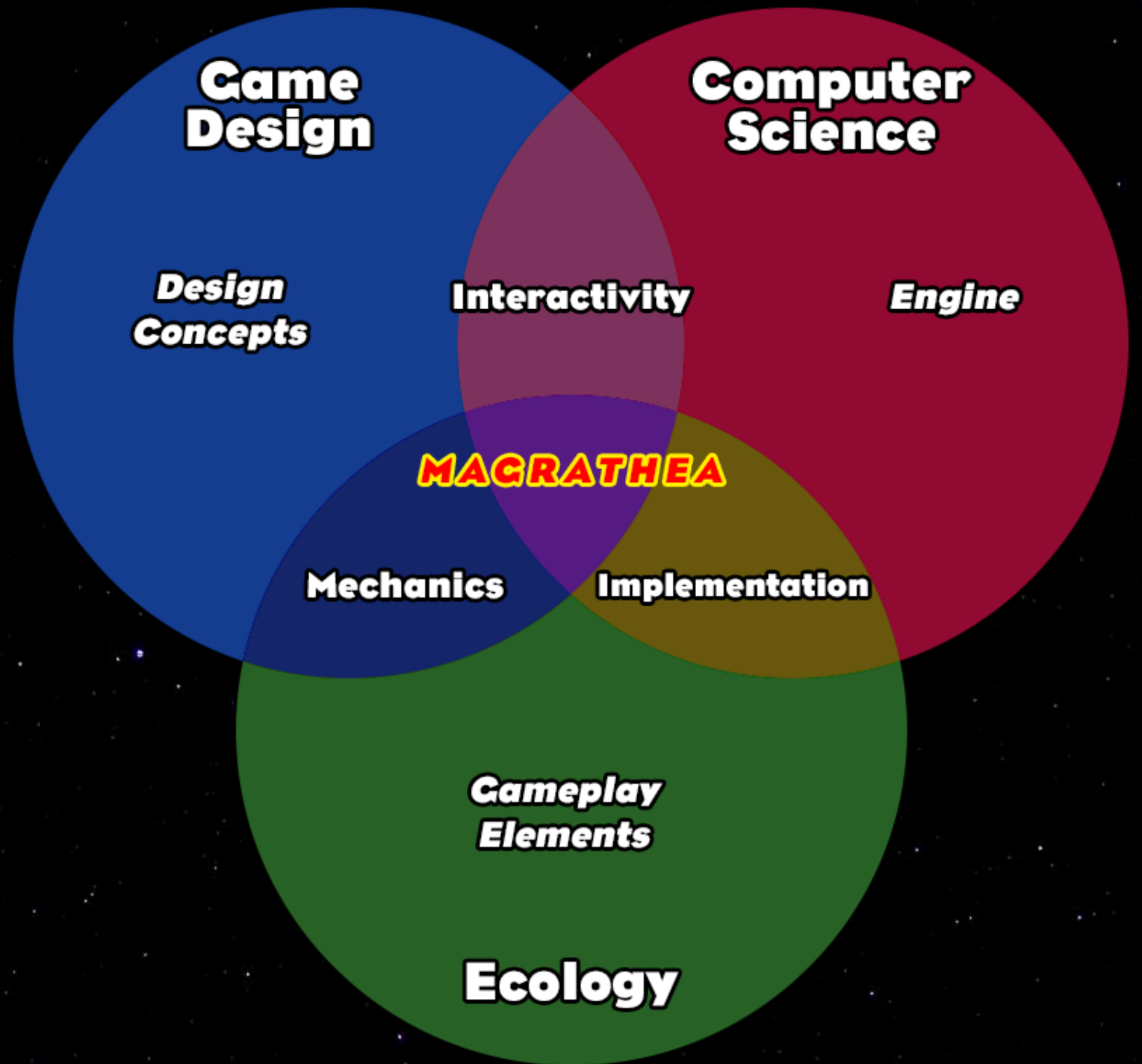How can games motivate learning complex systems through an immersive, engaging, and impactful experience?

Interdisciplinary Rationale

- Computer Science - Immersion

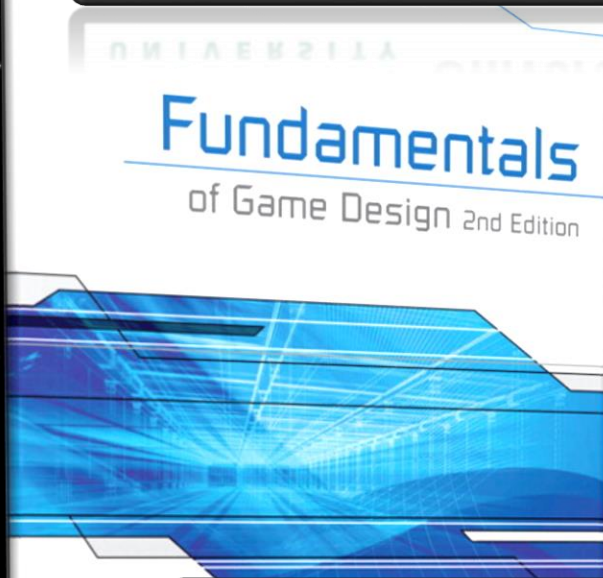- Game Design - Engagement

- Ecology - Impact

Disciplinary Relationships

Game Design

Computer Science

Design Concepts

Interactivity

Engine

MAGRATHEA

Mechanics

Implementation

Gameplay Elements

Ecology

Creative Approach

- ⚛ Investigate the Science

- ⚛ Concept & Design

- ⚛ Small Business Technology Transfer Federal Grant

IMMERSION

⚛ VR boosts interests in STEM fields
(Hsu, Lin, & Yang, 2017)

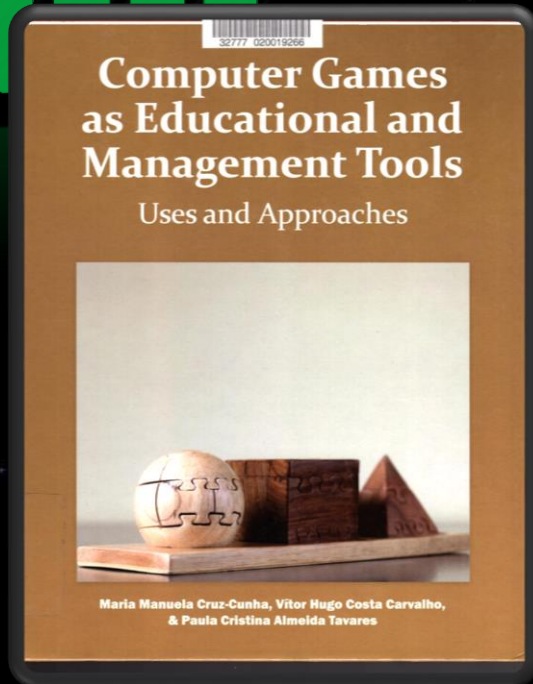⚛ VR used to understand 3D biological structures (Berry & Board, 2014)

⚛ Full immersion not well understood
(Georgious & Kyza, 2016)

ENGAGEMENT

- Technology is the future of Education (Anetta, 2008)

- Gamification promotes motivation (Al-Azawi, Al-Faliti & Al-Blushi, 2016)

- Helps understanding complex relationships Corredor, Gaydos, & Squire, 2014; Drace, 2013)

IMPACT

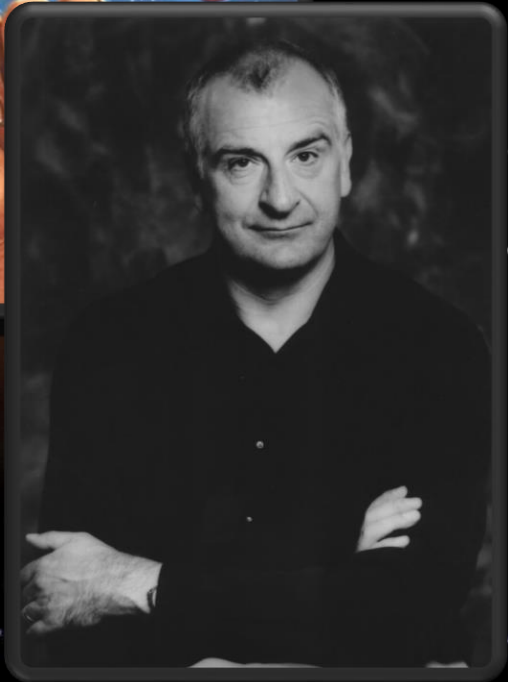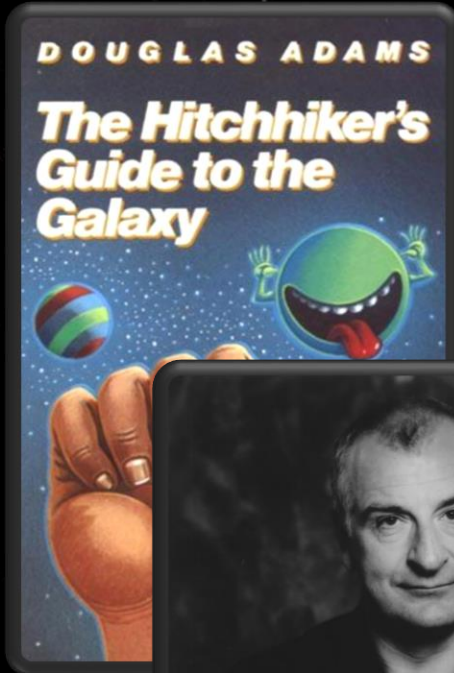- Profits of $23ʙ, up from $15ʙ in 2006
  (Entertainment Software Association, 2016)

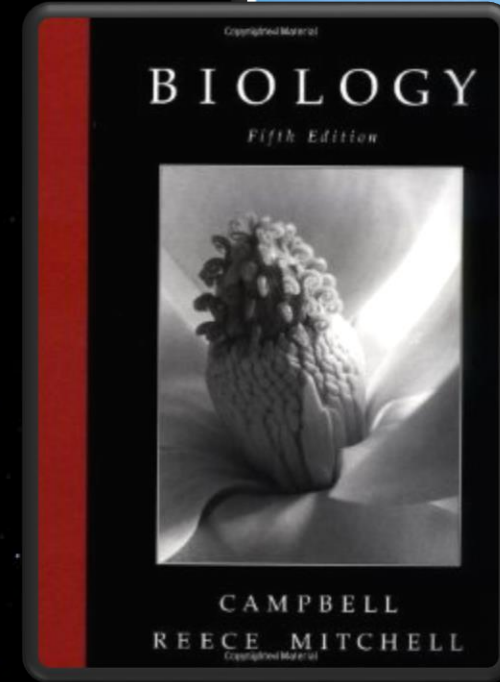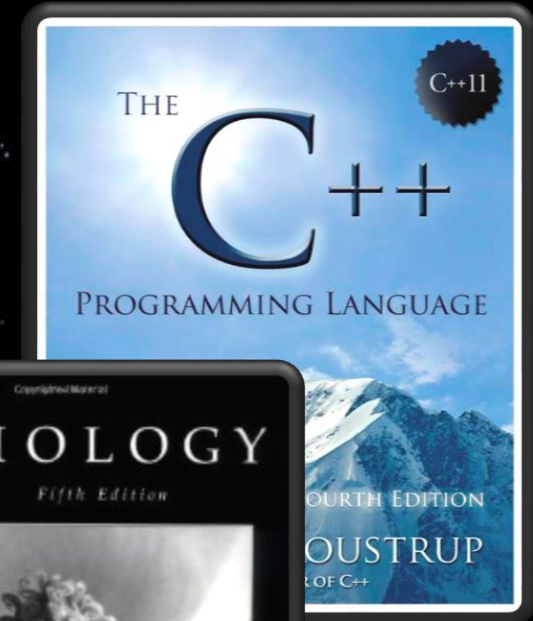- Serious Games used in wide array of applications
  (Ohannesian et al., 2016; Brull & Finlayson, 2016; Hertzog et al., 2014)

- Games affect users – good & bad (Singh et al., 2016; Harrington & O'Connell, 2016)

Inspiration

douglasadams.com

Limitations & Conclusion

⚛ Technology in the classroom – hard to adopt & rollout

⚛ Even the best written programs - crash

⚛ Innovation & Creativity press on