Experience Management with Artificial Intelligence

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- David Thue
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Introduction

- Virtual experience management
  - AI problem
- Player modelling
- AI planning
- Emotion modeling
Virtual Experience

- Entertainment

- Training
Training

- Inherent complexity of physical phenomena and personnel activities
- Concurrent crises
- Limited resources
- Information overload
- Considerable uncertainty
- Psychological stress
- Very limited real-life practice

Simulated DC environment: DC-Train 2.0
Learning Player Preferences for Better Interactive Stories
Three Different Players

Lost Operative

Lost Operative

Lost Operative

All screenshots from http://guides.ign.com
How can we do better?
Suppose that average players see 70% of available N7 missions.

How many will the average player see?
A Given Single Player
70% of available N7 missions
Three Different Players

Lost Operative → Lost Operative → Archeological Dig Site

6 → 10 → 5

All screenshots from http://guides.ign.com
If you know about your audience, you can tell a better story.
Our Goals

More Fun

More Agency

by automatically learning about each player,
and selecting content that’s best for them
PaSSAGE

Player-Specific Stories via
Automatically Generated Events
Encounter Manager

Model Values

Player Model

Game Engine

Encounters

(Decide)

(Convey)

Audio/Video

Actions

(Gather)

Player

Model Updates

(Interpret)

(Relate)
Learning Player Preferences
Player types come from Robin's Laws of Good Game Mastering (Laws 2002)
Better Interactive Stories
Archeological Dig Site

Endangered Research Station

Lost Operative

Captured Mining Facility

Fighter
Method Actor
Storyteller
Tactician
Power Gamer
First Testbed
Increasing Player Fun

LITTLE RED RIDING HOOD

David Thue, Eric Wasylisshen, Michael Webb, Vadim Bulitko, Marcia Spetch
Evaluation

Results for Increasing Fun

114 players  mean age 19.5  1/3 male

Player-Specific Stories are more Fun: 93% Confidence

(Thue et al., AIIDE 2010)
Our Goals

More Fun ✓ More Agency

by automatically learning about each player, and selecting content that’s best for them
PaSSAGE 2.0
Player-Specific Stories via
Automatically Generated Events
Protests over ending of *Mass Effect 3* show fan investment in story control

By Kyle Orland | Published 7 days ago

Many *Mass Effect 3* players feel kind of like Commander Shepard in this image, watching helplessly as events transpire out of their control.

*Mass Effect 3* reportedly sold 890,000 copies in its first 24 hours on the market, but not everyone is happy with the game’s ending.

Players reportedly were so peeved that he filed a false advertising complaint with the Federal Trade Commission.

Walking through the list of promises about the game they made in their campaign and PR interviews, it was clear the product we got did not live up to any of the promises,” user El_Spiko wrote on the site gamepur.com, according to gamepur.com.
Proposed Approach
Inspiration from Psychology

The Control Heuristic

When our decisions lead to desirable outcomes, our perceived agency is increased.

(Thompson et al., Psychological Bulletin 1998)

Our goal is to maximize the desirability of the content that occurs as a result of player decisions.
Vile beast! You will regret running into us this day!

1. We will kill you!
2. I bet we’ll get a reward if we bring you in alive!
3. Bluff: We are scouts from the army!
4. Whisper: Colin, make a distraction!
5. Intimidate: It’s two on one, monster. Leave while you can!

We need strength as the monsters besiege our Empire in the North, along with all the wisdom and cunning you’ve got.

David Thue, Trevon Romanuik, Charles Crittenden, Vadim Bulitko, Marcia Spetch
Congratulations, students.
Tactician
Fighter
Power Gamer
Method Actor
Storyteller
Tactician
Power Gamer
Evaluation
Results for Increasing Agency

141 players, mean age 19.4, 38% male

Player-Specific Stories give a feeling of more Agency: 96% Confidence

(Thue et al., AIIDE 2011)
Our Goals

More Fun ✔ More Agency ✔

by automatically learning about each player, and selecting content that’s best for them
By dynamically selecting story content based on a learned model of player preferences, we can increase the amount of fun and agency that players perceive.