

A handful of pixels of blood

A Historical and Technological
Perspective on Understanding
Video Game Graphics



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BRADDOCK

0

SIERRA
BOXING



THOMAS

0



ROUND

1

02 Method

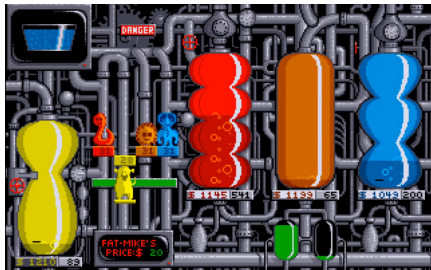
Datasets, Framework, and Method

02 Datasets

Ludens

Ludens Image Dataset

- 3800 Images
- 35 Video Games
- Confoederatio Ludens
- Video Stills from Let's Play Streams



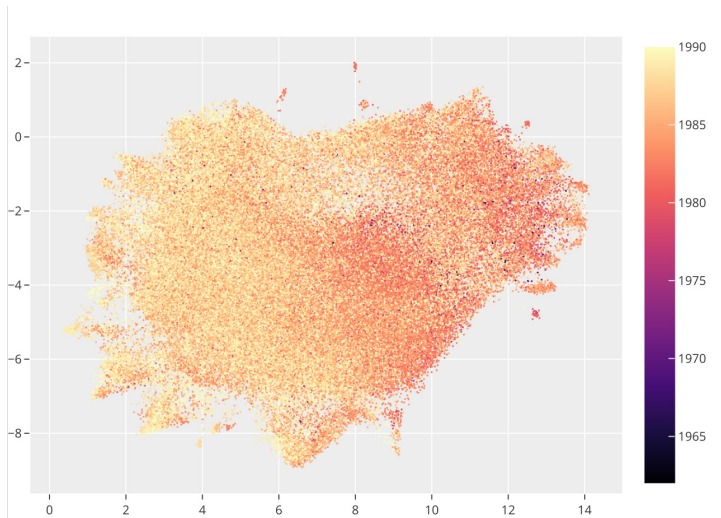
02 Datasets

Video Games History Screenshots Dataset

- 113'555 Images
- 4316 Video Games
- Pre-1990s
- MobyGames

VHS-D





02 Datasets

VHS-D

FAVR (faveur)

- *Framework for the Analysis of Visual Representation in Video Games*
- Critique of existing methods of image analysis
- Conceptual vocabulary to describe video game images

Modes
Composition
Construction
Spaces
Planes



Title Screen



In-Game

02 FAVR

Modes



02 FAVR

Composition



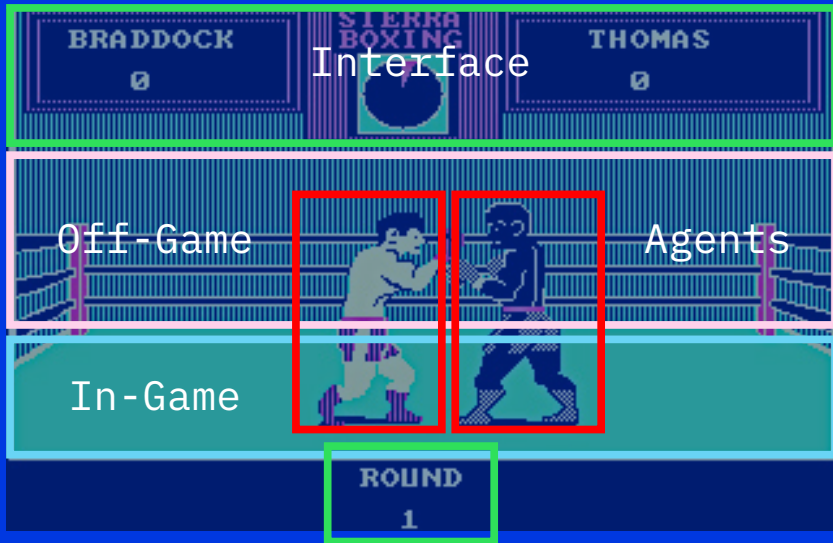
02 FAVR

Composition



02 FAVR

Construction

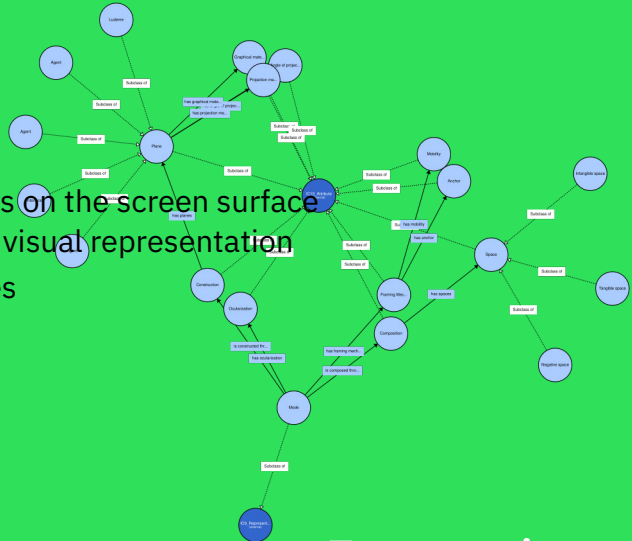


02 FAVR

Construction

Expanding FAVR

- *Composition*: organization of spaces on the screen surface
- *Construction*: conceptual planes of visual representation
- **FAVR Ontology** and **Tropy** templates



Expanding FAVR

- *Composition*: organization of spaces on the screen surface
- *Construction*: conceptual planes of visual representation
- **FAVR Ontology** and **Tropy** templates
- **Ludemes** as conceptual plane: Minimal unit of play



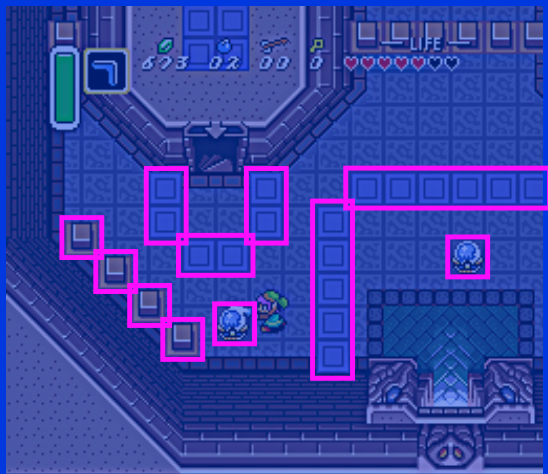
02 FAVR

Expansion



02 FAVR

Ludemes

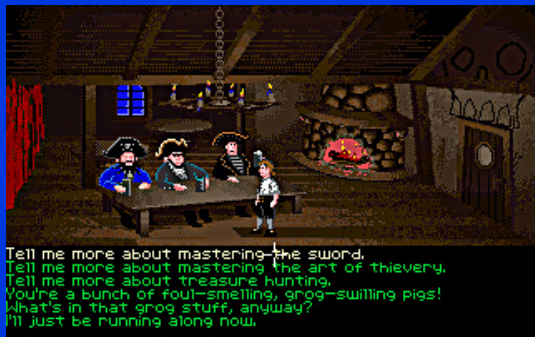


02 FAVR

Ludemes

03 Findings

Findings and preliminary results



03 Findings

Image Dynamics



Static



Dynamic

03 Findings

Image Dynamics



03 Findings

Ludemes



03 Findings

Ludemes

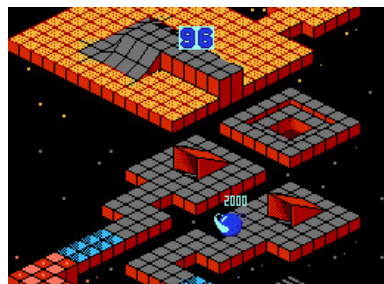
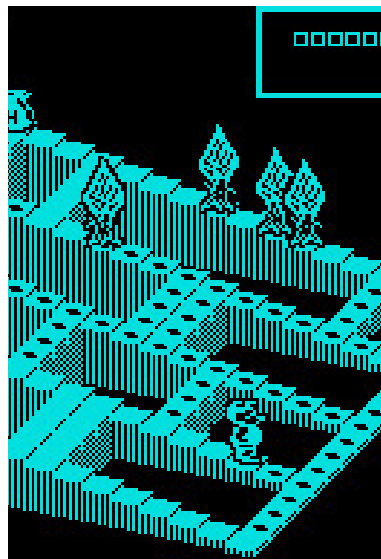
Distant Viewing the VHS-Dataset

- **DINOv2** and **UMAP** for dimensionality reduction
- Multiple differently grained **K-means** clusterings

- Three types of clusterings
- *Formal* or *semantic* aspects, and *genres*

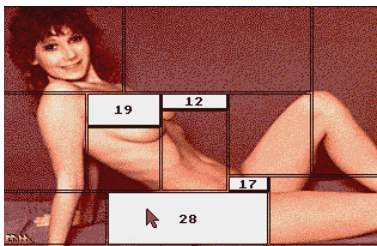
03 Findings

Formal



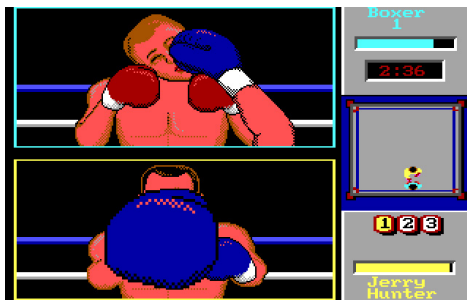
03 Findings

Semantic



03 Findings

Genre



Distant Viewing the VHS-Dataset



Clusters around Modes...

03 Findings

VHS-D

Distant Viewing the VHS-Dataset



Clusters around Modes...



...but not Ludemes

03 Findings

VHS-D

04 Implications

Digital Literacy and Video Game Images

Source Code
Algorithms
Executable Software
On-Screen Images

→ Digital Matter

04 Implications

Historical Analysis
Technological Understanding
Visual Examination

→ Multidisciplinary Approaches

04 Implications

Challenges and limitations
Datasets/Ontology published
Finishing work on VHS-Dataset
Continue application of FAVR



04 Implications

Outro

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— Contact

Thank You

Ludography

- *Airball* (Microdeal/Microdeal, 1987, Atari ST)
- *Antares: Der Griff Nach Den Sternen* (Nightmare Productions/Bomico, 1991, Amiga)
- *Barbarian: The Ultimate Warrior* (Palace Software/Palace Software, 1987, Amiga)
- *Centerfold Squares* (Artworx/Artworx, 1988, Atari ST)
- *Clown-o-Mania* (Starbyte Software, 1989, Amiga)
- *Crystal Castles* (Atari/Atari, 1983, ZX Spectrum)
- *Emmanuelle: A Game of Eroticism* (Coktel Vision, Inférence/Tomahawk, 1989, Atari)
- *Escape from Hell* (Electronic Arts/Electronic Arts, 1990, DOS)
- *Heavyweight Champ* (Sega/Sega, 1987, Arcade)
- *Lost Patrol* (Astros Productions/Ocean Software, 1991, DOS)
- *Marble Madness* (Atari Games/Atari Games, 1984, NES)
- *Monkey Academy* (Konami/Konami, 1983, MSX)
- *Patton Versus Rommel* (Sculptured Software/Electronic Arts, 1987, DOS)
- *Robox* (Markt+Technik, 1986, Commodore 64)
- *Sierra Championship Boxing* (Evyware/Sierra On-Line, 1983, PC Booter)
- *Star Trek V: The Final Frontier* (Level Systems/Mindscape, 1989, DOS)
- *The Immortal* (Sandcastle/Electronic Arts, 1990, Apple IIGS)
- *The Legend of Zelda: A Link to the Past* (Nintedo/Nintendo, 1991, SNES)
- *The Neverending Story II* (Linel/Linel, 1990, Amiga)
- *The Secret of Monkey Island* (Lucasfilm Games/Lucasfilm Games, 1990, Amiga)
- *TKO* (Accolade/Accolade, 1989, DOS)
- *Traders* (Linel/Linel, 1991, Amiga)
- *Wayne Gretzky Hockey* (Bethesda Softworks/Bethesda Softworks, 1988, DOS)

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