



Cultural Data & Human Behavior

Using video games to understand human values

Our actions in video games are a window into our psychology. The way we play, our choices and actions, speak volumes about our values and preferences. The aim of this chair is to leverage research on **human agency*** to answer questions that are crucial to our understanding of video games: How do we judge the consequences of our actions in the world? What kind of agency* do we like to engage in?

Why do we favor certain actions and goals representations over others?

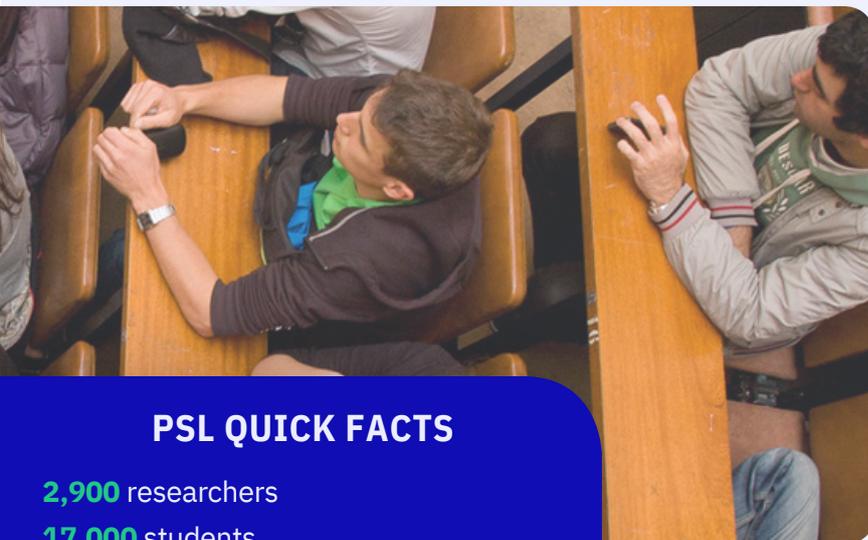
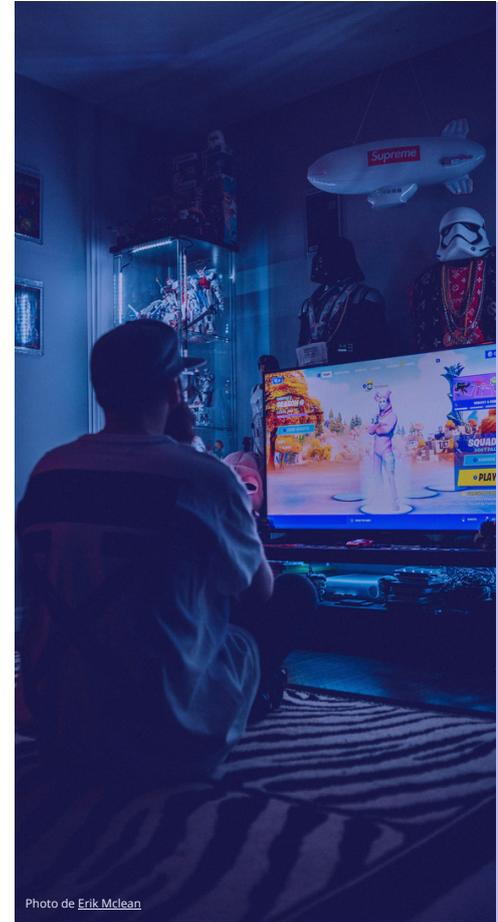
The use of recent models of goal-oriented actions in cognitive science, combined with a new method for evaluating in-game actions, offers a unique opportunity to better **understand human preferences, actions and motivations.**

The sense of agency refers to the sense of control that people experience over their goal-oriented actions. A detailed understanding of agency, as proposed by cognitive science, explains the satisfaction associated with the experience of interactivity, a central feature of video games.

OBJECTIVES OF THE CHAIR

This research chair aims to better understand gamers' motivations and the relationship between the motivations and the type of agency implemented in games. The aim is to:

- Predict gamers' preferences and preferred video games
- Reveal interactions between gaming preferences and socio-cognitive profiles
- Characterize the future of video game content
- Help gamers identify games they are likely to enjoy



PSL QUICK FACTS

2,900 researchers

17,000 students

140 laboratories

10 incubators

#1 "millennial" university, in THE ranking

#24 World University Ranking QS 2023

#40 in Shanghai ranking 2022

UNIVERSITE PSL

Located in the heart of Paris, PSL inspires dialog among and between all areas of knowledge, innovation, and creativity. It draws directly from research to train researchers, artists, engineers, entrepreneurs, and managers who are aware of their social responsibility, both individual and collective.

Cognitive Science Department (DEC) @ENS - PSL

Training and research at DEC focus on **mental abilities** such as perception, attention, decision making, reasoning, consciousness, language, emotions, action, and social skills. Linking these abilities to their underlying **psychological mechanisms** and their genetic and neuronal bases is the goal of cognitive science.



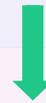
A METHOD FOR ANALYZING CULTURAL BEHAVIOR

How can we explain the variety of preferences when it comes to video games? Why are gamers captivated by games as different as *Tetris*, *No Man's Sky* or *League of Legends*? **Cognitive science** and **machine-learning methods** allow us to study the factors shaping individual preferences. They show us why we are all unique in the games we choose, and how our preferences are influenced by our cognition.

Step 1

Extracting Data on gamers preferences

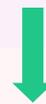
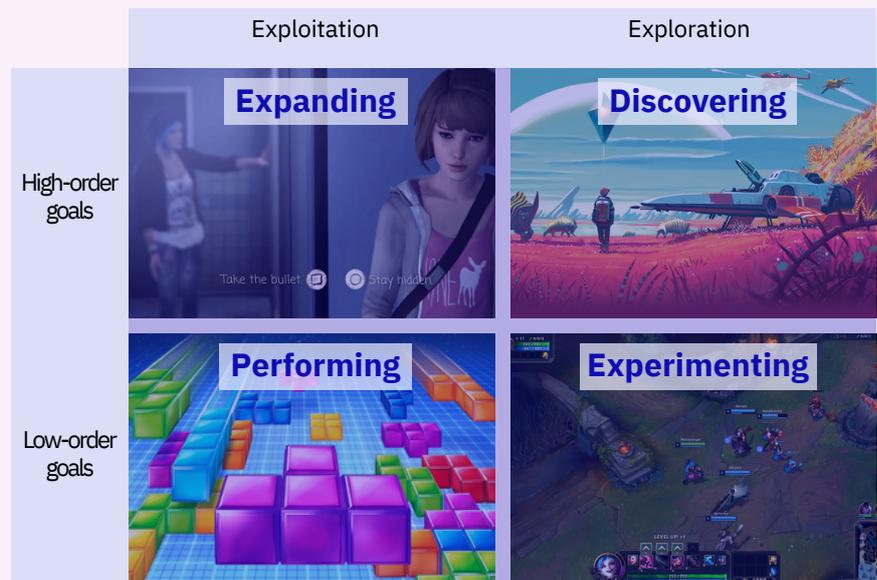
- **Creating a survey to study gamers' preferences in terms of in-game interactions**
- **Collecting data from 1750 gamers**
- **Processing data using unsupervised clustering based on participant ratings**



Step 2

Using cognitive science to make sense of preference dynamics and make predictions

Definition of the DEEP model with 4 cognitive dimensions



Step 3

Using OpenAI to associate games with scores on the DEEP dimensions

Using prompt engineering to inform the large language model about the DEEP dimensions

Automatically annotating 16,000 video games along these dimensions

Matching people's preferences with automatic annotations



PROGRAM

Interactions between gamers' environment and cultural preferences: The objective is to characterize the socio-demographic, technological, and environmental factors that shape gamers' cultural preferences at a given point in time, and to model their evolution over time

Annotating cultural products with AI: The objective is to leverage GPT 3.5's context-based annotation system to recategorize video games and other cultural products and personalize recommendations for gamers



Dissemination to the public

OBJECTIVES

Bringing together digital, cultural and research stakeholders to share scientific methods and cultural data analysis

Creating a video game evaluating gamers to make games recommendation, based on the DEEP Model and AI

Organizing an **annual conference** on Data Science and Cultural Behaviour by gathering different actors

Organizing **workshops** with industrial partners



Training & Higher Education

OBJECTIVES

Bringing together the data science, cognitive science & the humanities communities

Creating a minor course "Cultural Behaviors & Data Science" for PSL students enrolled in Master's Degrees "Digital Humanities", "Cognitive Science" and "Digital Economy"



Fundamental & Applied Research

OBJECTIVES

Studying human behaviors and their cultural footprint through data science

Recruiting PhD students, post-docs and research engineers to participate in the extraction, analysis and visualization of cultural data

Publishing high quality research papers based on quantitative data

Creating and activating cultural databases to structure the computational approach

THE TEAM

Chairholder



Valérian Chambon hold a **CNRS senior position at the Institut Jean Nicod (ENS-PSL).**

His research interests focus on action control, action phenomenology, Functional magnetic resonance imaging (fMRI) and computational modelling. He has first investigated the implementation of cognitive control in the prefrontal lobes, before gaining interest in the relationship between cognitive control and human agency, that is in how individuals explore and exploit environmental changes to make decision about their own agency, and to adjust their behaviours accordingly.

Research Team



Edgar Dubourg
PhD Candidate
(Psychology and cultural evolution, ENS - PSL)



Valentin Thouzeau
Lecturer
(Data Science, PSL University)



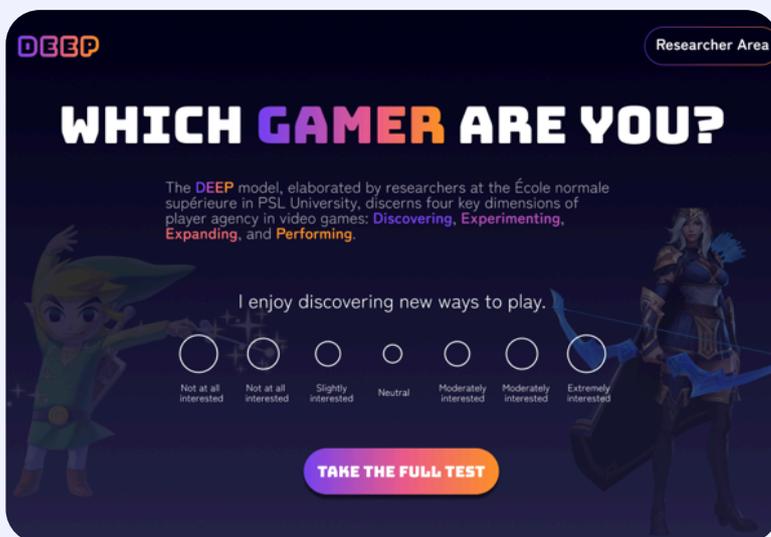
Jean-Baptiste Camps
Researcher
(Digital technologies & Digital humanities, Ecole nationale des chartes - PSL)

Scientific Committee

Work in Progress

- N. Baumard** (Cognitive sciences, ENS-PSL)
- S. Manitsaris** (Human-Centered AI, Mines - PSL)
- S. Mehr** (Psychology & cultural evolution, Harvard)
- M. Tricot** (Philosophy of Techniques, UTBM)

WORK IN PROGRESS



Creation of a **website** dedicated to:

- Showcasing research carried out to develop and apply the DEEP model
- Collecting additional data to refine and extend the DEEP model
- Providing guidance to players towards the games that suit them best

JOIN THE CHAIR AND ACCESS THE ECOSYSTEM

BENEFITS*

BECOME A PARTNER

BECOME A SPONSOR

Get a direct access to our talents: high level **students**



Benefit from favored **contacts** with PSL researchers, cultural specialists, data engineers, and more broadly with all the key cultural and digital actors



Get invitations to the **annual conference** that gather cultural, digital and academic actors



Enhance your **image** by support breakthrough research, by publishing your logo on our **communication tools** (website, leaflet, invitation cards...)



Develop **research synergies** with PSL and share research **outcomes**



Participate in the development and get access to **innovative tools and algorithms** to analyze culture and cultural behaviors (technological partnership)



Participate in specialized **workshops** built with our partners



Get a **tax reduction**



*We can design tailored benefits according to your business objectives

CONTACT

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