
DES JEUX
VIDÉO À LA
FACTORY
ARTS,
SCIENCES
&
CITOYEN.NES

RAPHAËL GRANIER

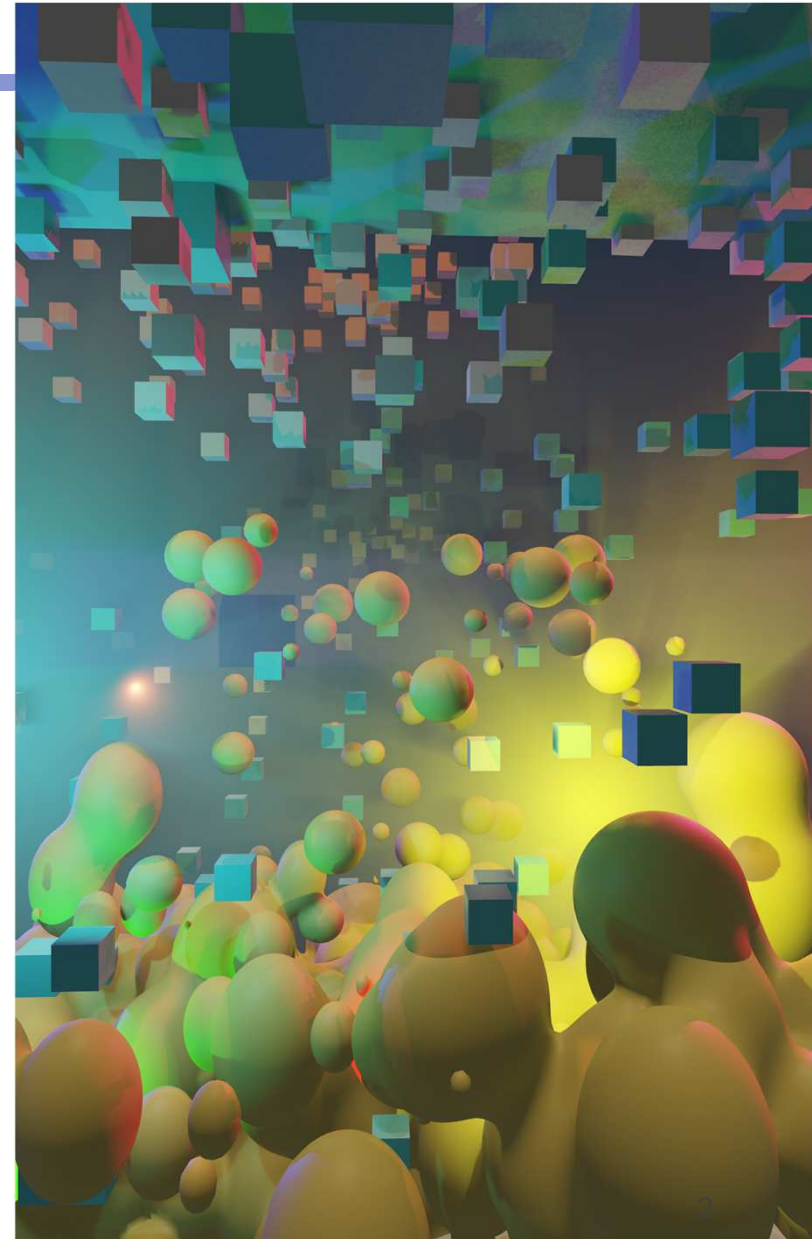
DE CASSAGNAC

@ LTCI – 14/10/22



MENU

- Video games = the 10th art, intimately linked to many sciences
- ScienceXGames = Academic chair under the *patronage* of Ubisoft at Polytechnique
- La Factory = An interdisciplinary centre under construction at IP Paris



LA FACTORY ARTS SCIENCES CITIZENS



INSTITUT
POLYTECHNIQUE
DE PARIS



ÉCOLE
POLYTECHNIQUE



ENSTA



ENSAE



TELECOM
Paris



TELECOM
SudParis

LA FACTORY IN 80 RESEARCHERS-CREATORS

≈ 80 signatories from the 5 member schools of IP Paris

- × Highly interdisciplinary (computer science, humanities, hard sciences...)
- × All of them already have activities mixing arts and sciences
- × Eager to gather around an ambitious collective project
- × Ready to move all or part of their activities...

... to a place containing, eventually:

- × Offices and workshops for artists and scientists (especially in-residence)
- × Practice rooms for our students (numerous artistic projects)
- × Equipped studios for creative work in all media
- × Exhibition spaces for all

Photo CoPil avec
Samuel Huron
Olivier Fournout
pour Télécom
Paris

Working together

Going further

LA FACTORY IN A FEW WORDS

A major interdisciplinary research center project

- × A research-creation laboratory structured around thematic “labs”
- × A resource center for researchers, teachers and students
- × A facilitator of social diversity and interdisciplinary innovation
- × A showcase for the world of arts, culture and communication
- × An iconic and unifying place for IP Paris

In resonance with other centers:

- × MediaLab at MIT, Art | Sci Center at UCLA, Hexagram in Canada...
- × LAPIS and Pavilions at EPFL, ArtSci at ETH, ARTiS in Copenhagen...

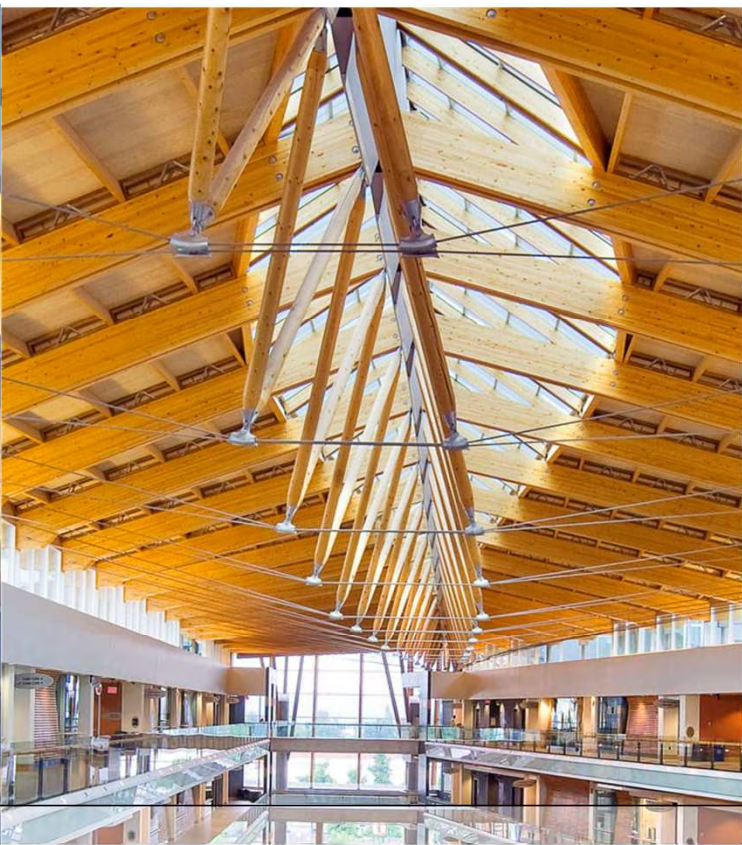


MIT Massachusetts
Institute of
Technology



MediaLab
75 million US \$
annual budget
21 groups

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SFU SIMON FRASER
UNIVERSITY **SCHOOL OF INTERACTIVE ARTS & TECHNOLOGY**



~ 6,3 million CA \$
annual budget
60 faculty
5 themes



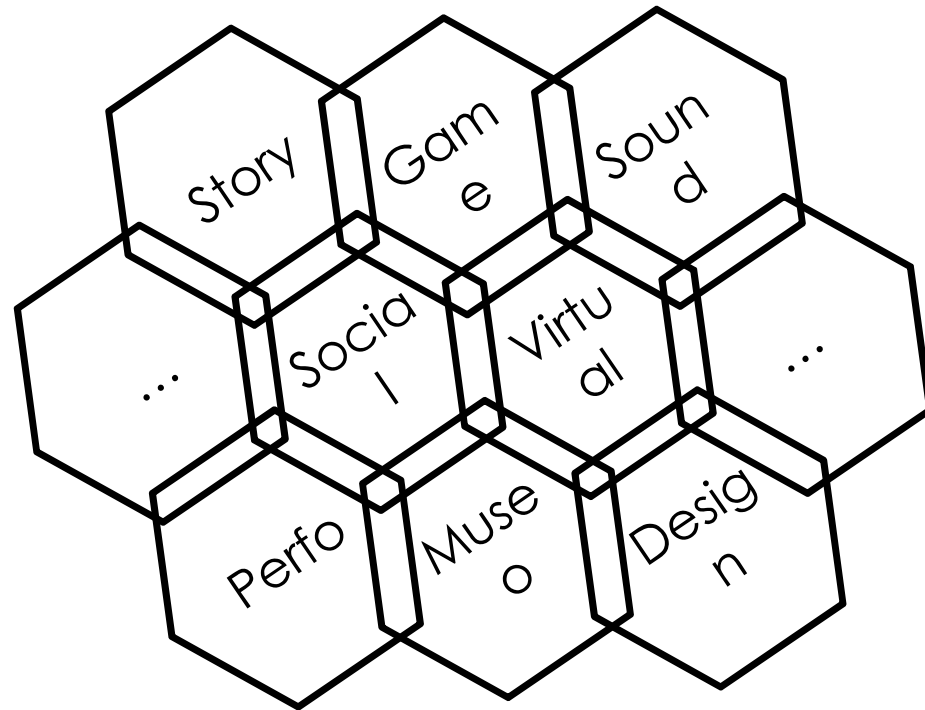
**design
informatics**

~ 30 faculty
Multiple teams

14/10/2022

A MOSAIC OF LABS

Creative workshops, skill centers,
bridges between art and science



8 proto-labs

- Design, drawing, prototyping
- Video Game, interactivity
- Museography
- Social Interactions
- Sound, music, acoustics
- Storytelling
- Artistic Performances
- Virtual & augmented realities

In the future

- Motion, Film, Dance
- Human-computer

A MOSAIC OF LABS

Creative workshops, skill centers,
bridges between art and science

Themes to promote within this ecosystem

Techniques and ethics of the metaverse and
web3

Multimedia enhancement of heritage assets

Invention of new high-impact media

Promotion of diversity of all kinds

Social and environmental awareness

Artistic popularisation of science

Realisation of impossible artistic work

8 proto-labs

- **Design**, drawing, prototyping
- Video **Game**, interactivity
- **Museography**
- **Social** Interactions
- **Sound**, music, acoustics
- **Storytelling**
- Artistic **Performances**
- **Virtual** & augmented realities

In the future

- Motion, Film, Dance
- Human-computer

THREE DIMENSIONS OF THE FACTORY

Research and Development: projects on the borderlines between labs / schools

- × Resources for arts, culture, media, entertainment
- × Ethics and use of science and technology
- × Highly interdisciplinary → disruptive innovation

Education and Culture

- × Training creative and open-minded engineers and leaders
- × Offering innovative, do-it-yourself teaching, especially in the media
- × Facilitating student projects

Mediation and Communication

- × Producing and presenting public artworks, setting up artist residencies
- × Showing and promoting works on various media
- × Giving IP Paris a window into the world of culture

EMMANUELLE CACCAMO & MAUDE BONENFANT
Rhétorique des discours transhumanistes : arguments et fondements discursifs
DELPHINE SAURIER & CHRISTINE EVAÏN
La figure de la radicalité carcérale et ses portraits en régime médiatique

Communication LANGAGES

LA FICTION-ENQUÊTE
Coordonné par OLIVIER FOURNOUT

OLIVIER FOURNOUT
Art et science : la fiction enquête

ISABELLE GARRON
Une autre forme de procès : de l'

DAVID CHRISTOFFEL
Documenter en mode fictif

INGRID KANDELMAN
Explorer les futurs et

FLORA SOUCHY
Embrasser un fictionnalis-

VALÉRIE
L'art pu-

BAPTISTE S.
Futurs résilients et aux changements clii-

OLIVIER FOURNOUT
La fiction constructi- roman de la cr-

Citoyens du monde ?
Le sujet à l'œuvre à l'échelle globale

Journée d'étude du GRICH
Groupe de recherche " Identités, Cultures, Histories "
Département Langues et Cultures
Ecole polytechnique, Palaiseau

Programme
21 janvier - 14h - 16h30
I. Minicelli, Identités, mouvements sociaux

Francine SALAS
Analyse des productions visuelles dans les savoirs chionnes d'origine 2010-2020 : acteurs, images, victoires et grâbles du mouvement social.

Falchati S. YLTIZ
Reconstruction de l'identité des Oupous immigrants : étude de cas de familles oupoues immigrées en France.

Elias Tulin SEN
Dix ans après plusieurs États, les Kurdes sont-ils citoyens du monde par défaut ?

28 janvier - 14h - 16h30
II. Pistes actuelles : le sujet face au globe et au monde

Monique PLAA
Le sujet à l'épreuve du monde : écrire et réécrire une comédie (Cortès et F de la Flusse dans le monde

Cécile PERNETTE
Le globe de Cocteau, métaphore de l'ent de la Flusse dans le monde

Heidi KNORZER
Le public (la) histoire Sigew (1859 un citoyen du monde ?

Jeffrey
Le re

zoom



Social Story ● Museo Virtual

arts numériques
rencontres
performance
musique
VR

27 et 28 novembre 2021

CENT QUATRE #104 PARIS

Week-end Blade Runner

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Myst collector : captation artistique de brouillard (PhD Ana Rewakovicz)



Modéliser les émetteurs sonores en 3D

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Perform

Design
(vidé
o)



Domestiquer l'information énergétique (PhD en design de Samuel Lacroix)

Sound

Game



Reveal : un jeu pour populariser très largement une science...

14/10/2022

LA FACTORY IN THREE PHASES

Gaseous (2021...)

- × Objective: Identify and federate the forces at work
- × Cycle of joint seminars, first hybrid projects

Liquid (2022...)

- × Objective: 5-6 founding patrons
- × A myriad of transdisciplinary projects culminating in 1 festival
- × 4+ faculties, 10+ doctoral/postdoctoral students, creators in residence...

Solid (2025...)

- × Objective: A large, iconic and defining site
- × A dozen teams with international influence

LES AUTRES CENTRES INTERDISCIPLINAIRES D'IP PARIS



La Factory =
Le nouveau
centre
interdisciplinaire
d'IP Paris



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IMAGINING A WORLD AND ITS CAREERS

Building bridges between **arts** and **sciences**

to create a **unique** ecosystem in France

catalyst for technological and societal innovation

based on **hybrid** researchers-creators

to train more **creative** engineers

Feel free
to join us!

(1. The origin)

2. One team to rule them all ...

3. A PhD thesis

4. Some teaching

5. Many student projects

6. A conference

7. Some outreach

8. ... and in a game to bind them

A CHAIR



2. THE GAMELAB IN 2020



© Frédérique Plas
CNRS phototèque

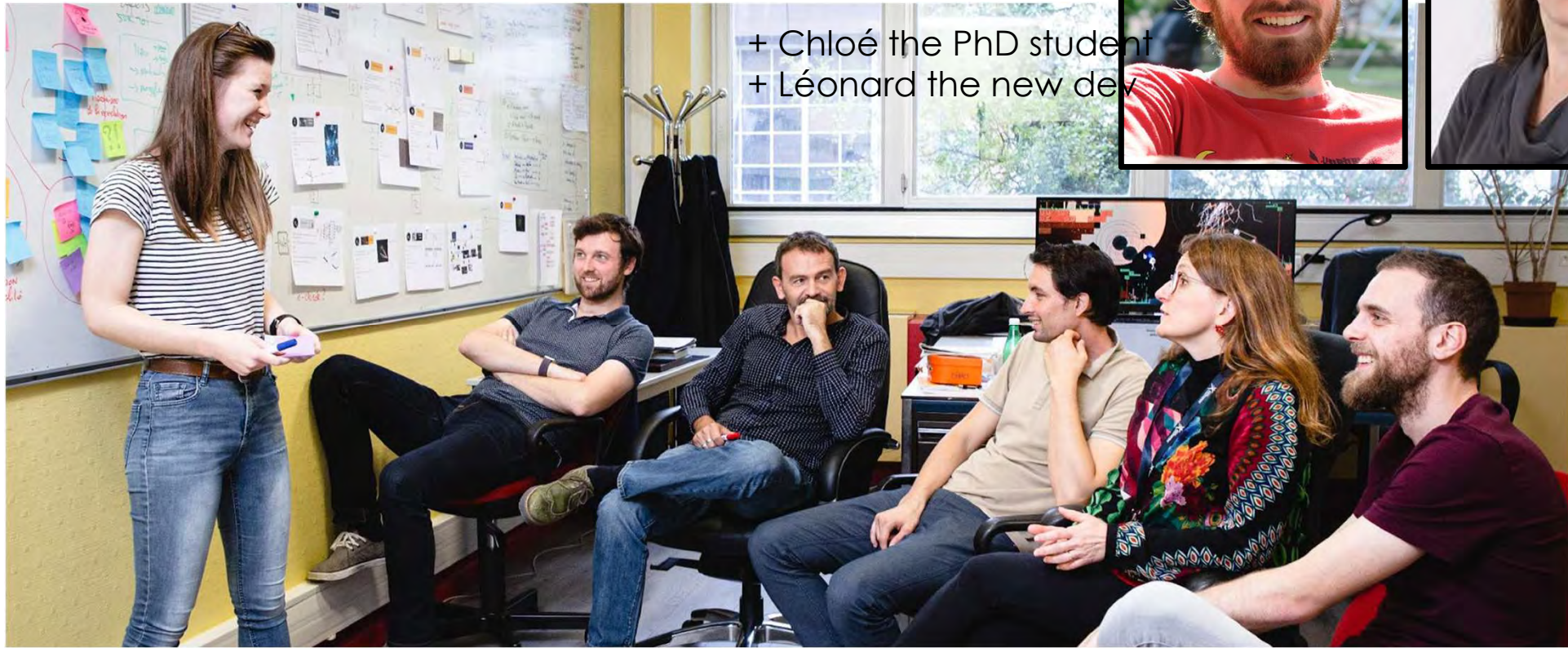
- Video game professionals in residence in a multidisciplinary research center

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2. THE GAMELAB IN 2021



- Video game professionals in residence in a multidisciplinary research center

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17

2. ONE PHD TOPIC, CHLOÉ VIGNEAU

Academic learning through video game design

- Workshop in high-schools (and elsewhere)
- Analysis of more than 100 game engines
- Proposing a new and dedicated tool

Message = Nowadays,
everybody can design small
games



A workshop in a public library in Po

4. SOME TEACHING

2A = Modal, 13-18 students

- *Conception de jeux vidéo*

3A = Starting in Spring 2022

- *Real-time artificial intelligence in video games*



Modal course, before confinement

AA – AUTRES STAGIAIRES ?

4. SOME TEACHING

2A = Modal, 13-18 students

- *Conception de jeux vidéo*

3A = Starting in Spring 2022

- *Real-time artificial intelligence in video games*

3A = A trainee in 2011 (Basile de Lamberterie) others to come

4A = École d'application

- ENJMIN, added to the catalog, 2 students this year

0A = Stages de troisième

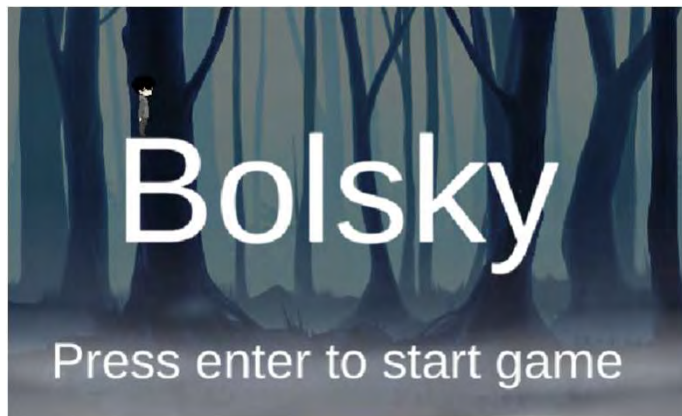
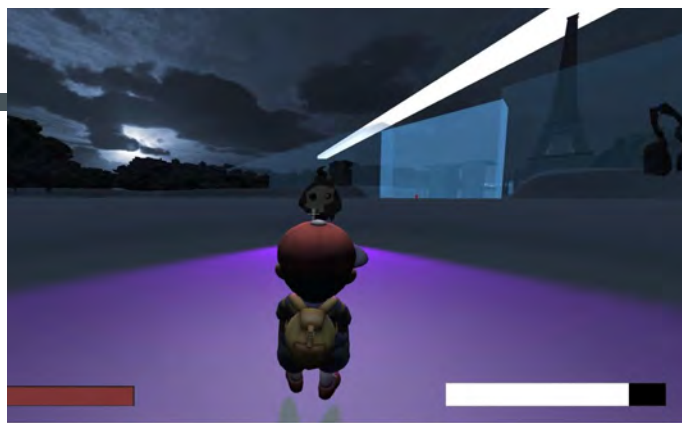
XA = Autres stagiaires ?



Modal course, before confinement



Modal 2021
6 jeux conçus par les
étudiants



Modal 2022
6 jeux conçus
par les étudiants

Follow-up sur le major

5. STUDENT PROJECTS

- 2019-20 : five videogame related projects →
HSS01*, HSS08, HSS/INF9C, INF03, PHY03*
including 2* of the three best PSC prices
- 2020-21 : eight new projets →
 - MAP18 : Modélisation du son des bagnoles (Ubi)
 - MEC03 : Simulation de structures mécaniques (Ubi)
 - INF10 : Génération modulaire de modèles 2D (Ubi)
 - INF01 : Optimisation des caustiques en temps réel (Ubi)
 - INF06 : Apprendre aux créatures de jeux vidéo à marcher * (Ubi) ([vidéo](#))
 - HSS06 : Génération procédurale de dialogues, 2 * (Ubi)
 - ECO01 : Économies virtuelles dans les MMORPG (Novaquark)
 - HSS09 : Évaluation des troubles de l'attention par le jeu ([web](#) et [vidéo](#))
* 2 talks given in a IA conference



5. STUDENT PROJECTS



- 2021-22 : neuf projets !

(INF) Macroanalyse de végétation par image aérienne (U

(MEC) Génération sonore sur systèmes de voxels (Ubisoft)

(HSS) Communication non verbale (Ubisoft) *

(BIO) Résurrection de biomes en milieu hostile (J. Rousseau) **

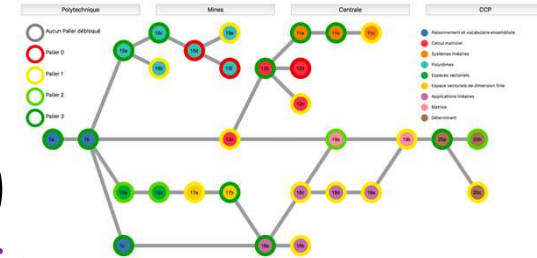
(MEC/INF) Jouer à faire des ricochets numériques (étudiants !)

(INF) Génération d'assets à partir de données archéo (Étiolles)

(MEC) Jeu piloté par la pensée en mode multijoueurs (Mentalis

(HSS) Évaluation de compétences par le jeu vidéo (Chloé Vig

(HSS) Évaluation des troubles de l'attention par le jeu, 2



Tous les groupes
obtiennent un A !
* 4 proposés pour prix
** 1 prix décroché

5. STUDENT PROJECTS

Message = Nowadays, students can easily prototype interactive devices

- 2022-23 : dix de plus, on arrive à 32 :

(MEC) Génération sonore (Ubisoft)

(INF) Crafting et calcul de forme « meshless » (Ubisoft)

(HSS) Évaluation des troubles de l'attention par le jeu, 3 (Mila Learn)

(INF) Discuter avec des IA dans les jeux vidéo (Amplitude)

(HSS) Évaluation de compétences sportives (Chloé Vigneau)

(BIO) Influence du Climat sur un écosystème (étudiants)

(BIO) Un autre sujet éco/biologique (étudiants)

(MEC) Génération de météo en temps réel (DGA)

(INF/BIO) Visualisation de neurones en réalité virtuelle (LOB)

(INF) Génération de cartes sub-surfaciques (Ubisoft)

Interacting with
about 80 students /
year
About 15%

6. CONFERENCE


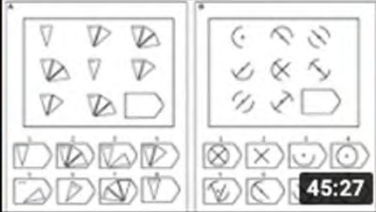







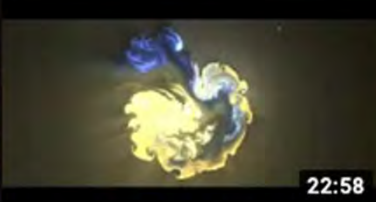
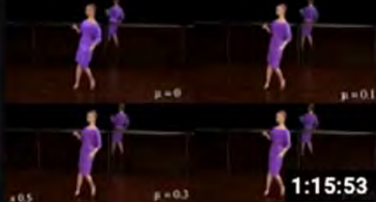
- Mixing videogame experts with scientific researchers
- 1st édition, end of 2019 →
 - Paysages virtuels
 - Modélisation des fluides
 - Spatialisation du son
 - Outils intelligents
 - Gestion des connaissances
 - Jeu et société



6. CONF 2.0

2nd edition, Mar 21

- Online
- 4 half-days
- 400 single viewers
- The occasion to create a YouTube channel

 <p>Intelligence Artificielle : le futur de la musique ? 1:08:51 66 vues • il y a 3 semaines</p>	 <p>Neurodiversité et jeu vidéo 45:27 57 vues • il y a 3 semaines</p>	 <p>Le jeu video pour favoriser l'inclusion des personnes... 1:03:47 51 vues • il y a 3 semaines</p>	 <p>Table Ronde : Structures de R&D pour le jeu vidéo 47:08 73 vues • il y a 1 mois</p>
 <p>Du fossile à l'espèce, de l'histoire au squelette 1:24:11 142 vues • il y a 1 mois</p>	 <p>Une équipe de recherche académique chez Unity 42:08 67 vues • il y a 1 mois</p>	 <p>Hanabi, le jeu de société qui défie l'intelligence... 1:11:32 608 vues • il y a 1 mois</p>	 <p>La génération procédurale de contenu au service de... 1:02:47 191 vues • il y a 1 mois</p>
 <p>Le jeu vidéo comme une simulation scientifique 1:01:43 567 vues • il y a 1 mois</p>	 <p>La physique dans les jeux vidéo : démonstrations 22:58 190 vues • il y a 1 mois</p>	 <p>La physique dans les jeux vidéo : au-delà de Newton ? 1:15:53 1,1 k vues • il y a 1 mois</p>	



6. CONFÉRENCE #3

27 JUIN 2022 @ CNAM
JEU VIDÉO ET ENVIRONNEMENT
150 PARTICIPANTS PRÉSENTS



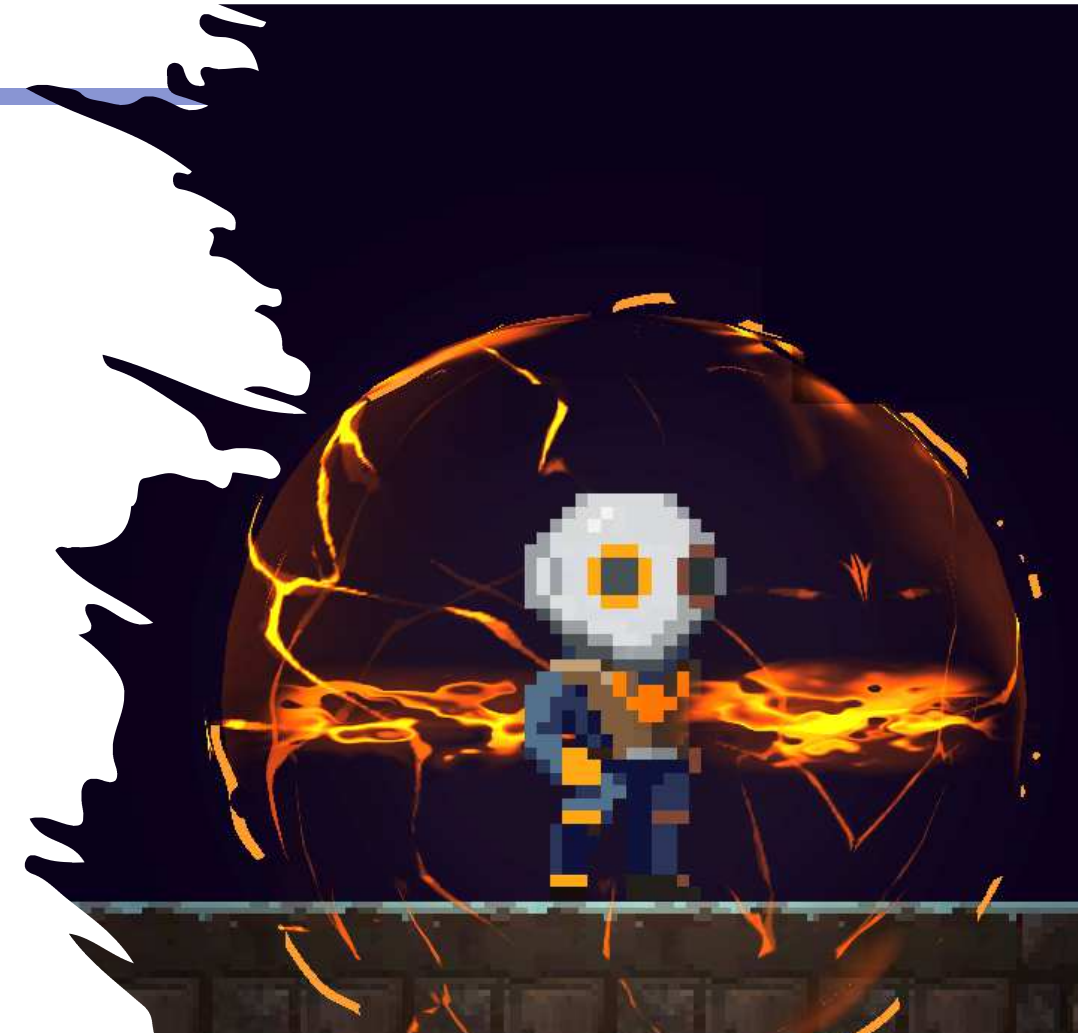
8. ONE GAME

« REVEAL »

« Live an amazing encounter with science, making particle physics intriguing, wonderful and tameable through a pure puzzle / platformer game »

- For a wide audience
- First prototype, end of 2018
- Vertical slide, early 2021
- Sep. 2022 @ [Telecom Paris](#) incubator
- Release, early 2023

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Message = To make ambitious games takes time and money, tough for the academic world

Decay **Collision** **Cosmic**

Sélectionner les particules à faire entrer en collision :

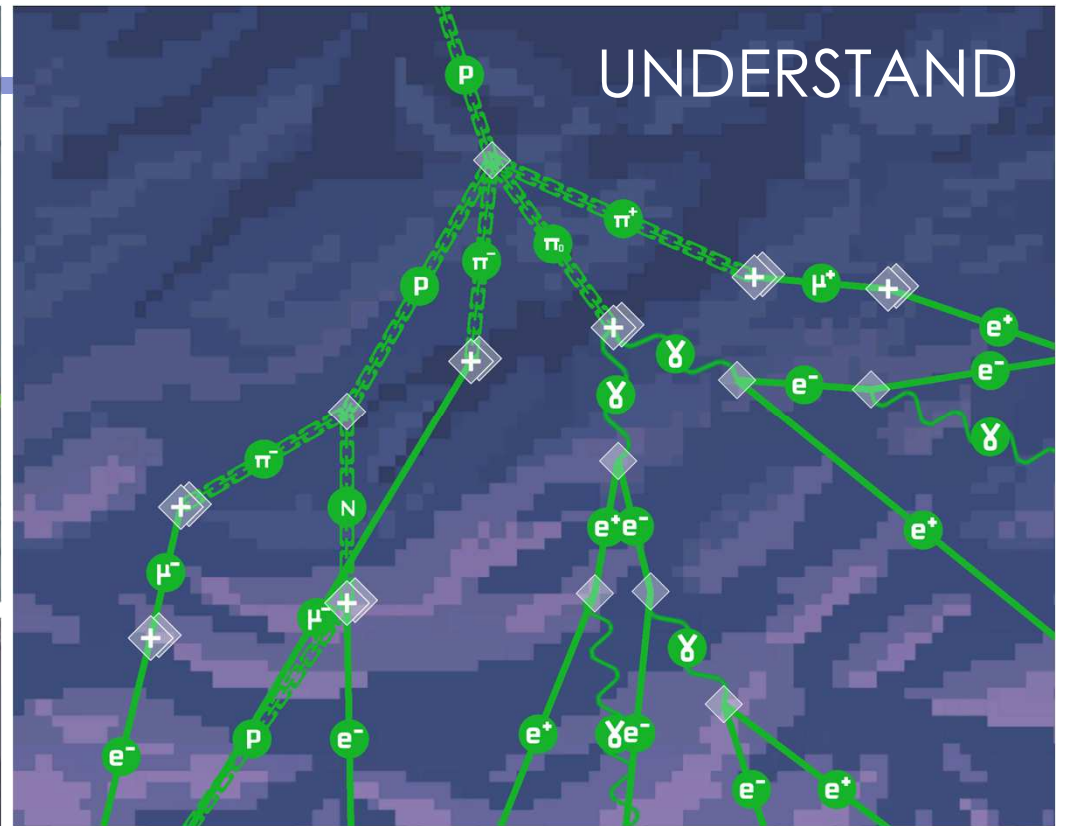
Proton **Electron**

Go !

Time Flow **Neutrino**

H Nom : Higgs
 Famille : Bosons
 Charge : 0
 Masse : 133 u

Le boson de Higgs a été prédit en 1964, comme seul moyen d'octroyer leur masse aux autres particules. Il a été découvert en 2012. Son étude assure qu'il n'y a que trois paires de quarks, et donc trois familles. Le modèle standard serait ainsi fermé, s'il n'y avait des indices cosmiques de l'existence d'une matière noire.



Decay **Collision** **Cosmic**

Sélectionner la particule à désintégrer :

Lepton	Quark	Hadron
e^- ν^e	d u	P N
μ^- ν^μ	s c	π^- π^0
τ^- ν^τ	b t	K^+ Λ^0

Boson

g γ Z W^- H

Anti particule ou non

Go !

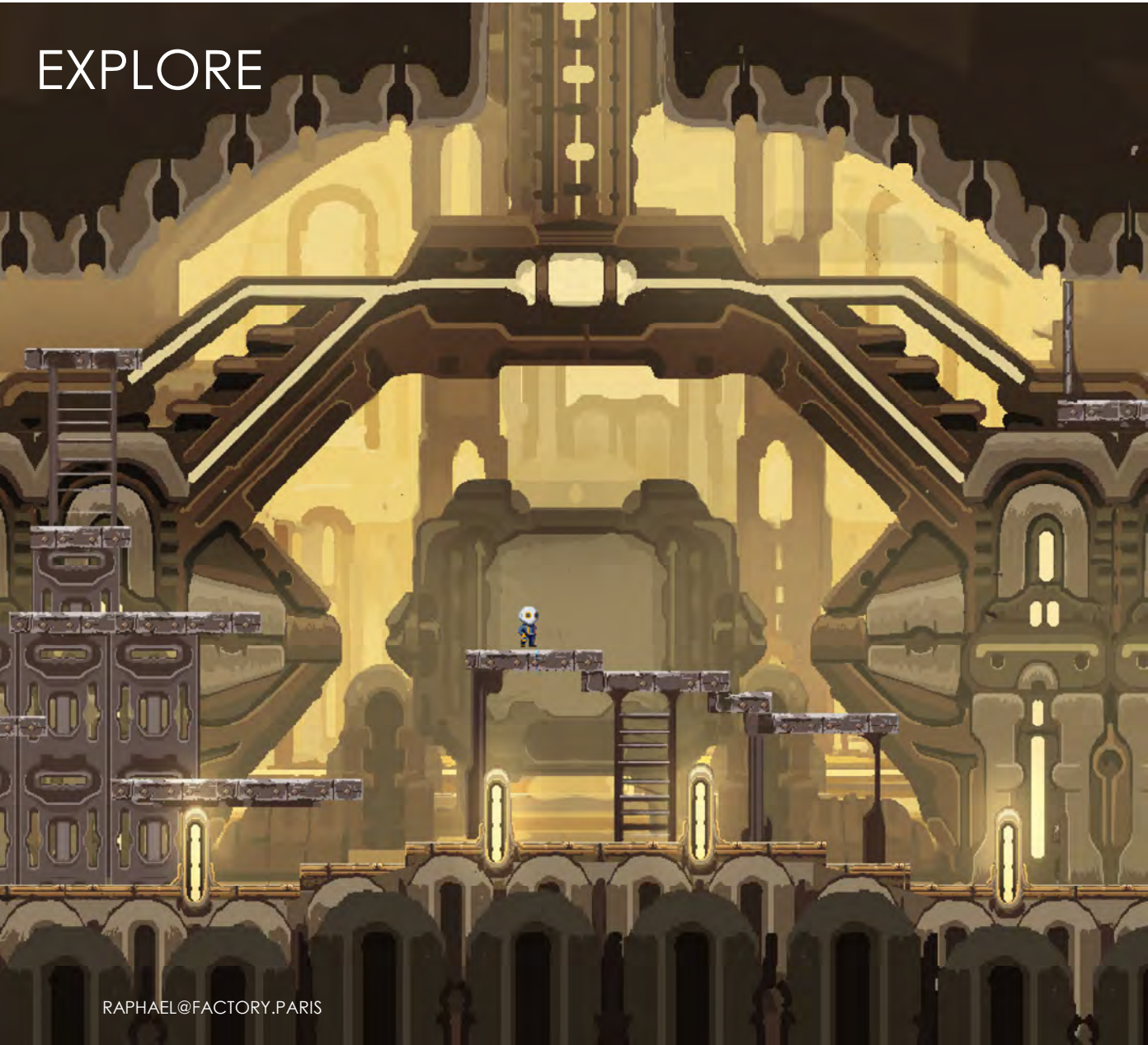
Time Flow **Neutrino**

Z Nom : Z
 Famille : Bosons
 Charge : 0
 Masse : 99 u

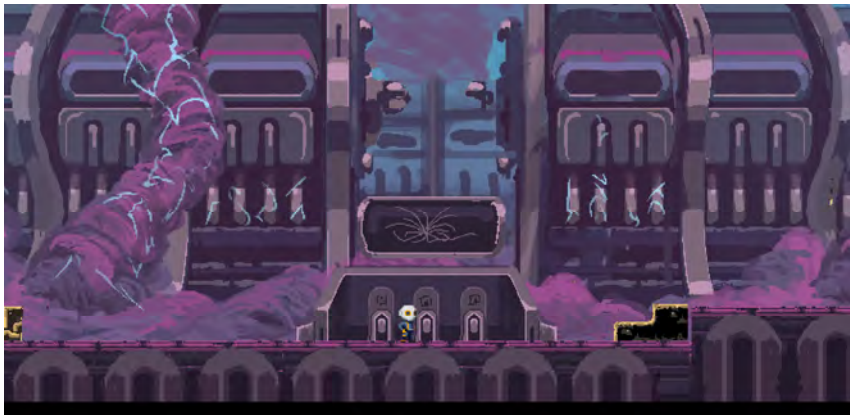
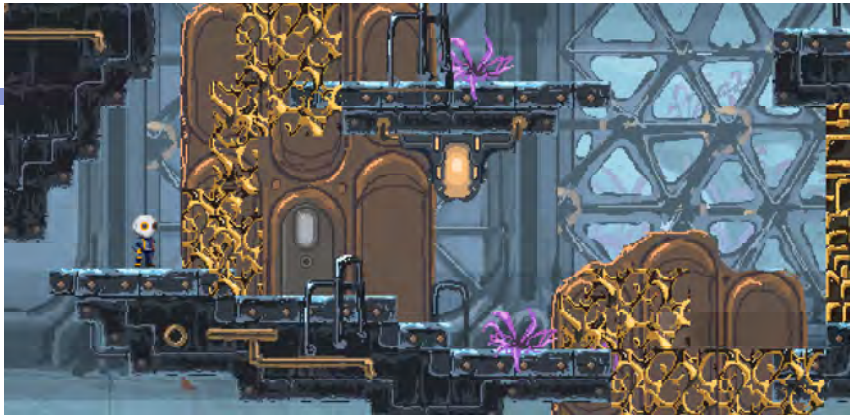
Médiateur neutre de l'interaction Faible, le boson Z se désintègre en toutes paires particule-antiparticule, y compris en neutrinos, à l'exclusion des quarks top, trop lourds. Un premier Z a été découvert au CERN en 1973, avant d'y être copieusement produit et de donner l'indice qu'il n'existe que trois familles...



EXPLORE



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SCIENCES & GAMES



UNBREAKABLE
BONDS VIA
TECHNOLOGY &
EXPERIENCE



SCIENCE X GAMES

EXPERIENCE

training research
learning cognition
exercise

sociology & history

medicine & neurology

biology & ecology **SCIENCE**

maths & computing

physics & chemistry

economics...

GAMES

(videogames)

virtual
reality

networks

3rd dimension artificial
intelligence

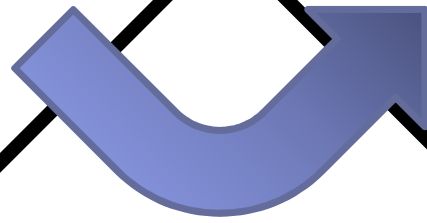
TECHNOLOGY

1

SCIENCE

GAMES

TECHNOLOGY

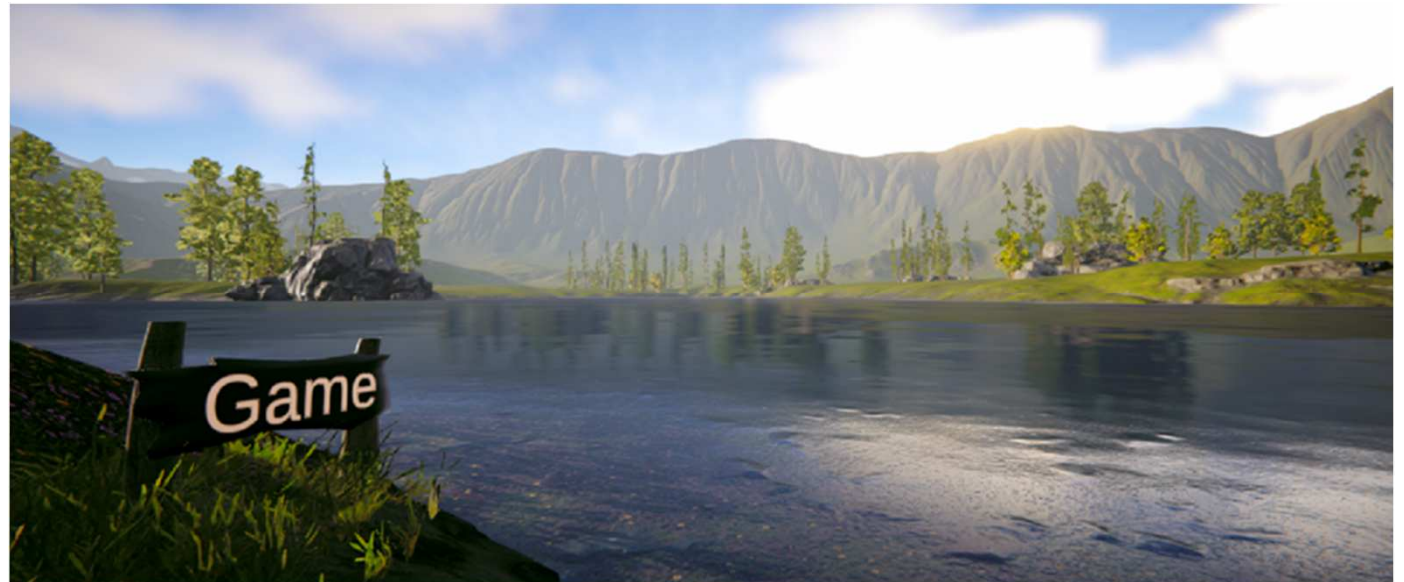


AUGMENTED AND VIRTUAL REALITIES

User comfort
challenge

From a few
minutes to an
hour of play

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A polytechnic student
skimming stones in his
homemade VR game

14/10/2022

36

REAL-TIME
SIMULATIONS FOR
OPEN AND
INTELLIGENT WORLDS

Weather

Fluids

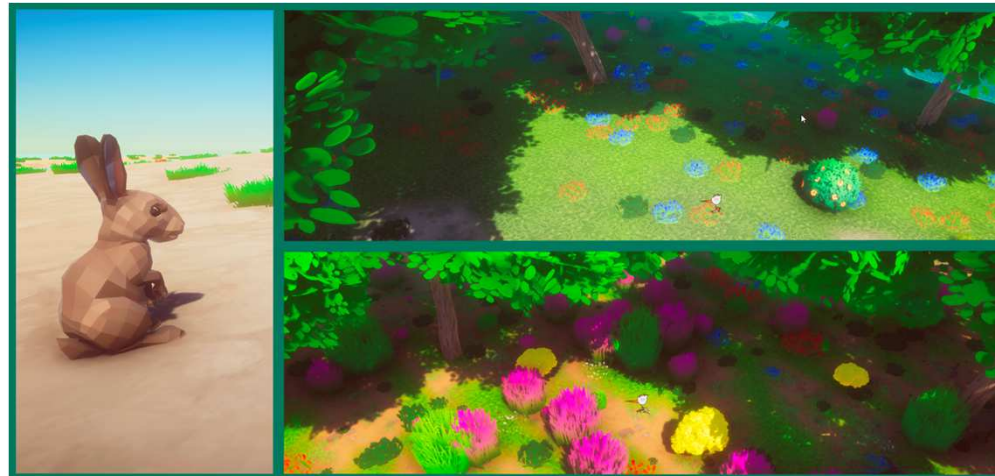
Plants & Animals

Societies

...

→ Projects 4 student

→ Topics 4 conferen



A game about
biodiversity made
by our students
(Polytechnique
best project 2022)

Sciences produce technologies
Games follow technology closely and
sometimes illustrate it, demonstrate it,

stimulate it

SCIENCE

GAMES



TECHNOLOGY

By stimulating technology,
do games advance science?

Parallel computing !

SCIENCE

GAMES

Computer graphics !

Artificial intelligence ?

TECHNOLOGY

ARTIFICIAL INTELLIGENCE

(video) games challenge AI

1997 DeepBlue for chess

2016 AlphaGo

2019 AlphaStar

StarCraft II using multi-agent reinforcement learning.

Nature 575 (2019) 350



3

EXPERIENCE

SCIENCE

GAMES

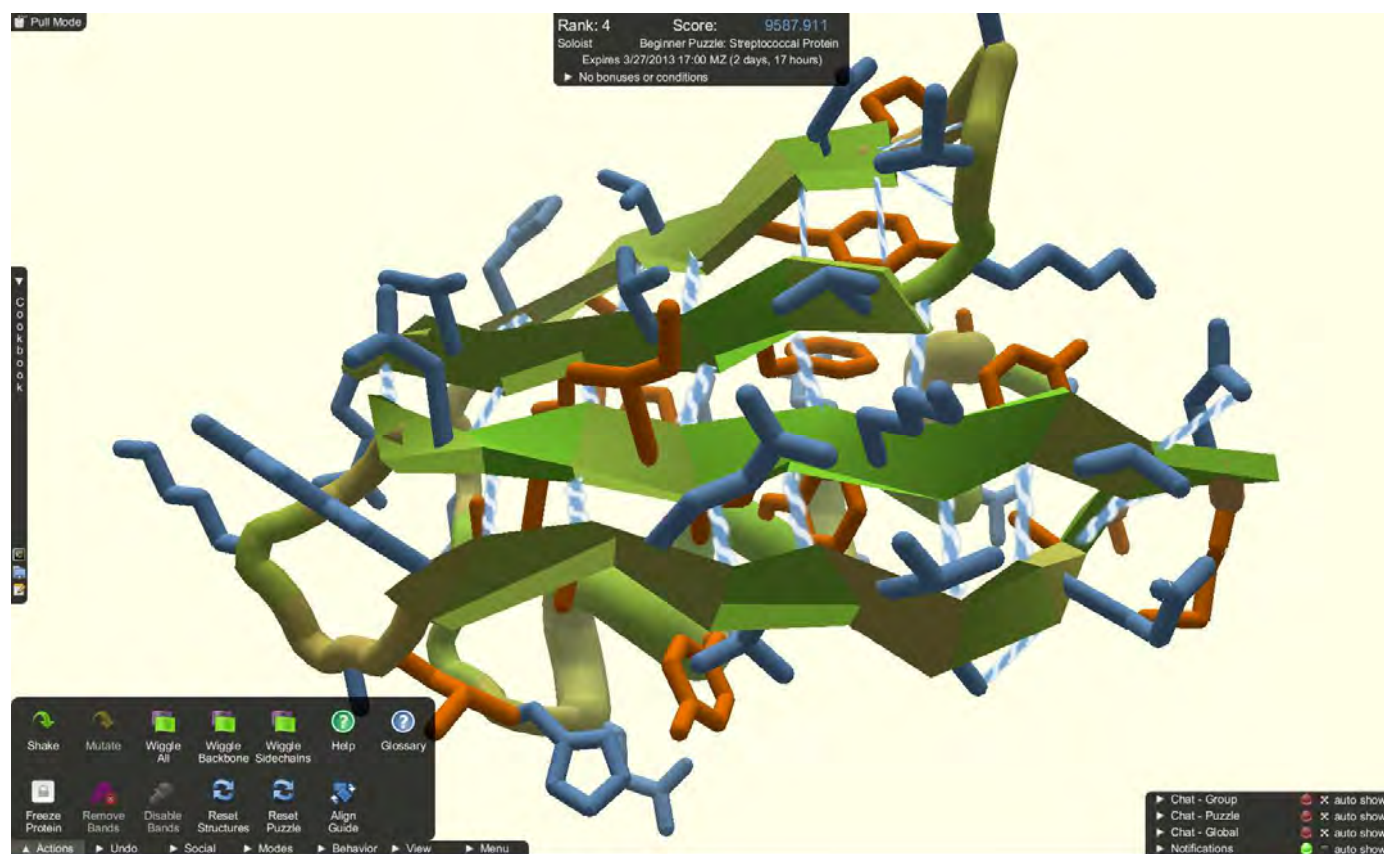
Using players' experience to advance science (*crowdsourcing*)

FOLD IT

Washington Uni.

57 000 players
folding proteins

One article in
Nature



<http://centerforgamescience.org/>

REPLACING CROWDSOURCING WITH ARTIFICIAL INTELLIGENCE?

Very likely for hard
sciences!

REPLACING CROWDSOURCING WITH ARTIFICIAL INTELLIGENCE?

Very likely for hard
sciences!

Game over for
proteins!

AlphaFold in

Nature 588 (2020)
203



REPLACER LE
CROWDSOURCING
PAR
L'INTELLIGENCE
ARTIFICIELLE ?

Very likely for hard
sciences!

But not for human
sciences!

- Cognition
- Societies
- ...



A game to detect the early signs of Alzheimer's disease)
Another paper in Nature about correlating
sense of direction with geographical origin

4

EXPERIENCE

SCIENCE

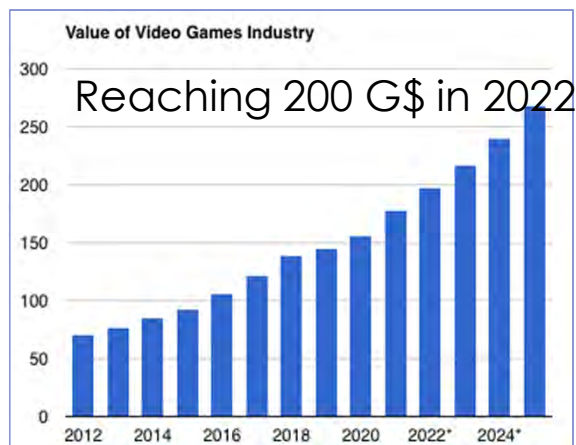
GAMES

Can science inspire playful experiences?

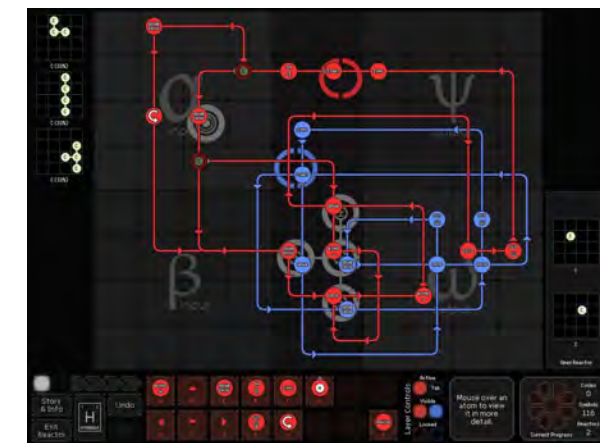
GAMES TO LEARN / ILLUSTRATE

Four advantages of the "video game" medium

- Evoking embodiment via animated images
- Science-inspired game mechanics
- Easier learning through interactivity
- Large audience (first entertainment industry)



I hear and I forget
I see and I remember
I do and I understand
(inspired by confucianism)



DIRECT LEARNING

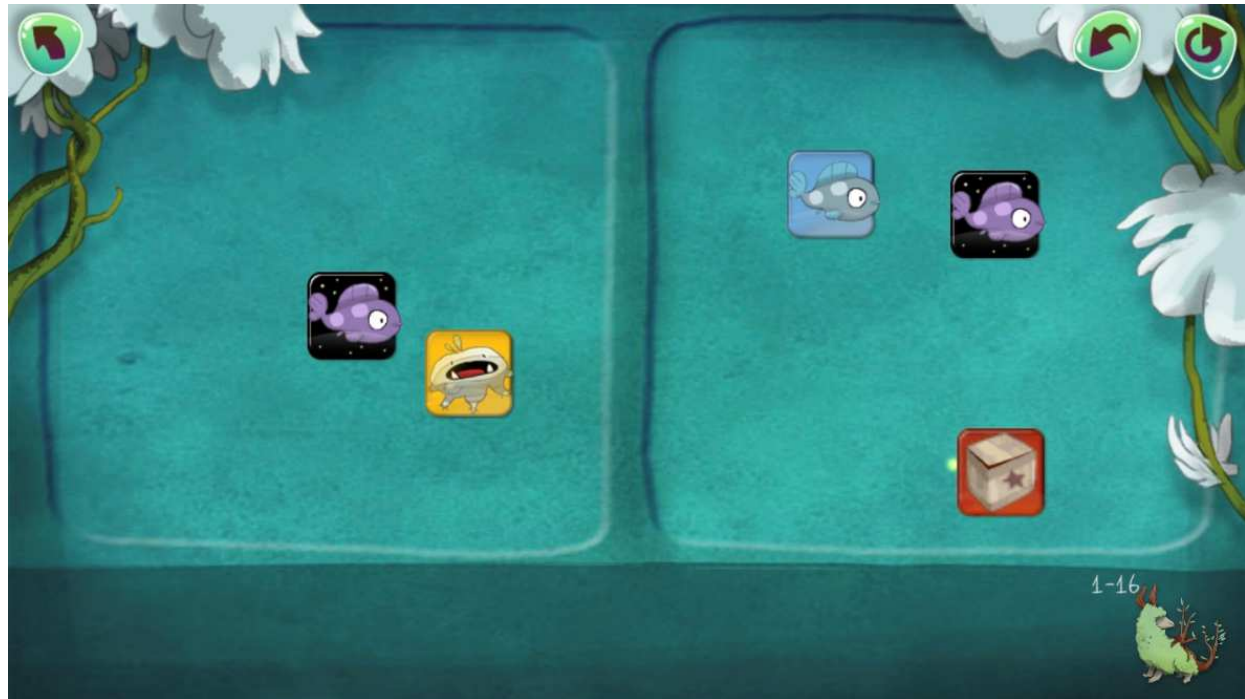
Dragonbox, math

Sokobond, chemistry

Mecagenius, mechanics

Metablast, biology

...



DIRECT LEARNING

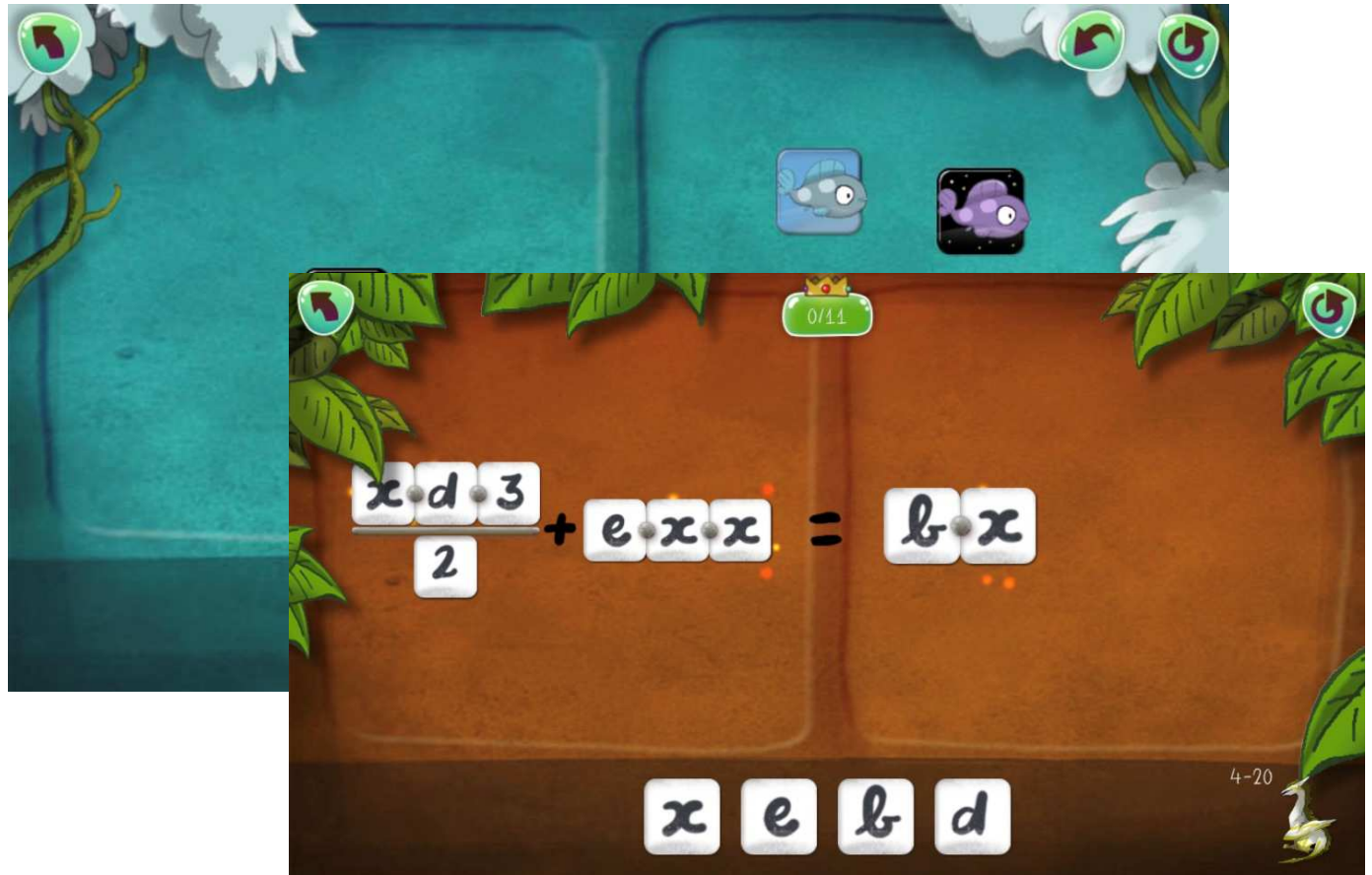
Dragonbox, math

Sokobond, chemistry

Mecagenius, mechanics

Metablast, biology

...



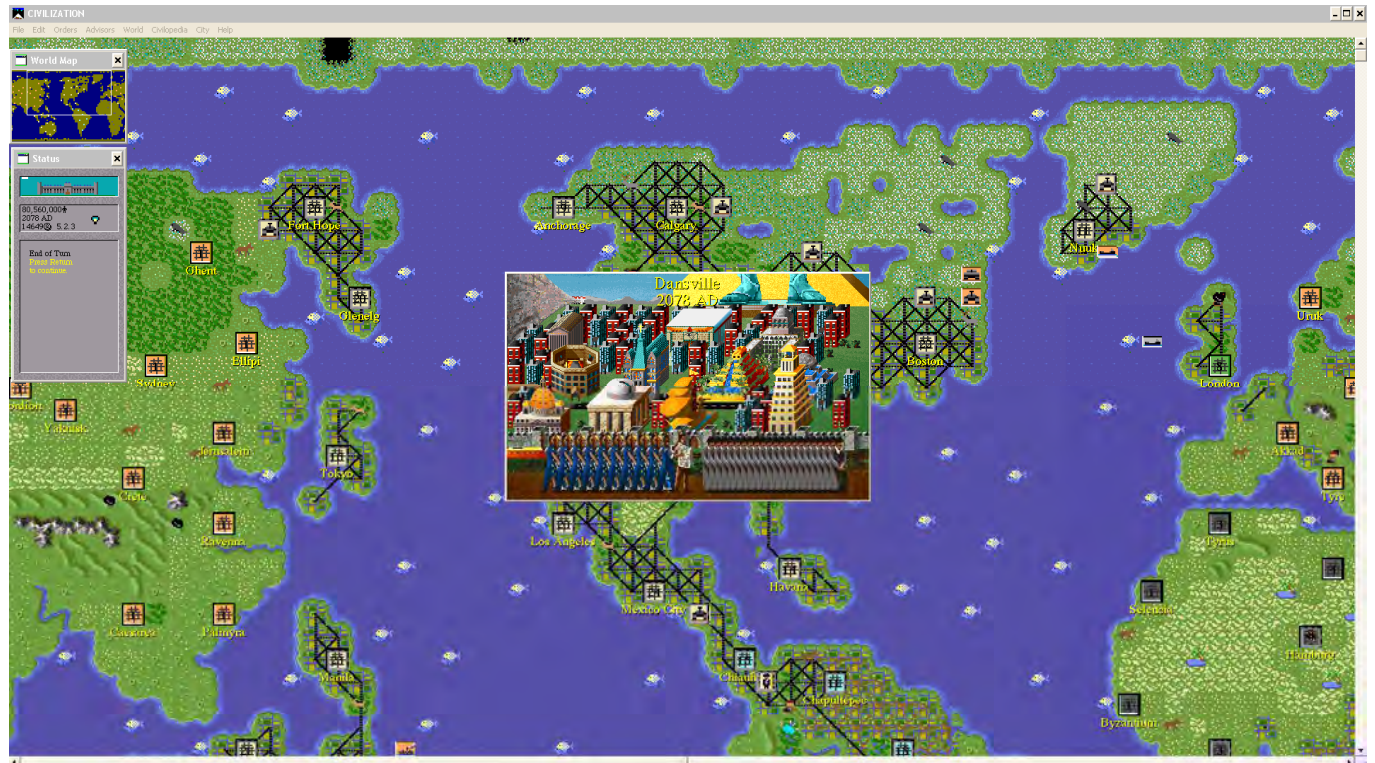
Deployed in classrooms in Norway

INDUCTION LEARNING

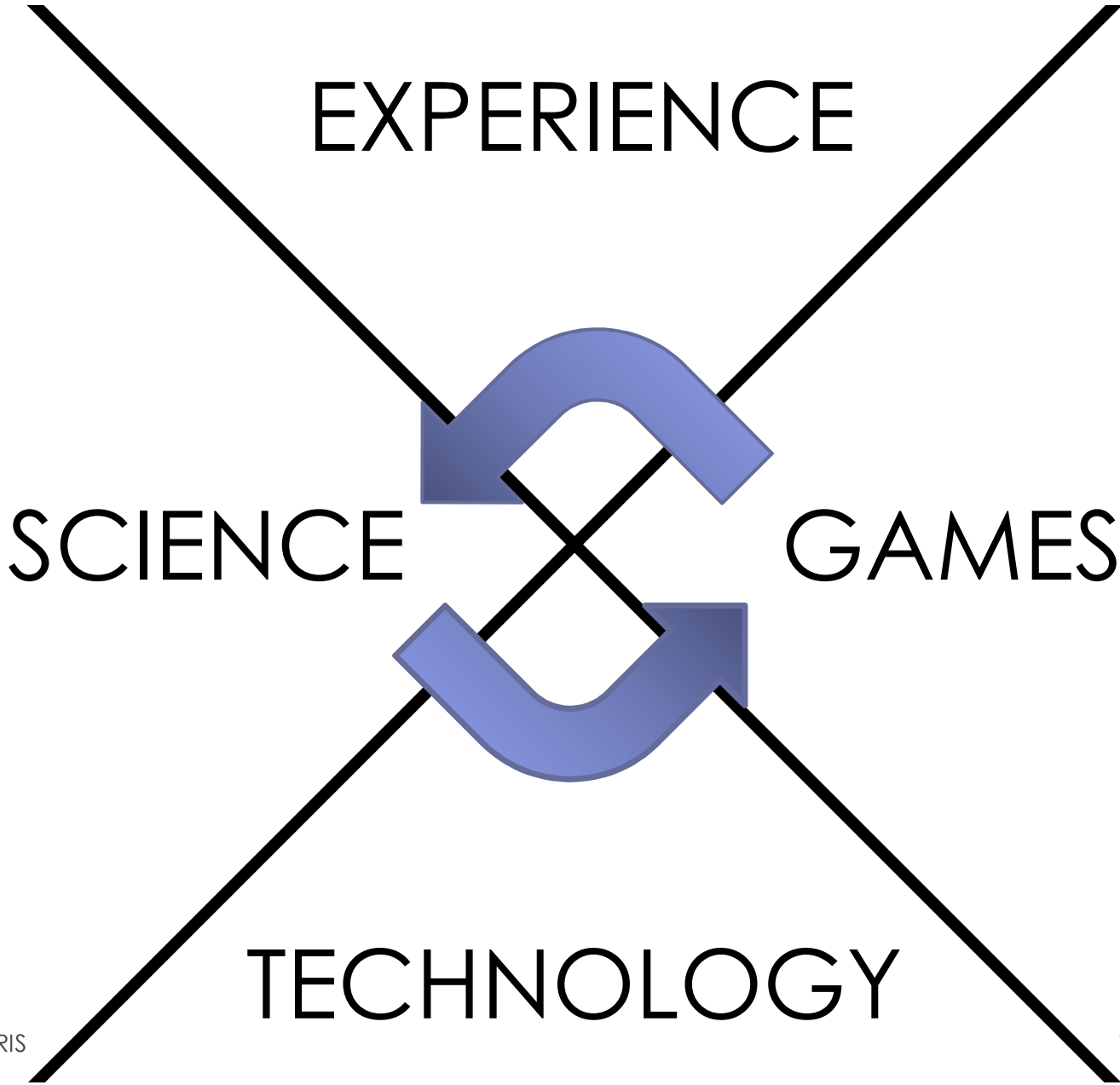
Civilization, history

Minecraft, construction

...



5



THOUGHT DIRECTED GAMES

Brain Invader, 2017





SCIENCE FOR ALL
FUN ABOVE ALL

contact@sciencexgames.fr

 @ScienceXGames

<http://sciencexgames.fr>

 Science X Games





BACK-UP SLIDES



I. THE GENESIS < 2019

- During 2015 = An idea to answer the ERC Proof-of-Concept call (fail 😞)
 - Produce a game to popularise particle physics (on-going...)
- March 15, 2016 = Meeting the valorisation services @ X (SR2PI)
 - Market study @ SATT Paris-Saclay, expression of interest...
- Lign up on all money counters:
 - ☺ Proposal to the P2IO LabEx → 25 k€, Tony the dev (March 2017...)
 - ☹ Second attempt to the ERC PoC
 - ☹ CNRS prematuration
 - ☺ Paris-Saclay prematuration → 45 k€, PAF the game designer (February 2018...)
 - ☺ LLR Support → 30 k€ (... December 2018)
 - ☹ Maturation SATT Paris-Saclay
- March 21, 2018 : meeting Ubisoft !
- January 1st, 2019, for five years...
 - ☺ Chair → Catherine the project

A SIDE PROJECT

(BPI funding obtained by/with the Manzalab company)



CLASSE VIRTUELLE IMMERSIVE
DE PHYSIQUE DES PARTICULES



Timeline
Masterclass



arrivée



cours magistral



déjeuner



exercices

Le dispositif



VR COLLABORATIVE



questionnaires



restitutions vidéo-conf.



départ

A 3D WORKSHOP



Timeline
Masterclass



arrivée



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exercices

Le dispositif



VR COLLABORATIVE



questionnaires



restitutions vidéo-conf.

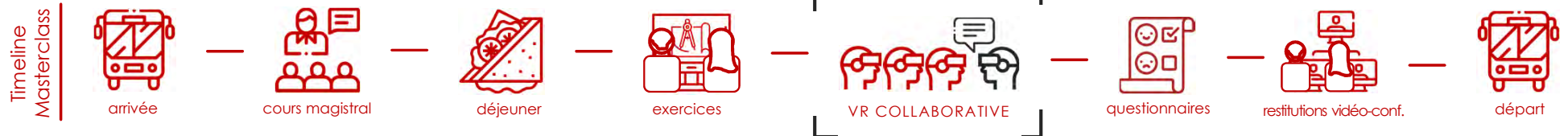


départ

A 3D & 360° VIRTUAL VISIT



Le dispositif



7. OUTREACH



■ Communication tools

- A web site and blog : sciencexgames.fr
- YouTube (300 followers, 4 300 views et 500 h)
- Twitter (700 followers, 250 tweets...)

■ Outreach solicitations

- 12 seminars
- 10 articles written by us or on us (Le Monde, Journal du CNRS, Ciel & Espace...)
- 2 radio shows (RFI, France Culture...)





More detailed information:

Some of our partners

Academic (France)

- INRIA, CNRS...
- Paris-Saclay ([Diagonale](#), [Scène de recherche and beyond](#))
- Other universities...
- ENSAD (arts décors)
- ENS Louis Lumière
- École Boule
- Gobelins, ENSCI, CY Design
- CNAM/ENJMIN (video game)
- IRCAM
- ...

Industrial

- Ubisoft (science et video games chair)
- LVMH (seeding the studio design)
- PME : [Hue Data](#), [Manzalab](#), [Immersion tool](#), [MocapMab](#), [F'Acoustics](#)
- ...

Cultural institutions

- Fondation Carasso (arts & sciences chair)
- 104, Forum des Images
- Centre Pompidou...
- ...

Who are we ?



≈ 80 signatories with varying degrees of involvement ≈ 40 X + 25 TP + 10 ENSTA + 5 TSP + 1 ENSAE

Including 3 heads of department = Schütz (SHALL), Licoppe (SSM), Defude (IDIA)

[design] Huron (TP), Cani (X) and collaborators...

> 5 persons / lab

[game] Granier de Cassagnac & Rolland (X, chair in science & videogames) ; teachers @ TP and TSP

[museo] Brechenmacher, Azzola (X), Perez (ENSTA), Trahay (TSP)...

[perform] Chomaz (X, chair in Arts & Sciences), Kobryn (ENSTA)...

[social] Fournout, Dickman, Diminescu, Rollet (TP), Schütz (X)...

[sound] Doaré + team (ENSTA), Essid + ADASP team (TP)...

[story] Mallet (ENSAE), Garron (TP), Argeles, Bouttier, Robinson (X)...

[virtual] Zaharia (TSP), Rohmer, Kalogeiton (X), Safin (TP) + teams...

This is just a selection of the most active members, mentioned only once when involved in more than 1 lab, contact persons are underlined

DesignLab



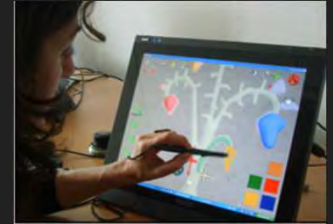
Why ? Design methods stand at the crossroads of applied arts, computer graphics and human-machine interface, constituting the basic building blocks for all physical or digital creation

Who ?

- Students introduced to the subject through a range of training courses in drawing, interaction design, prototyping, 3D, etc.
- Researchers at Télécom (using a **design studio** managed by Interact/i3) and at Polytechnique (GeoVic/LIX), ranging from social science to computer science
- Artists/designers and researchers in residence

How ? Building links between existing teams in order to

- Propose student projects fostering creativity
- Design structuring research projects, such as
 - **CreativeAI, dedicated to the development of intelligent creative support systems**
 - **Continuum, an Equipex project dedicated to setting up a continuum between digital and human collaborators)**



GameLab



Why ? Video games are the 10th art, represent the largest share of the entertainment industry (> 150G\$/an), involving many different areas (computer graphics, AI, data, images, sounds, narration...)

Who ? Dozens of motivated students

- Courses offered at Télécoms and X
- A chair and a GameLab at 'X (Ubisoft)
 - A yearly conference
 - A science popularisation game
 - A network of universities and industrial partners

How ?

- Migrate GameLab to Factory
- Collaborate with other labs (Virtual, Sound...)



MuseoLab



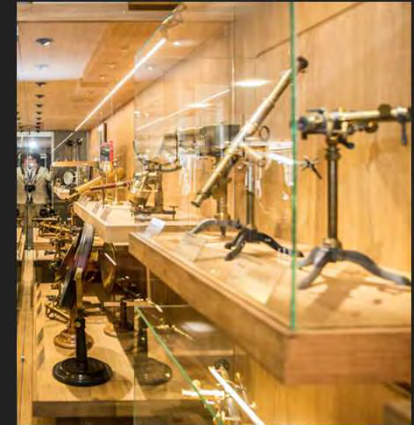
Why ? The historical collections of the member schools represent a unique testament of the bridges between sciences, arts and society, a major asset both for teaching and research, associated with the international standing of universally admired figures such as Poincaré, Cauchy, Lagrange and others

Who ?

- Mus'X, ENSTA collections, museum of telecommunication at TSP
- Many students interested in interdisciplinary projects

How ?

- Foster the integration of these collections into teaching, research and cultural activities in our libraries
- Participate in the scientific policy of IP Paris' museum spaces (temporary exhibitions, meetings, performances, etc.)
- Develop innovative mediation for large and international audiences:
 - Interactive modelling with GameLab, virtual reality with VirtualLab, etc.



SocialLab



Why? Human relations are changing, and our engineers must be prepared, for example, for controversies, *fake-news*, *fact-checking*, *cancel culture*...

Who?

- The SES department at Télécom Paris has extensive experience in fictionalising the societal and scientific controversies : 40 works of art, 14 articles, 1 book, 7 authors, 20 external partners
 - **A Pokemon Go of job finding** <https://www.youtube.com/watch?v=LGozUxaV4Vk>
 - **An encyclopedia of speech** <https://encyclopediedelaparole.org/fr>
- Resonances need to be found in the 4 other schools

How?

- New approaches in history, thanks to new vectors
- Set up, experiment with and describe participatory or collective creation schemes
- Deepening expertise in the performing arts

SoundLab



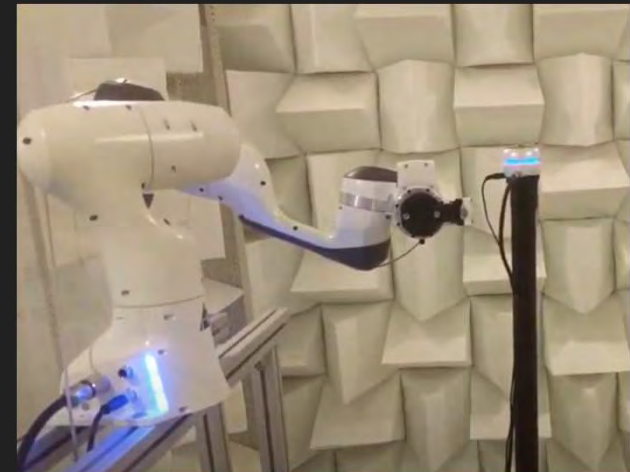
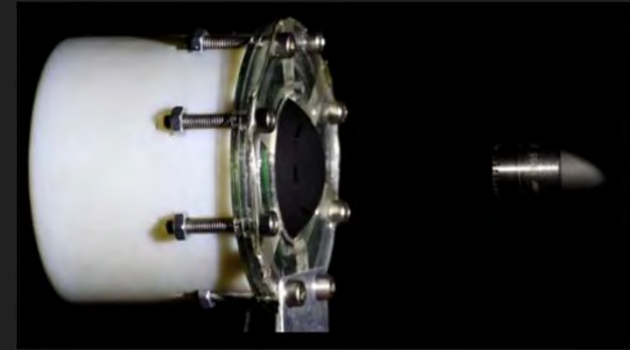
Why? Sound at the frontier of music and acoustics: miniature and intelligent transducers, sound synthesis and creation of virtual environments, new musical formats, AI at the service of musical analysis and composition...

Who?

- ENSTA team specialised in synthesis and modelling
- ADASP@Telecom specialised in audio data analysis

How?

- Federating the different teams' research
- Sharing a large sound recording and mixing studio, open to current and future broadcast formats
- Contributing to the many productions of the Factory (video games, live shows, audiovisuels, performances, etc.)



StoryLab



Why? How do narratives shape the core issues of ongoing societal transitions (scientific, technological, ecological, ethical, political, social...)? What material are they built with?

Who ?

- Several writers / storytellers / scriptwriters at IP Paris
- Literature professors (various languages)
- A Research Group on Identities, Cultures and Histories @ X (GRICH)

How ?

- Investigating multi-media narratives in a research seminar
- Teaching storytelling to students (courses, workshops...)
- Producing useful publications, for example:
 - **Nos Futurs, an anthology of sciences and fiction on global warming**
 - **Essay: Observing societies through the lens of fiction (8 articles, 7 authors from IP Paris)**

VirtualLab



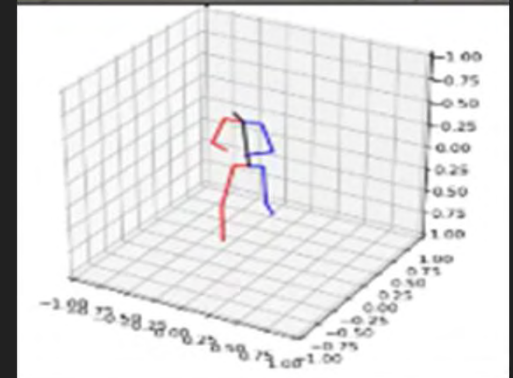
Why? Democratizing AR/VR applications for the general public (entertainment, games, etc.), industry (simulation, training, etc.), museums and the arts (live performances, etc.)

Who ?

- Students and PhD students following specific courses (IP Paris M2 VAR, IGD, MScT AI-ViC, and engineers)
- Three teams : ARTEMIS@TSP, DIVA@Telecom, GeoVic@X
- Strong potential for industrial partnerships (Metaverse...)
- Discussion with Hue Data, Immersion tools, Manzalab, Lynx...

How ?

- Find a location and invest in ambitious shared amenities
- Federate the teams' skills and resources
- Interact with other labs (Game, Design, Museo...)



PerformLab



Why ? Public in-reach - Involving "people" into scientific modes of inquiry through research-creation of artistic installations and performances. Revealing the sensitive part of a scientific approach. Grounding IP Paris in its local environment.

Who ?

- Researchers in artistic and scientific residencies
- Students in arts/design and sciences
- An "arts & sciences" chair at X with the Arts Déco and Carasso Foundation
 - Exoplanète Terre Network, Exhibitions
 - Symposiums, Summer Schools
 - Research/creation PhD's

How ? Extend the PerformLab to La Factory (institutions and other labs), strengthen local partnerships (Scène de recherche, Diagonale, Essonne, 104...)