L’impression 3D au FacLab

David Ott

8 juin 2022

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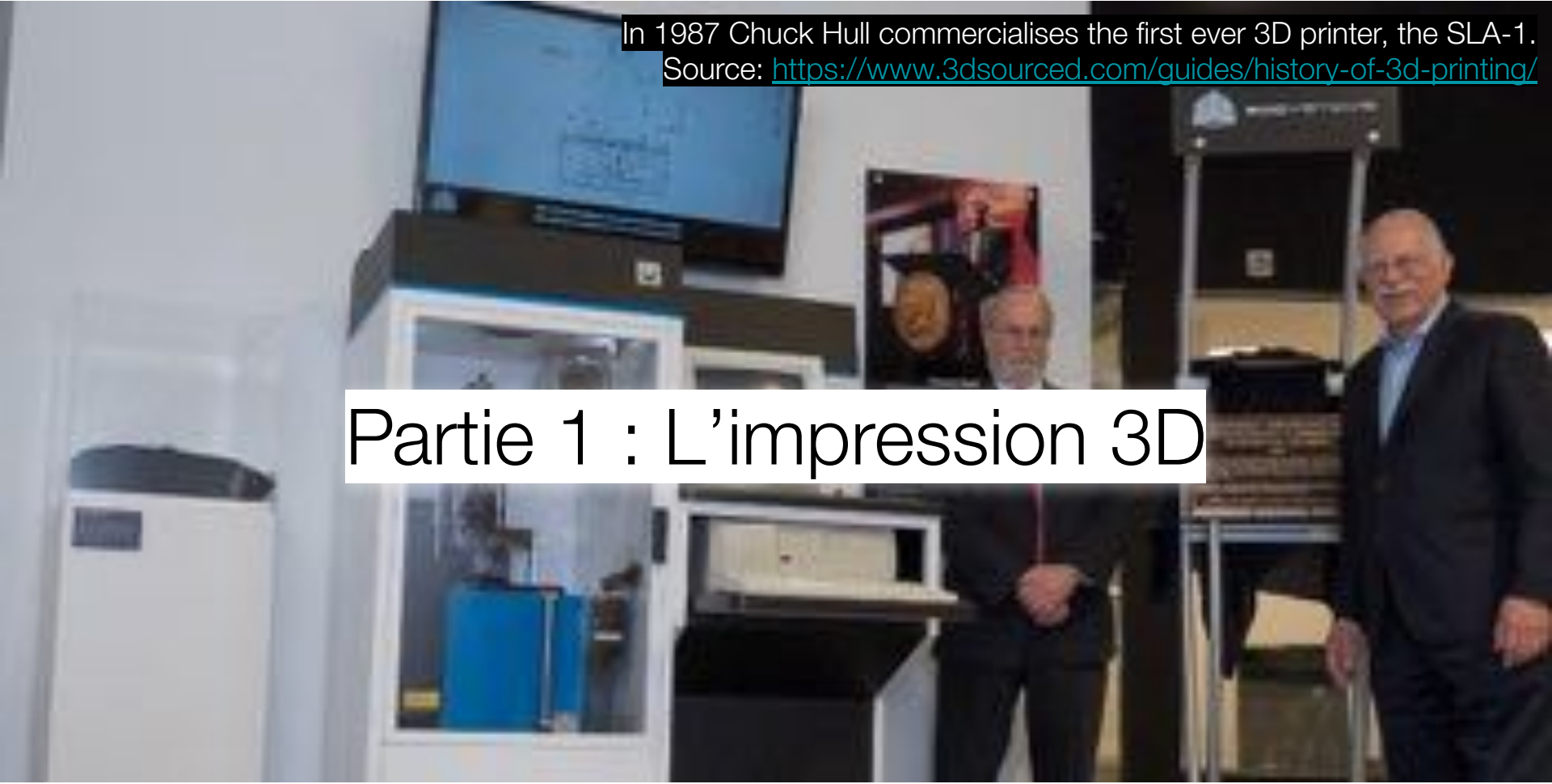
- Le FacLab de l’Université de Genève
- La ferme d’imprimante 3D du FacLab
- Les formations au FacLab
- Collaborations

Partie 3 : Vos questions…



In 1987 Chuck Hull commercialises the first ever 3D printer, the SLA-1.
Source: https://www.3dsourced.com/guides/history-of-3d-printing/

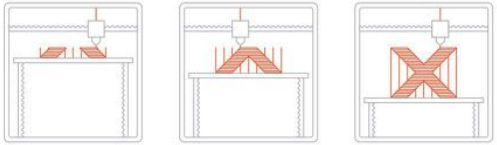
Partie 1 : L'impression 3D

Courte histoire de l’impression 3D

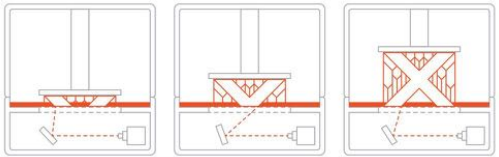
1952 : First commercial numerically controlled lathe (MIT)
1974 : In a New Scientist column, David Jones (aka Daedalus) describes the SLA process
1981 : Dr Hideo Kodama (NMIRI) published details concerning a layer-by-layer ‘rapid prototyping‘ technique
1986 : Charles ‘Chuck’ Hull files patent for SLA technology
1987 : Chuck Hull (3D Systems) commercialises first 3D printer (SLA)
1988 : Carl Deckard (U of Texas) files patent for SLS technology
1989 : Scott Crump (Stratasys) files patent for FDM technology
2005 : Adrian Bowyer initiates the RepRap project
2012 : Josef Prusa founds Prusa Research
2014 : I buy my first 3D printer kit (approx. chf 1500.-)
2019 : FacLab of UNIGE is inaugurated on the 1st of April and procures a Peopoly Moai 130 SLA 3D printer
2020 : FacLab procures 3x Prusa Mini

Différentes méthodes d'impression 3D

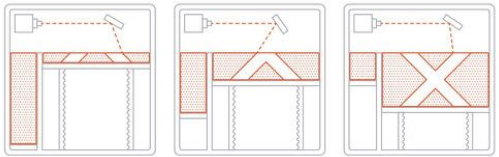
Material extrusion (FDM|FFF)



Vat polymerization (SLA|DLP)



Powder bed fusion (SLS)



Différentes matières

- Thermoplastics (PLA, PETG, nylon, etc.)
- Metaux (Acier inox, titanium, etc.)
- Céramiques, “ciments”, verre, etc.
- Bio(printing)

fabbaloo.com

3D Printed Ears First Used in Human Patient

By Kerry Stevenson on June 6th, 2022 in news, Usage
Tags: bioprinting, cartilage, ear, milestone, organs, tissue

3D bioprinted human ear cartilage [Source: 3DBio]

In a milestone development, 3DBio Therapeutics have completed reconstruction of a human ear with 3D printing.

Working with the Microtia-Congenital Ear Deformity Institute, 3DBio has used their AuriNovo technology to create a personalized ear implant using 3D bioprinted living tissue.

L'Oréal Leads Beauty Industry Makeover with 3D Printing

By Charles Goulding on May 20th, 2022 in news, Usage
Tags: beauty, fashion, loreal, manufacturing, packaging, ultimaker

3D Printing at L'Oréal [Source: L'Oréal]

Charles Goulding and Andressa Bonafe examine the incredible and growing use of 3D printing at beauty giant L'Oréal.

With 36 brands and 88 thousand employees in 150 countries, L'Oréal is the largest cosmetics group worldwide. Founded in 1909, it has built a history of innovation and leadership in the beauty sector, pushing the boundaries of science and technology.

Triumph Group Uses 3D Printing for Aircraft Parts

By Charles Goulding on June 7th, 2022 in news, Usage
Tags: aerospace, lightweight, metal, triumph

Boeing Next-Generation 737 [Source: Boeing]

Charles R. Goulding and Julia Wallace look at Triumph Group's investment into 3D printing technology for aerospace.

Triumph Group is in the late stages of its "Path to Value" reconstruction plan, which began in 2016 to reduce risk and increase financial stability by divesting some of its locations, and plans to soon transition toward a period of growth.

The company has also committed itself to lowering its carbon footprint, publishing its

3D Printed Digital Inventory Gets Real in Oil & Gas

By Kerry Stevenson on May 13th, 2022 in news, Usage
Tags: cad, digital inventory, manufacturing, mcor, spare parts 3d

A 3D printed part from a new digital inventory [Source: Spare Parts 3D]

News from Spare Parts 3D reveals interesting results from a digital inventory move.

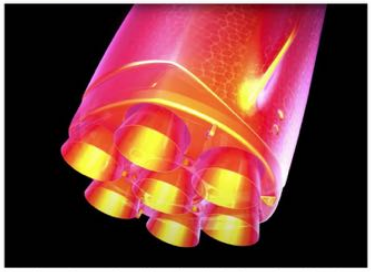
Digital inventory is a relatively new concept that involves printing required spare parts on demand, rather than keeping a warehouse full of spare parts that could be potentially used.

The problem is that with mass manufacturing techniques spare parts are created only once by running the production line a bit longer before it is shut down. The spare
n decades, in case they
only one available for

long with important meta
his information is idle
part to be executed.

Relativity Space Reveals Fully 3D Printed Reusable Rocket

By Kerry Stevenson on June 14th, 2021 in news, Usage
Tags: aerospace, manufacturing, metal, relativity space, rocket, space



Engines firing on the proposed Terran R 3D printed reusable rocket first stage [Source: Relativity Space / YouTube]

Relativity Space revealed Terran R, their fully 3D printed reusable rocket.

The company has been building the technology to inexpensively launch medium-sized payloads around the concept of full reusability. Traditionally, rockets were entirely expendable: they would be abandoned after a single flight, making flights extraordinarily expensive. That's why only governments typically operate above the Earth.

However, reusability seems to be the key to opening up space, as has been exploited for the last few years by SpaceX, which developed a partially reusable medium-sized

all3dp.com

Modernizing Manufacturing

PepsiCo Saves 96% by 3D Printing Bottle Molds

The DIY Is the Limit

3D Printed Telescope: The Best Projects to See the Stars

Think Outside the Flat-Pack

Ikea 3D Print: The Best 3D Printed Ikea Hacks of 2022

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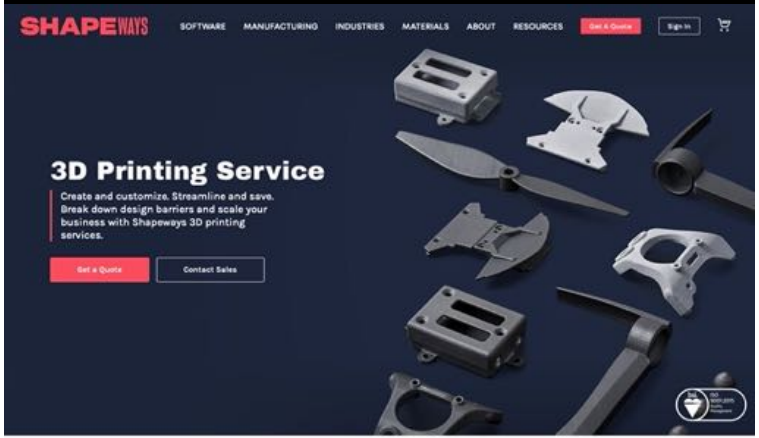
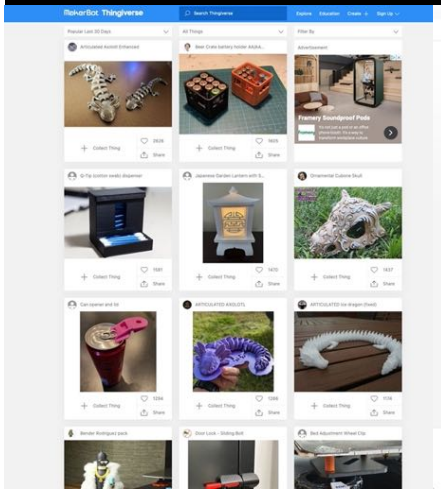
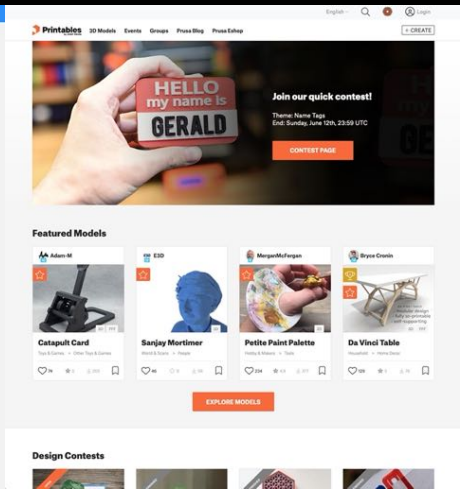
shapeways.com



thingiverse.com & printables.com





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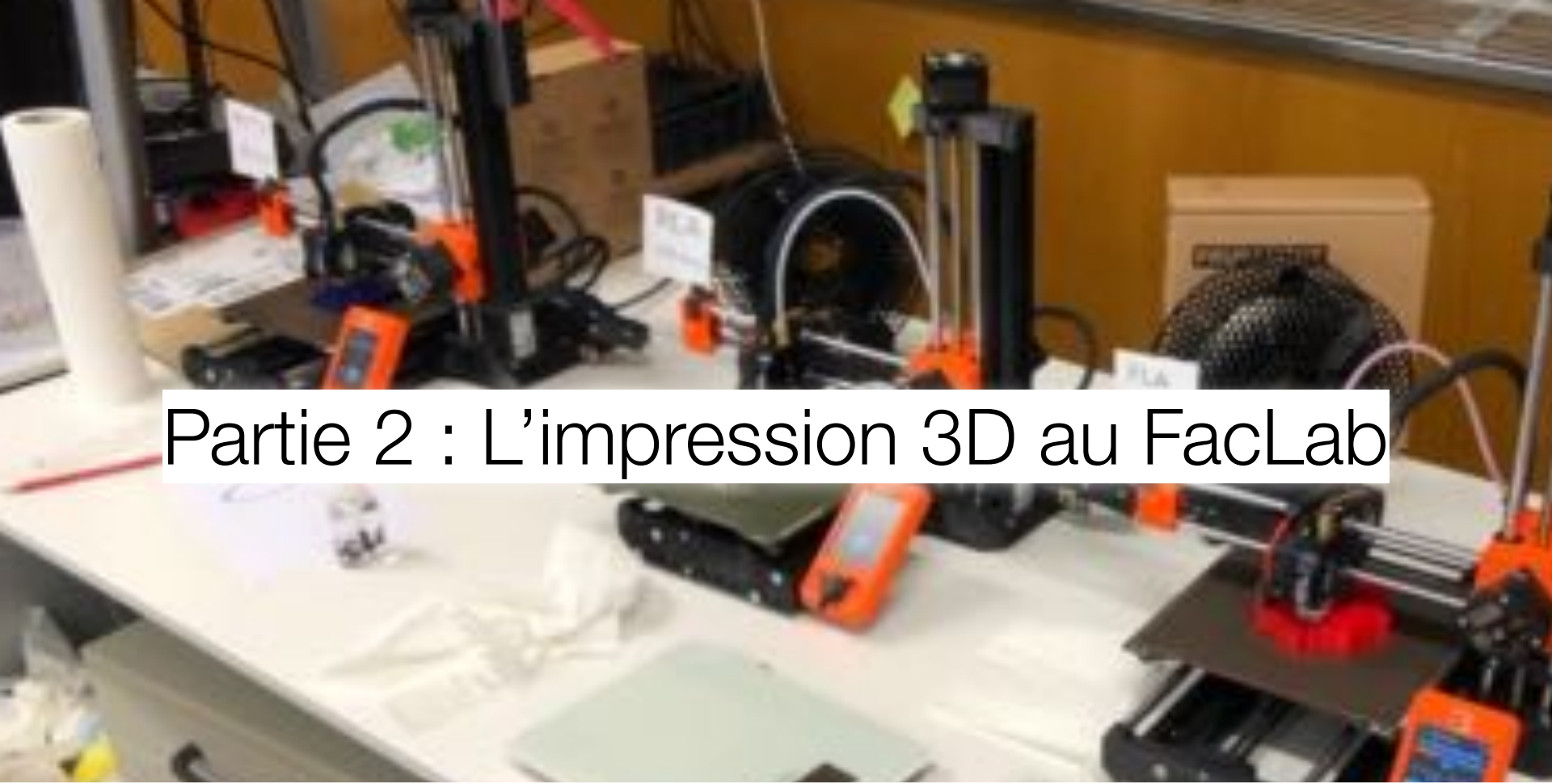

Partie 2 : L’impression 3D au FacLab

Le FacLab de l’Université de Genève

Fablab académique

Un outil du Pôle Innovation Numérique (PIN)

Espace de fabrication ouverte (du tangible et de l’intangible)

Résidences éphémères

Battelle bâtiment A

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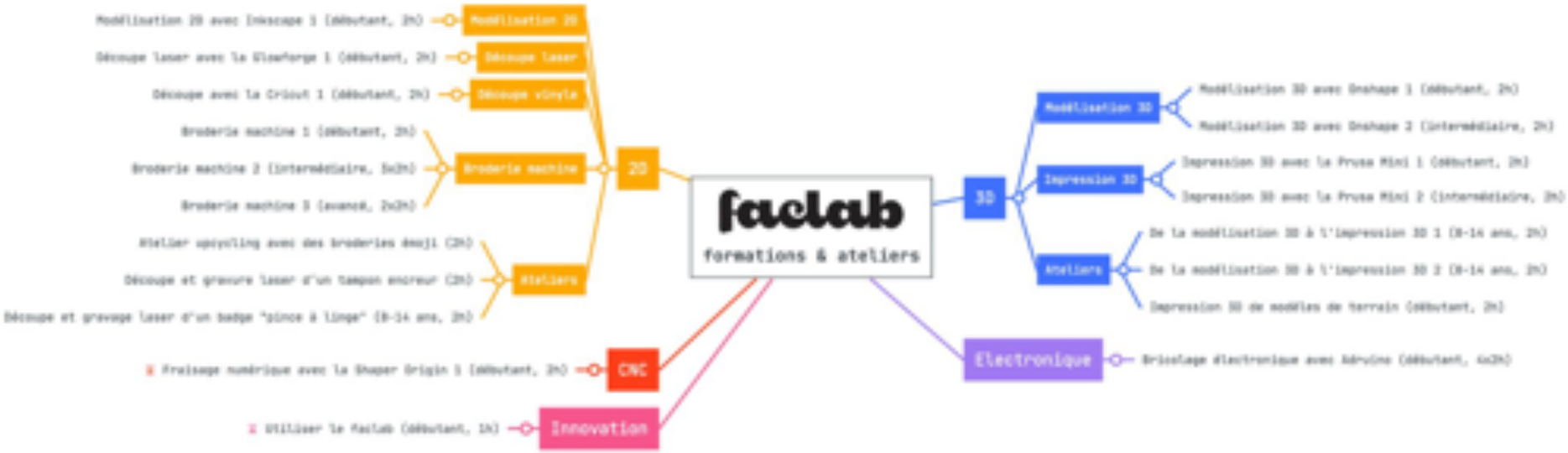
La ferme d’imprimante 3D du FacLab

- 3x Prusa Mini
- 1x Prusa MK3S+
- 1x Peopoly Moai 180

Et bientôt:

- 1x Prusa XL



Paticipants

Académiques, grand public, adultes, enfants, etc.

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Services et Technologie
Multimédia, printemps 2022

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De la modélisation 3D
à l'impression 3D,
printemps 2022

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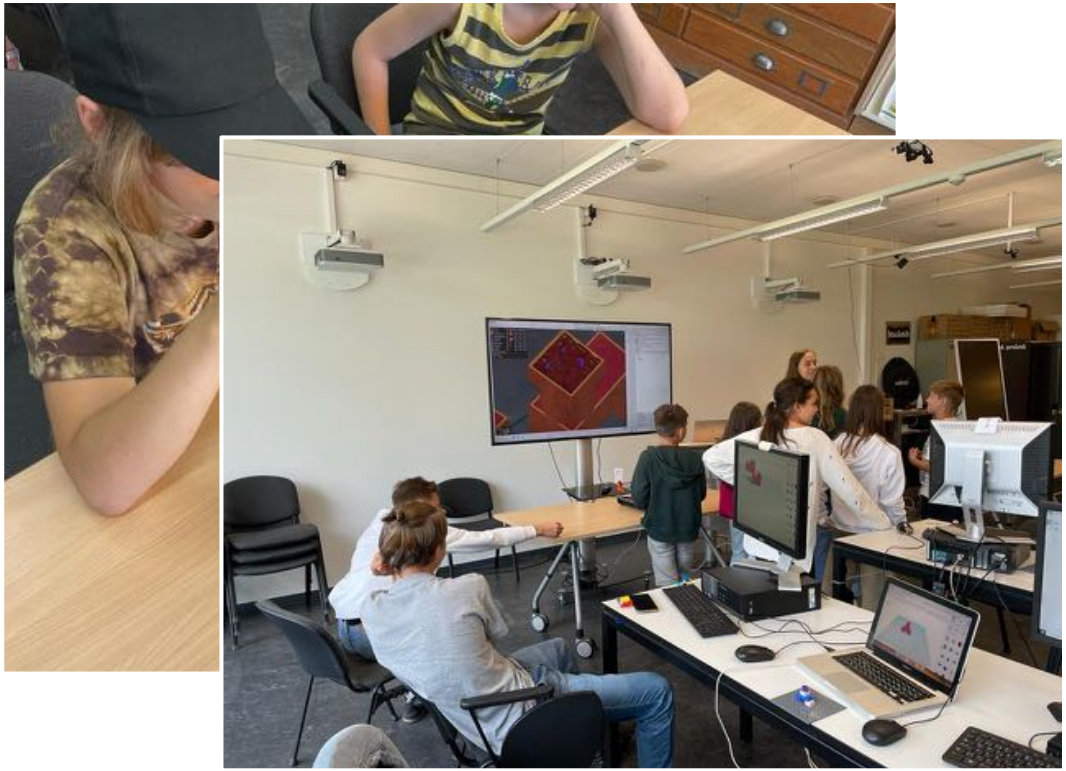

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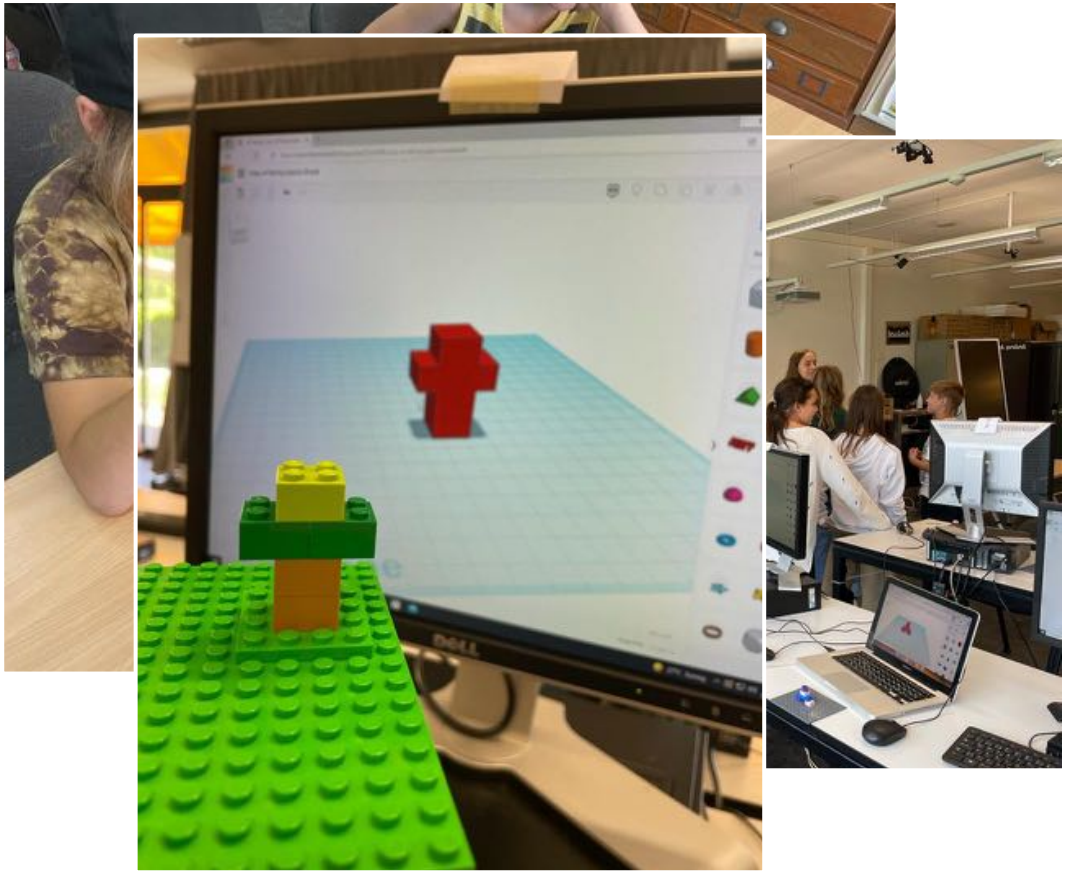

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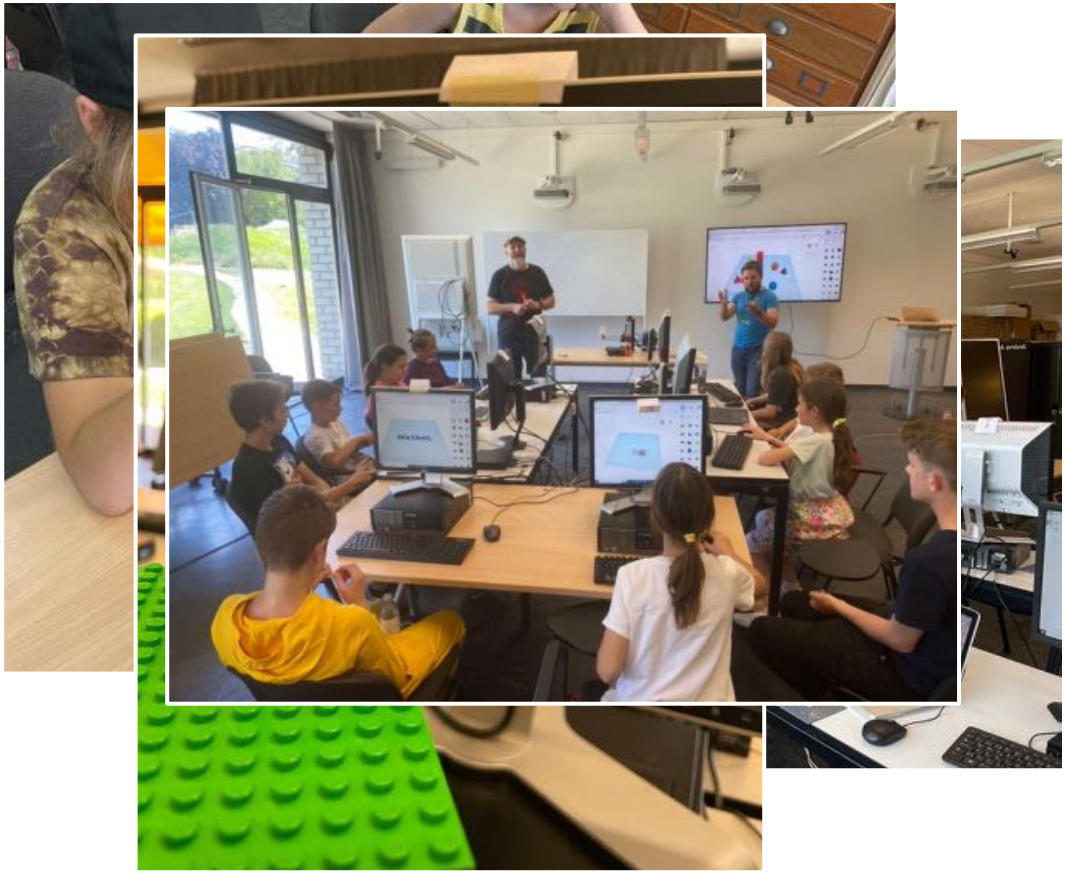

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De la modélisation 3D
à l'impression 3D,
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De la modélisation 3D
à l'impression 3D,
printemps 2022

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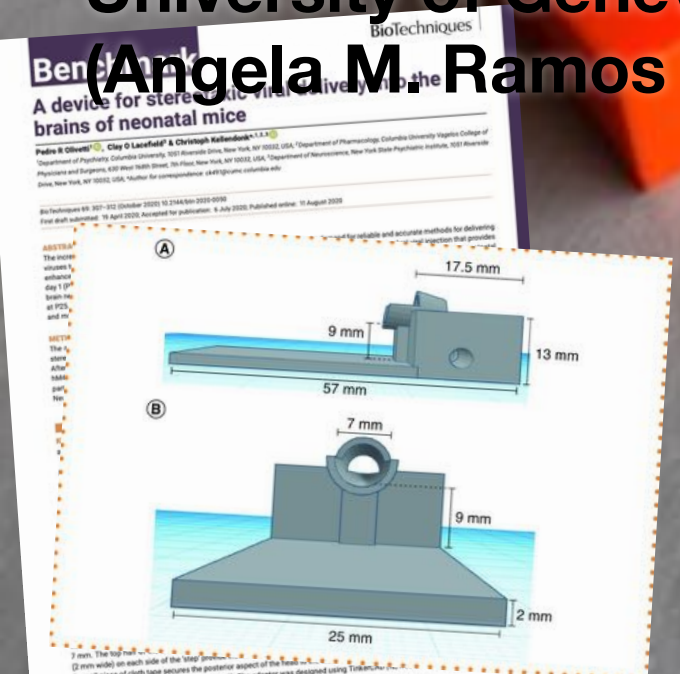
Collaboration: virus 3D
Transformer le désordre en ordre dans le vivant
Nuit de la Science 2022
Biochemistry department, Kruse lab
Université de Genève

Collaboration:
Maechler lab
Department of Cell Physiology and Metabolism
University of Geneva
(Angela M. Ramos Lobo, PhD)



Collaboration: Support tableau patient
Equipe “Plus de temps pour les patients”
Hôpitaux Universitaires de Genève

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Collaboration: Simulateur de transducteur
Groupe de recherche "Image Guided Interventions"
HUG - Radiologie
(Orane Lorton)

Collaboration: Sonde

Radiologie
Hôpitaux Universitaires de Genève

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Collaboration: Genève imprimable
Département du Territoire
Canton de Genève

Partie 3 : Vos questions…