

Design and Implementation of the **ExpLORa**: a Place for Physics and Mathematics Outreach

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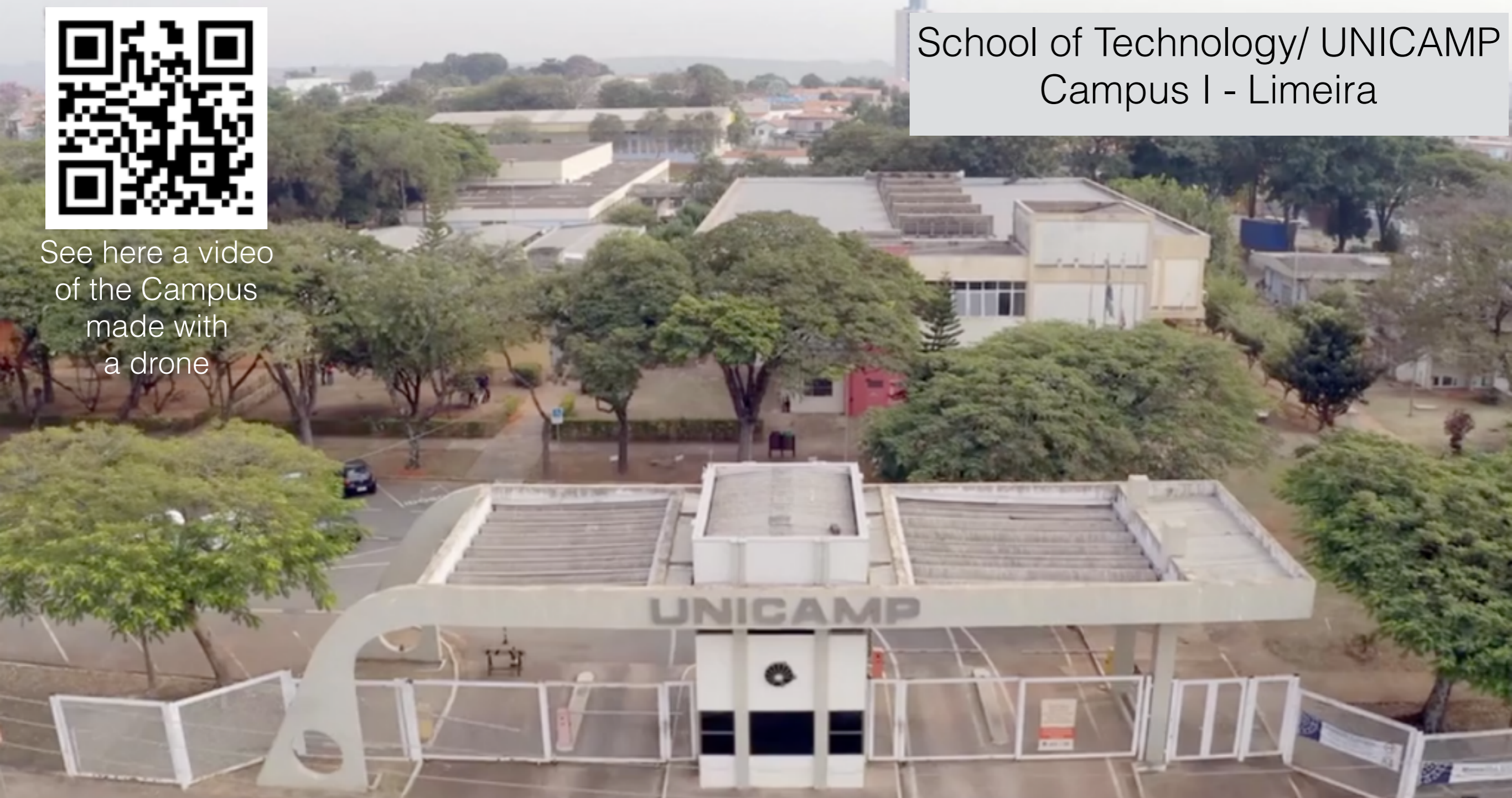


School of Technology/ UNICAMP
Campus I - Limeira



See here a video
of the Campus
made with
a drone

School of Technology/ UNICAMP
Campus I - Limeira



Source: <https://www.upa.unicamp.br/>

11.800 m²

Environmental Engineering
Telecommunications Engineering
Transportation Engineering
Information Systems
Environmental Sanitation

> **1300**
undergraduate students
> **200**
graduate students

“There are three principles on which human life flourishes, and they are contradicted by the culture of education under which most teachers have to labor and most students have to endure.”



Sir Ken Robinson

How to escape education's death valley
TED Talk (2013) 11M

“The first is this, that human beings are naturally different and diverse.”

“The second principle that drives human life flourishing is curiosity.”

“And the third principle is this: that human life is inherently creative.”

“The role of a teacher is to facilitate learning.”

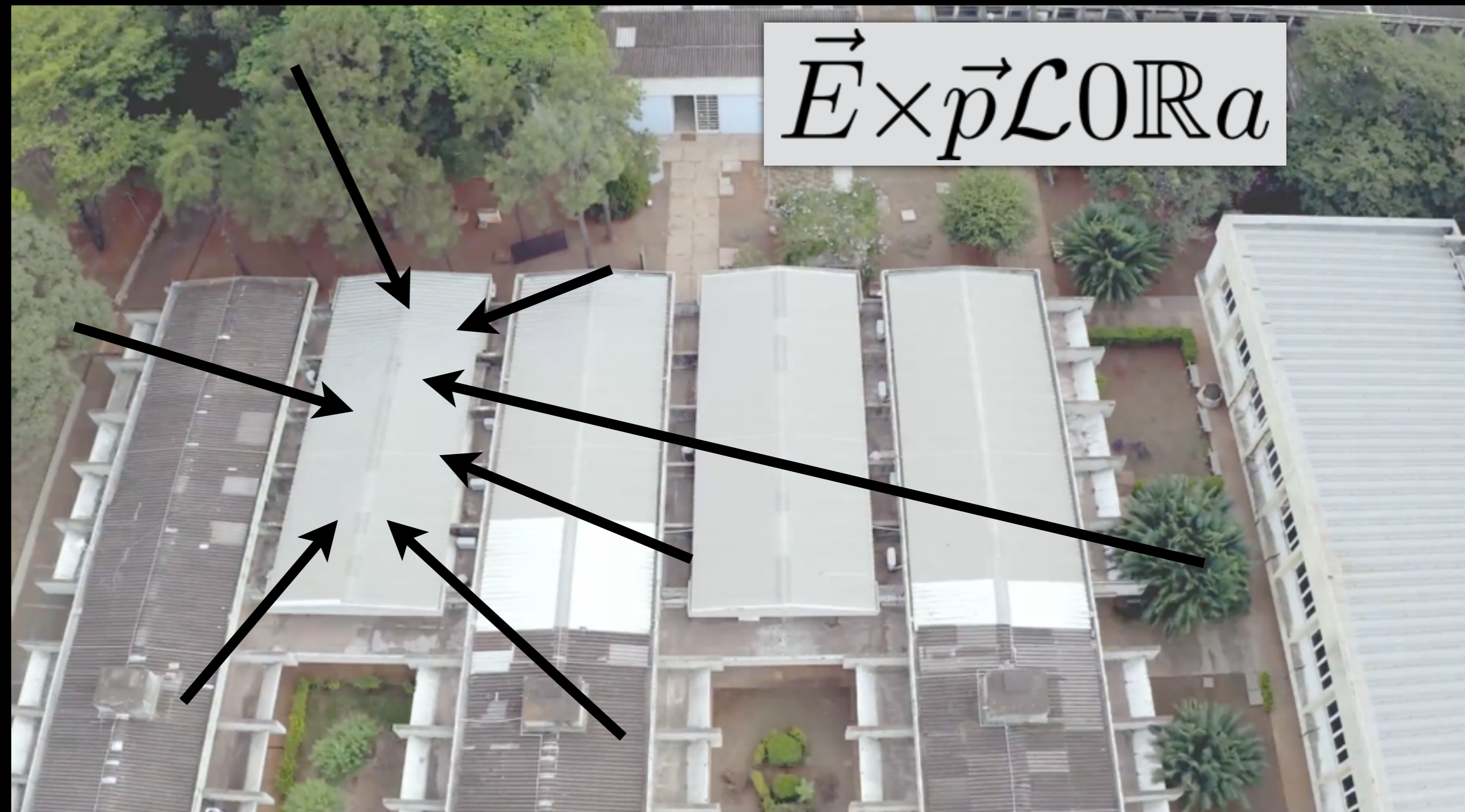
$\vec{E} \times \vec{p} \mathcal{L} O R a$

A place :

- to provide **different** and **diverse** ways of learning
(sound, vision, touch, ...)
- to increase **curiosity**
- to allow visitors, students and teachers to be **creative**

A place **to facilitate learning**

$$\vec{E} \times \vec{p} \mathcal{LORa}$$

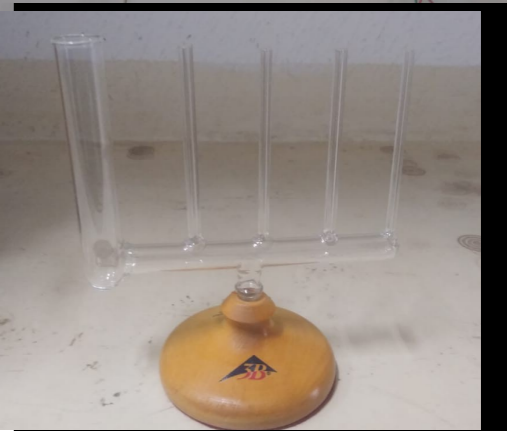
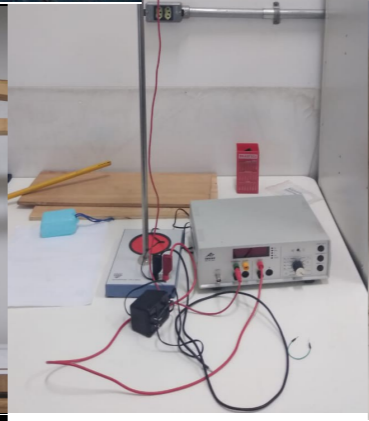
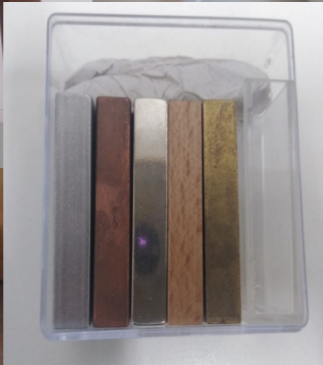
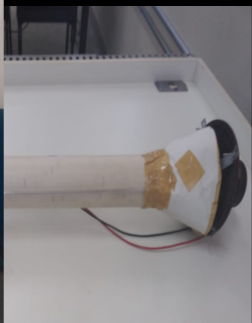


Source: <https://www.upa.unicamp.br/>

Physical
collection

~60
Apparatuses
and equipments

Physics
(Mechanics, Optics, Electricity,
Magnetism, Fluids, Modern Physics,...)
and
Mathematics



$$\vec{E} \times \vec{p} \mathcal{L} \mathbb{R} a$$



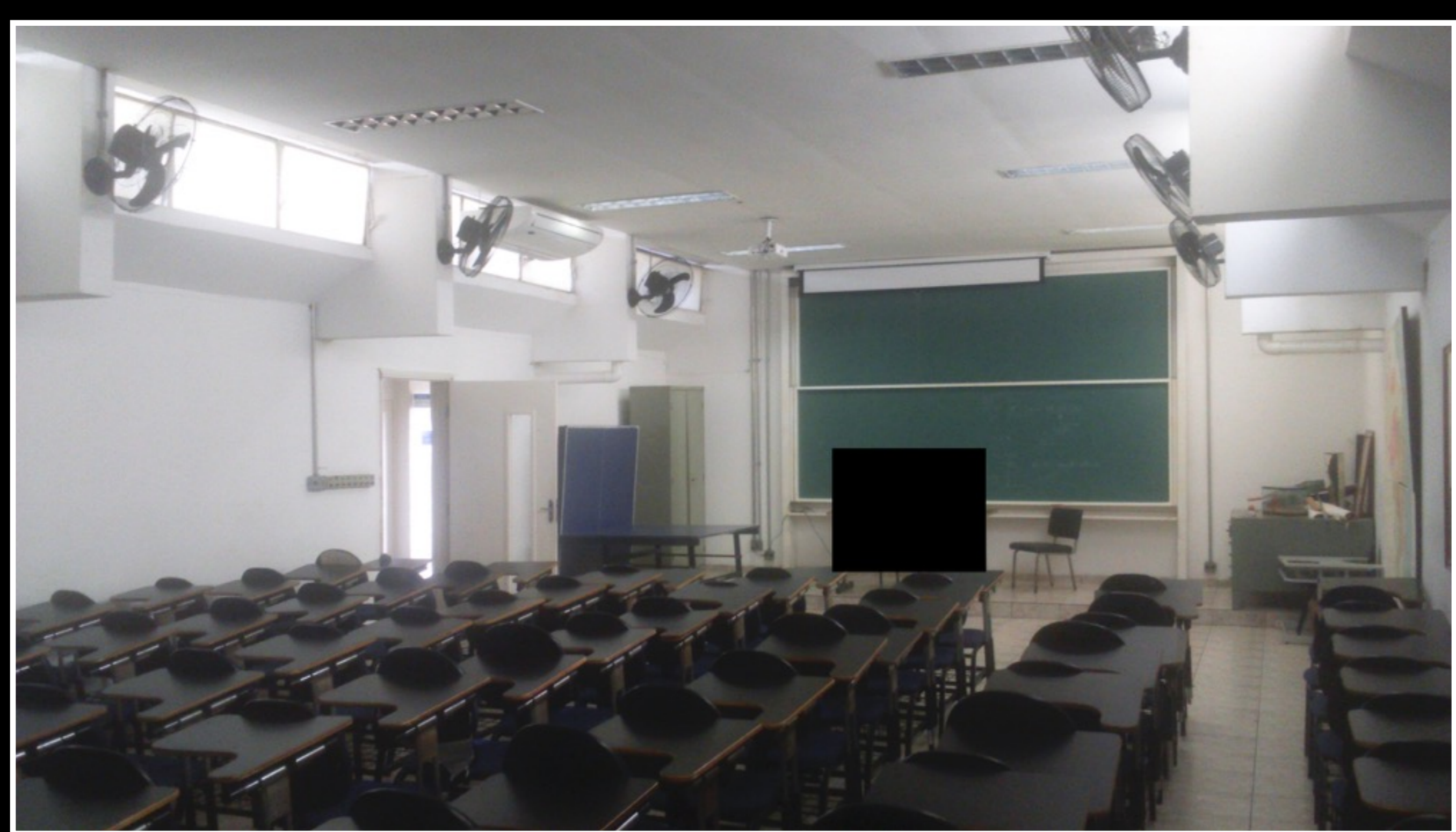
100 m²

Source: <https://www.upa.unicamp.br/>

Traditional
class room

(remodeling, painting,...)

Visually attractive
place



Traditional
class room



(remodeling, painting,...)



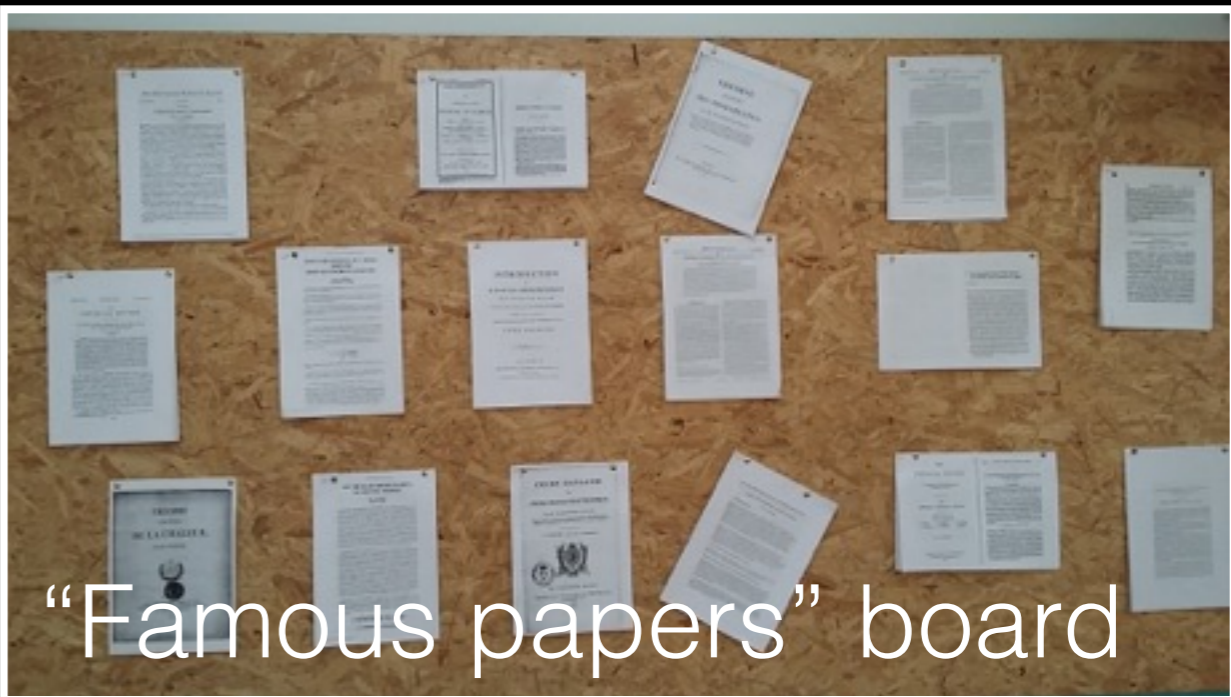
(remodeling, painting,...)



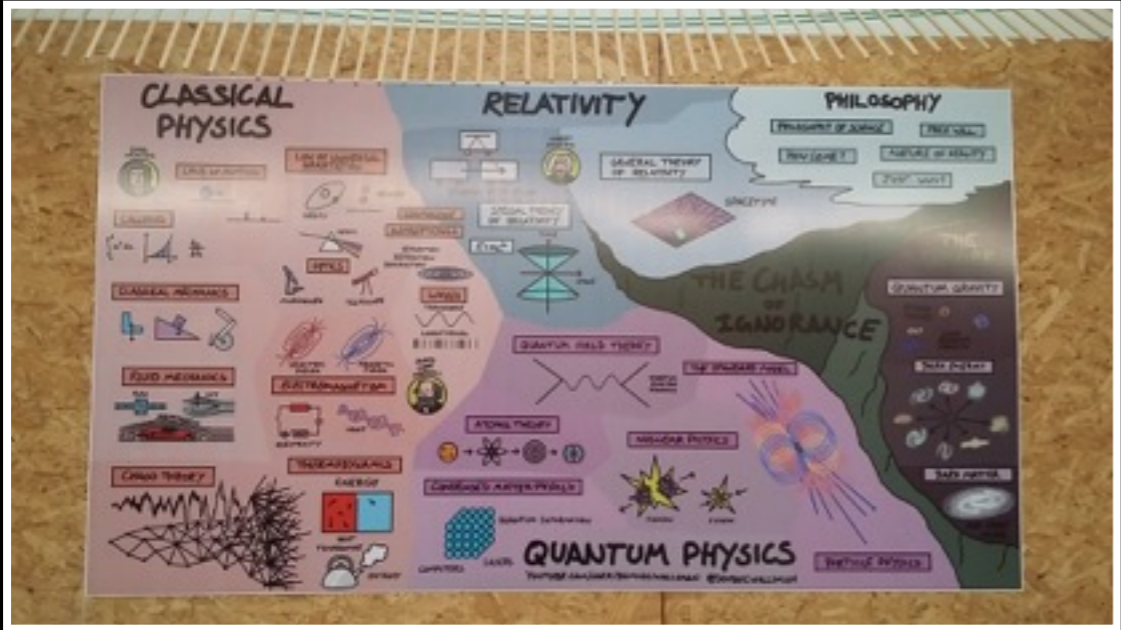
Visually attractive
place



Artistic Painting



"Famous papers" board



White board

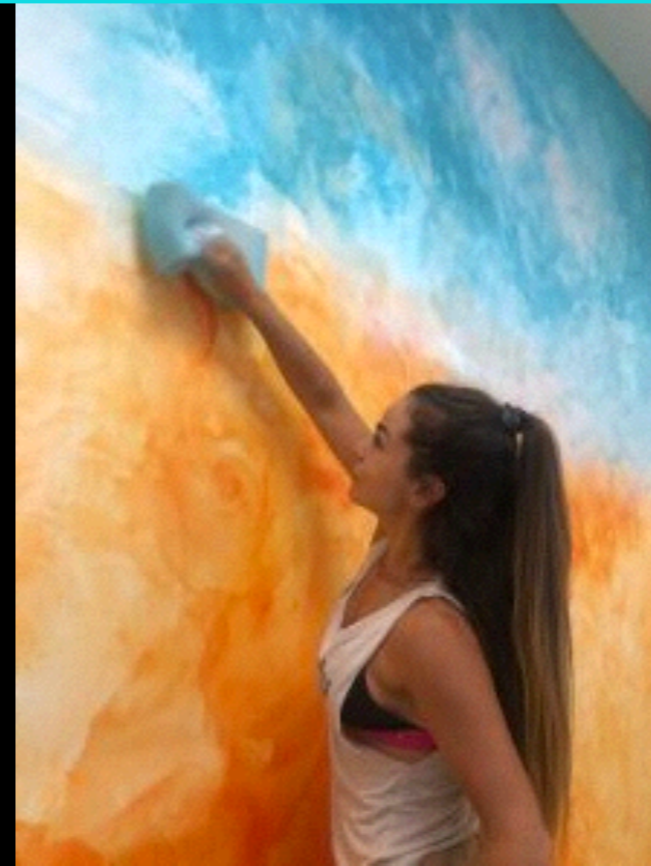


Illustrative posters

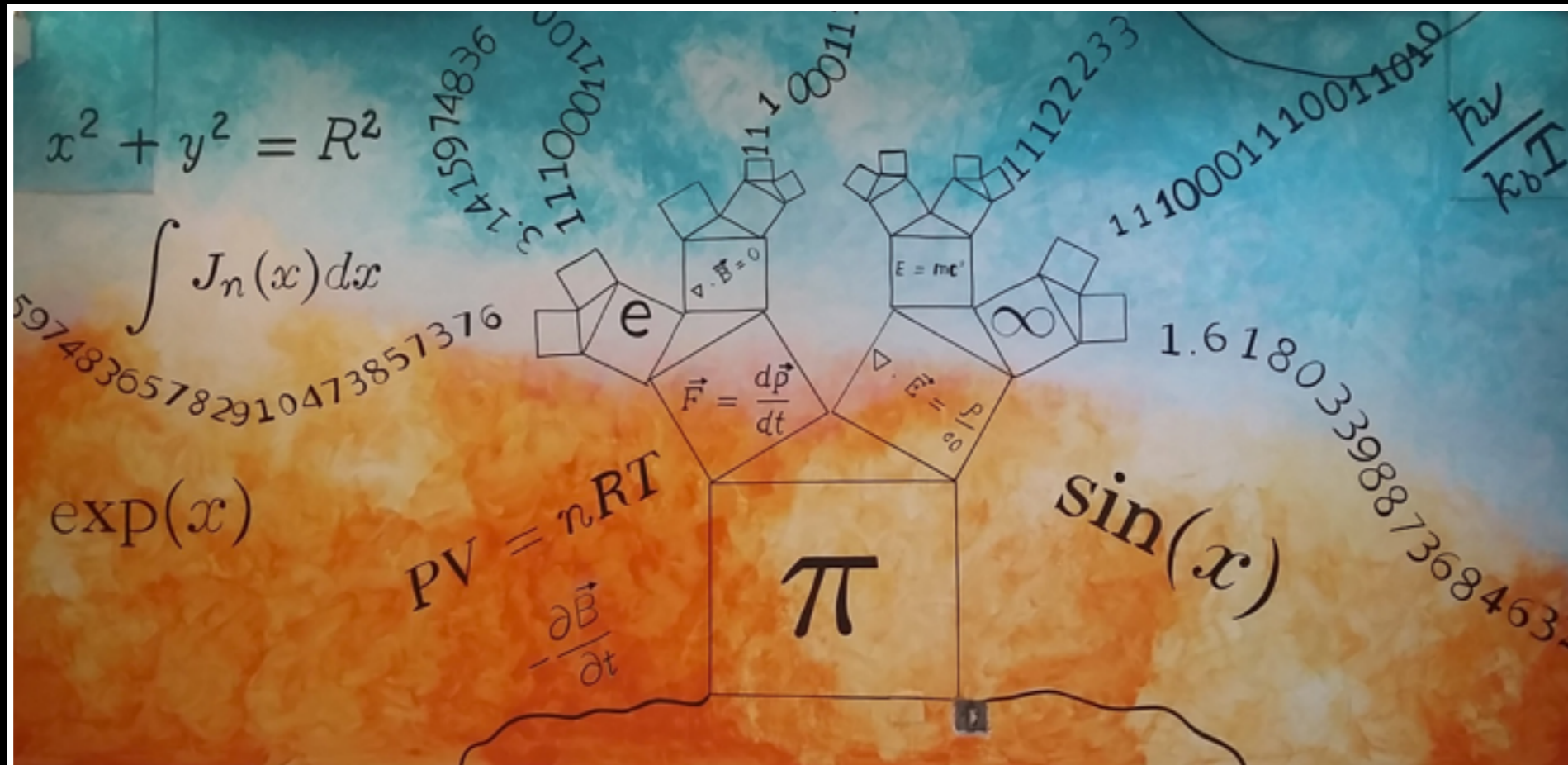


TV

Artistic painting with Physics and Mathematics elements



Painted by **students** under supervision of the plastic artist Juliana Gonçalves



<https://wordpress.ft.unicamp.br/explora/>



Webpage

$\vec{E} \times \vec{p}$ LORa

Espaço de Exploração e Aprendizagem

O ExpLORa conta com várias montagens e demonstrações e com um museu virtual com materiais de apoio didático.

Faça um tour virtual aqui

Explore nosso mural artístico

Virtual tour

Project



Projeto Inicial

Veja como surgiu o projeto



Animações

Animações para auxiliar no entendimento dos conceitos

[Confira aqui →](#)



Acervo

Contamos com várias montagens, demonstrações e material de apoio didático

[Confira aqui →](#)



Palestras

Palestras relacionadas a conteúdos de Física e Matemática

[Para saber mais →](#)



Equipe

Quem somos

Historico

2 de Julho, 2019

Aquisição dos equipamentos

Reunião sobre forma de aquisição dos equipamentos e levantamento de informações necessárias para as compras.



2 DE MAIO,
2019

Submissão do
projeto



4 DE JULHO,
2019

Projeto para a
sala do Explora



May 2nd, 2019

$\vec{E} \times \vec{p}$ LORA

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Digital Collection



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Equipe

Quem somos



Pêndulo simples e oscilações →

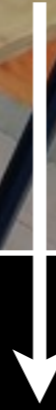
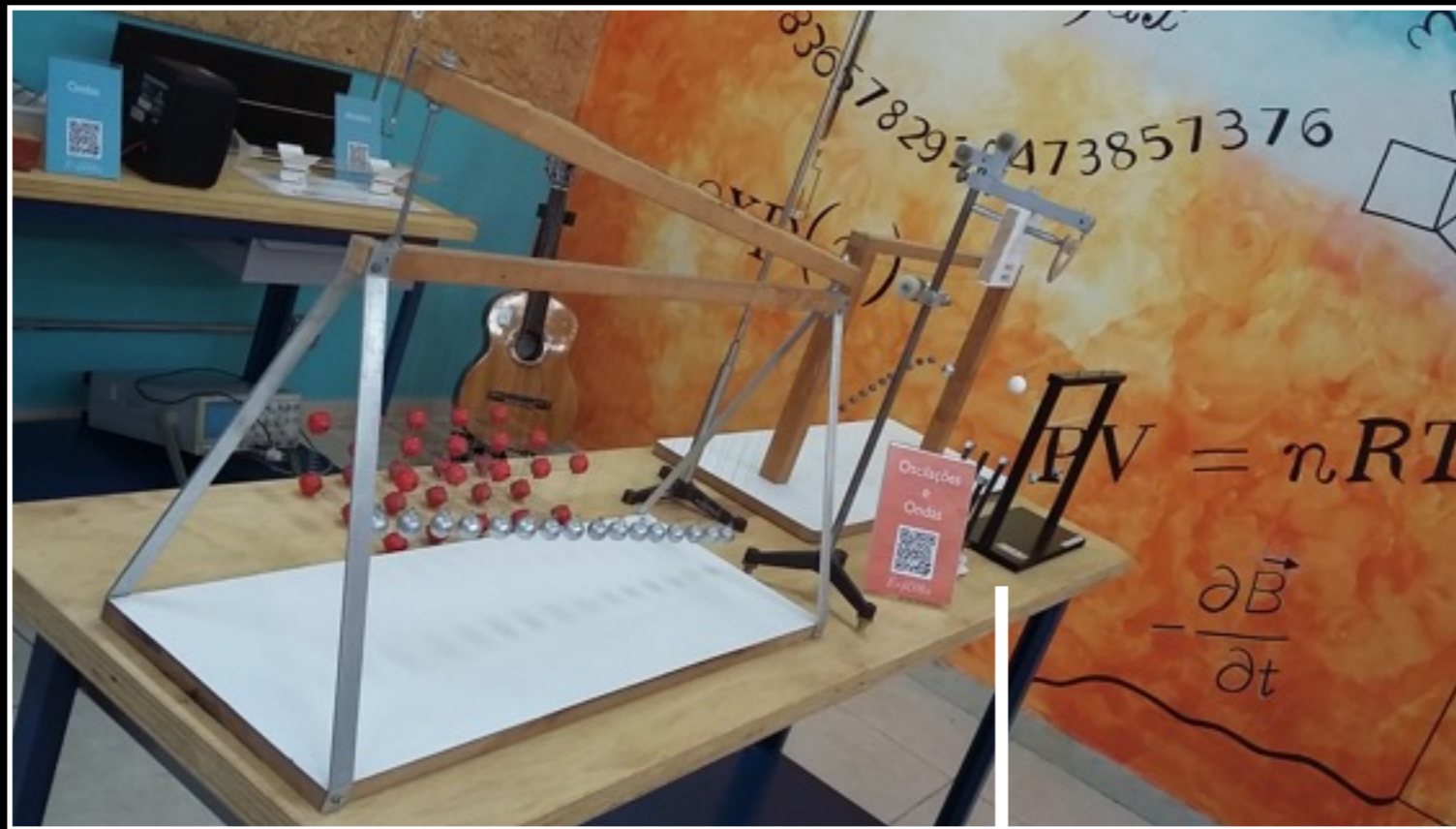


Violão e a ondulatória →



Pêndulos e ressonância →





Webpage

with text, video, interactive apps (PhET, Geogebra)...

$\vec{E} \times \vec{p}$ LORA

Espaço de Exploração e Aprendizagem

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[Explore nosso mural artístico](#)

Animations
(Manim/Python)



Projeto Inicial

Veja como surgiu o projeto



Animações

Animações para auxiliar no entendimento dos conceitos

[Confira aqui →](#)



Acervo

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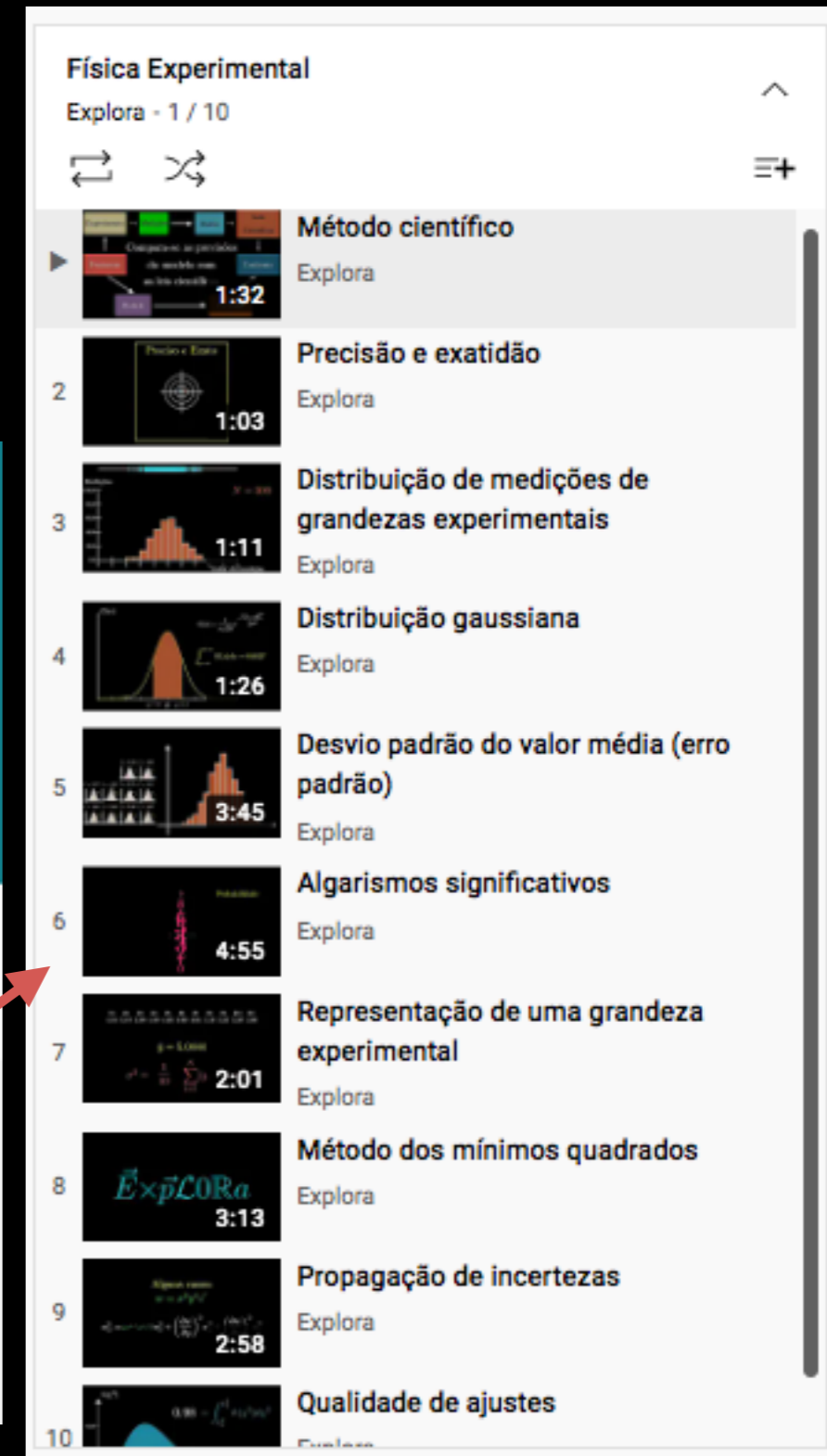
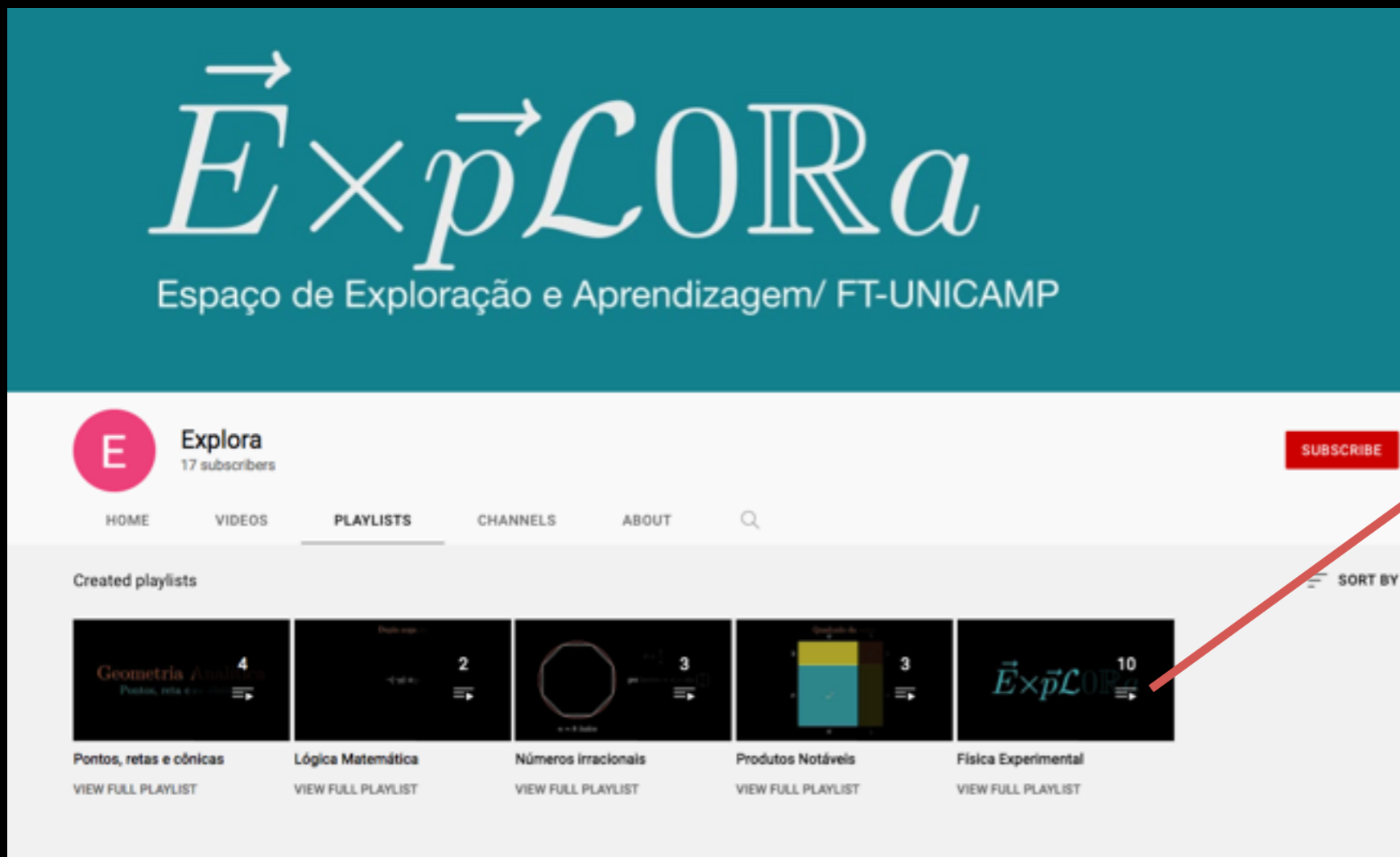


Equipe

Quem somos

Digital Collection

YouTube Channel



$$\vec{E} \times \vec{p} \mathcal{L} \mathbb{R} a$$

Use planning:

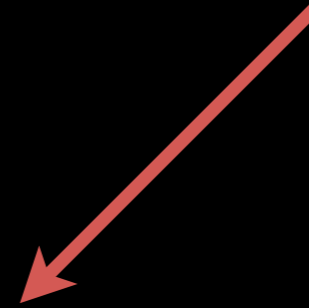
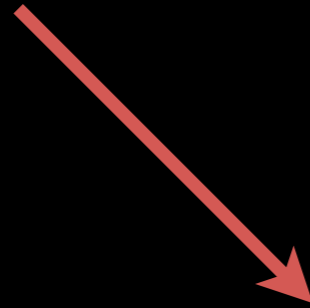
- 1) Introductory Physics lab classes
- 2) Support for Physics and Math classes
- 3) Science divulgation events
- 4) Outreach courses (Manim/Python, Arduino, ...)
- 5) Projects with High School teachers and students

Summary

Teachers

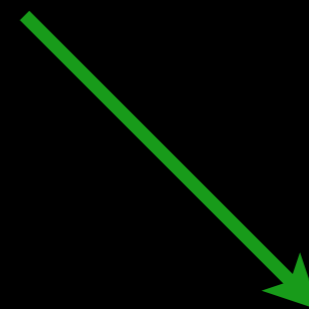
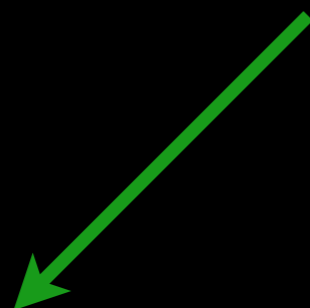
Students

University



$$\vec{E} \times \vec{p} \mathcal{L} O R a$$

A place **to facilitate learning**



Teachers

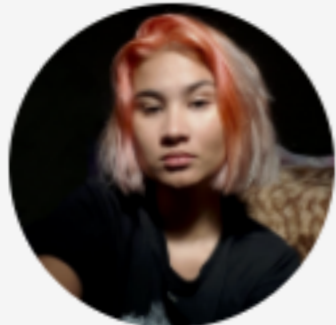
Students

Society

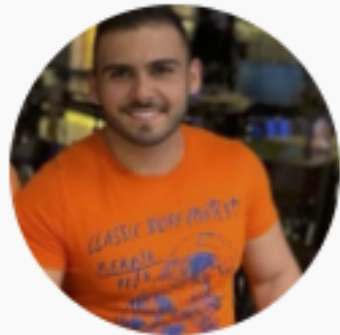
Acknowledgements

Students

Webpage



Carinna Nunes



Francisco Oliveira

Animations

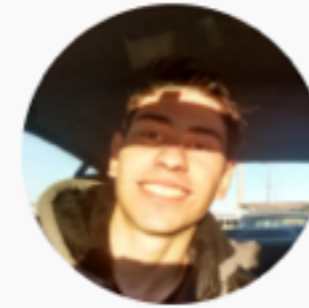


Ariel Tadeu da Silva



Eric Satoshi Suzuki Kushimoto

Digital collection



William Gabriel de Oliveira

Institutional Support

Prof. Renato Falcão Dantas

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Prof. Eloisa Dezen Kempter

Ricardo Henrique Cândido

Cláudio Mesi

Alexandre Pereira da Silva

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