

STUDY AT FFA, ACTIVITIES AT IMID

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INSTITUTE OF MACHINE
AND INDUSTRIAL DESIGN

CONTENT

INTRODUCTION

STUDY AT FFA

- Study at FFA
- PhD thesis

ACTIVITIES AT IMID

- Lectures
- Strojlab
- DiSTT
- Registry of Artistic Outputs (RUV)
- Other activities

INTRODUCTION

PHD STUDENT

Faculty: Faculty of Fine Arts

Programme: Research in Art and Design

Year of study: 4

2022 - present

ASSISTANT - DID, IMID

2022 - present



STUDY AT FFA, ACTIVITIES AT IMID

STUDY AT FFA

ENTRANCE EXAMS

- dissertation project concept
- Portfolio
- personal resume
- Interview (english)

STUDY PLAN

- block lectures - 1st + 2nd year
- doctoral colloquium
- teaching practice – 26 h/semester
- foreign internship
- state doctoral exam – 3rd year



PHD THESIS

The impact of manufacturing technologies on automotive design



**Digital Ceramics:
Generative Strategies in
the Context Additive
Manufacturing**

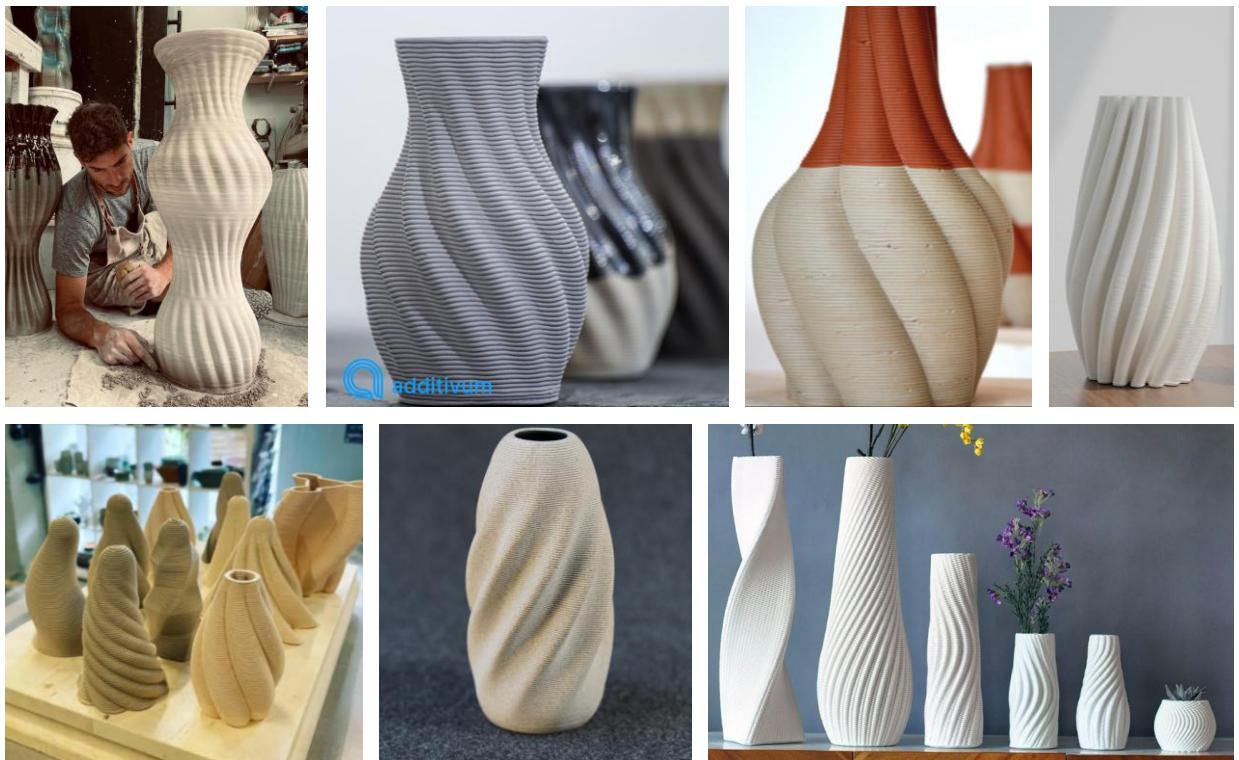
- **Original topic:** purely theoretical, with no direct link to the author's practice
- **New topic:** aligned with the author's long-term focus in both teaching and professional practice.
- Results applicable both at FFA and IMID.
- The topic is linked to teaching activities and projects. (DiSTT), practical outputs (RUU)



PHD THESIS

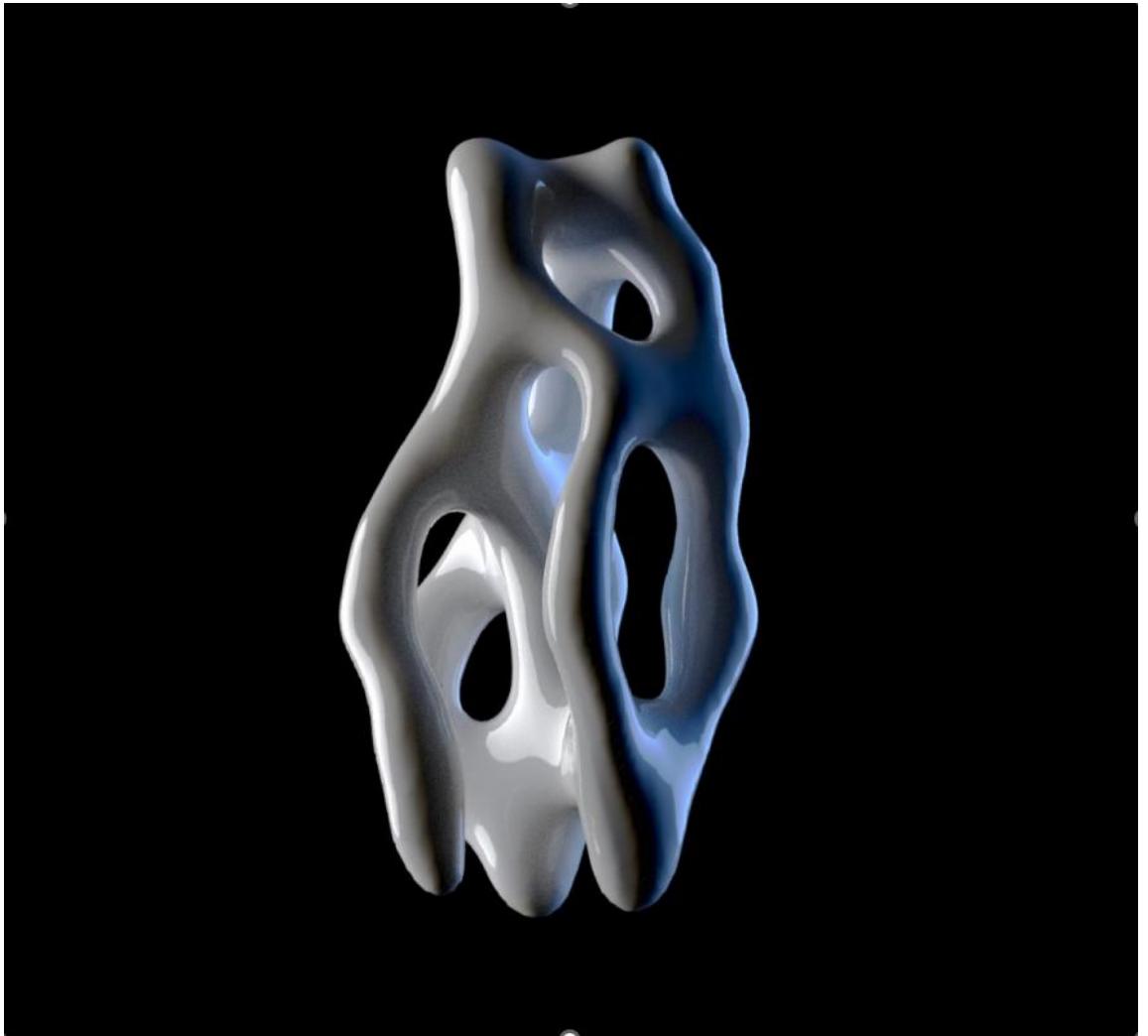
Algorithmic design in design and artistic practice, illustrated through the context of ceramic 3D printing

- Parametric strategies often shape the author's creative thinking – leading to predictable outcomes and visual repetitiveness
- Repeated use of the most intuitively accessible methods
- The result is aesthetic unification and a limited formal repertoire in a field that could otherwise be experimental



PHD THESIS

- The research examines how the very choice of design strategy influences creative decision-making
- “Reverse engineering” of commonly used parametric strategies and their systematization
- Alternative generative approaches based on modified growth algorithms inspired by natural processes
- An iterative “author–script” process, in which the script acts as a generator of stimuli that the author evaluates based on aesthetic judgment and subsequently modifies



PHD THESIS

- A series of 3D-printed objects made from ceramic clay
- The aim is not to imitate specific forms, but to work with the growth principles on which natural forms are based
- These principles are translated into a computational script and further modified
- The result is a series of objects that share a common visual logic







PHD THESIS

TECHNICAL ASPECTS

- Designed a material tank and screw extruder for ceramic clay
- Installed on a TriLAB DeltiQ printer (originally a Prusa i3 MK1)
- Used in teaching (YRP) and in DiSTT project workshops (FAB 25), among others



LECTURES

YRP - Generative Design and Digital Production

YDE - Design of Machines and Instruments

YAM - Advanced Materials in Design

ZPC - How to Make (Almost) Anything

YE3 - Design Project Realization

LECTURES

YRP - Generative Design and Digital Production

- Parametric design with a focus on applications in product and industrial design
- Includes a practical workshop – linking parametric design with digital fabrication (strokLAB)



LECTURES

YDE - Design of Machines and Instruments



LECTURES

YAM - Advanced Materials In Design

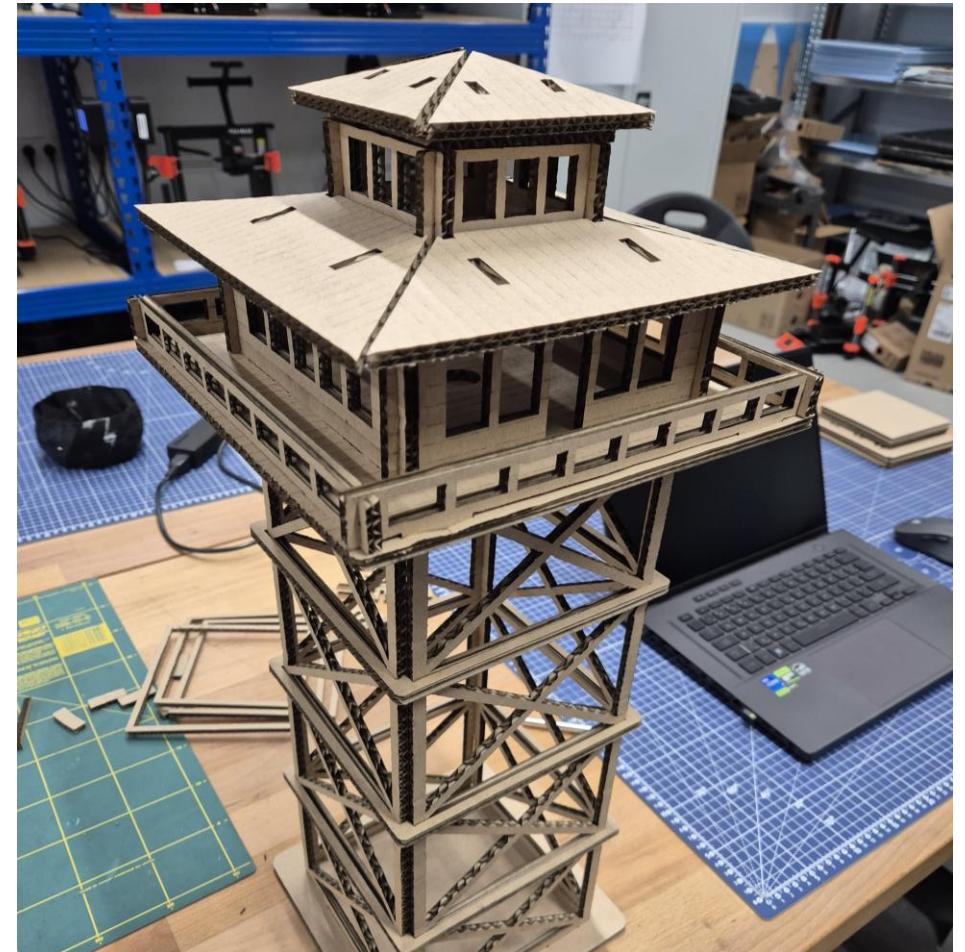
- Lectures – fundamental manufacturing technologies and materials used in industry – study materials for the final state examination
- Studio – product design using production waste materials (hands-on)
- Company visits / industrial excursions



LECTURES

ZPC - How to Make (Almost) Anything

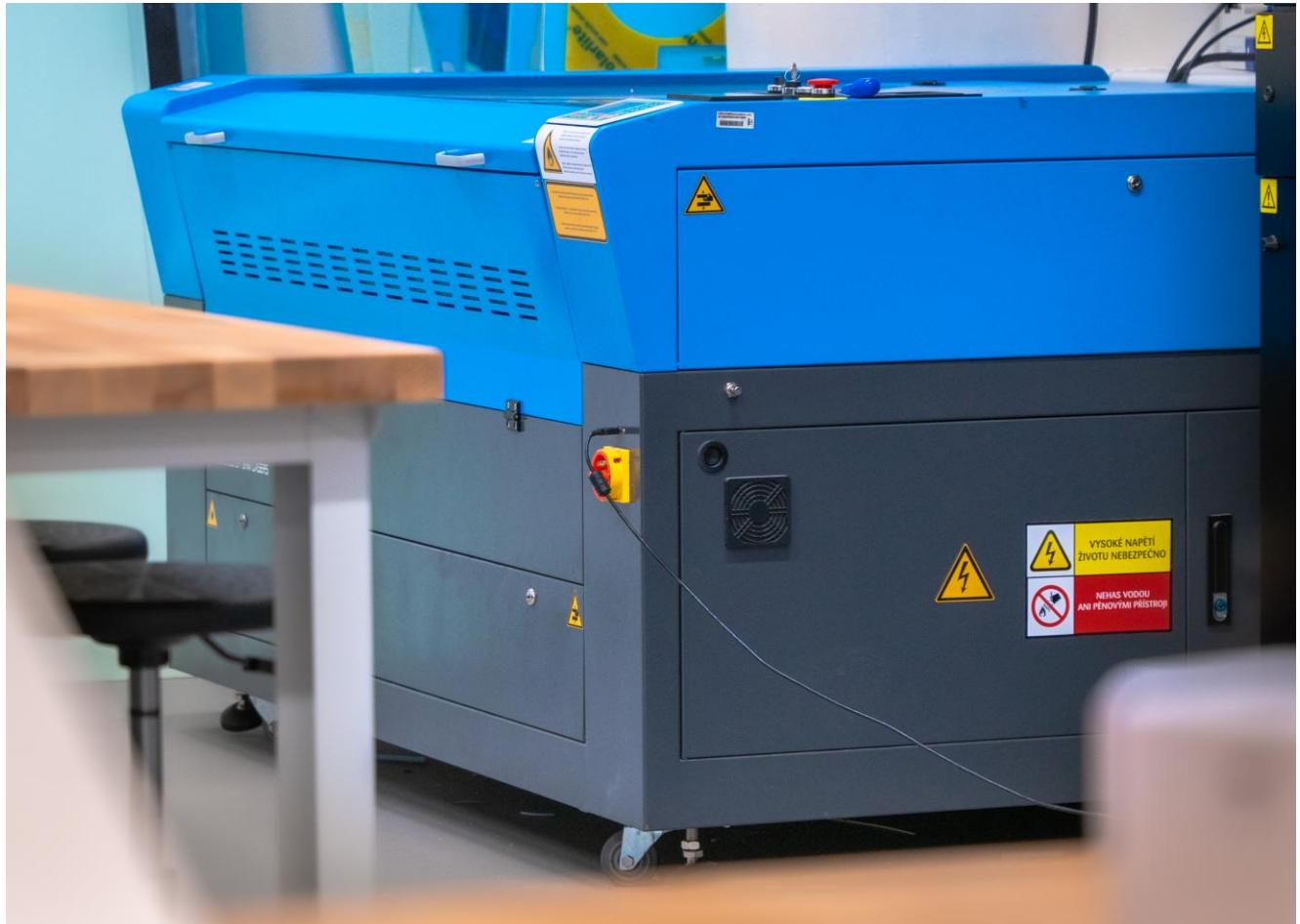
- Lectures and assignments focused on cutting with a vinyl plotter and a laser cutter
- Supervision of four projects



STROJLAB

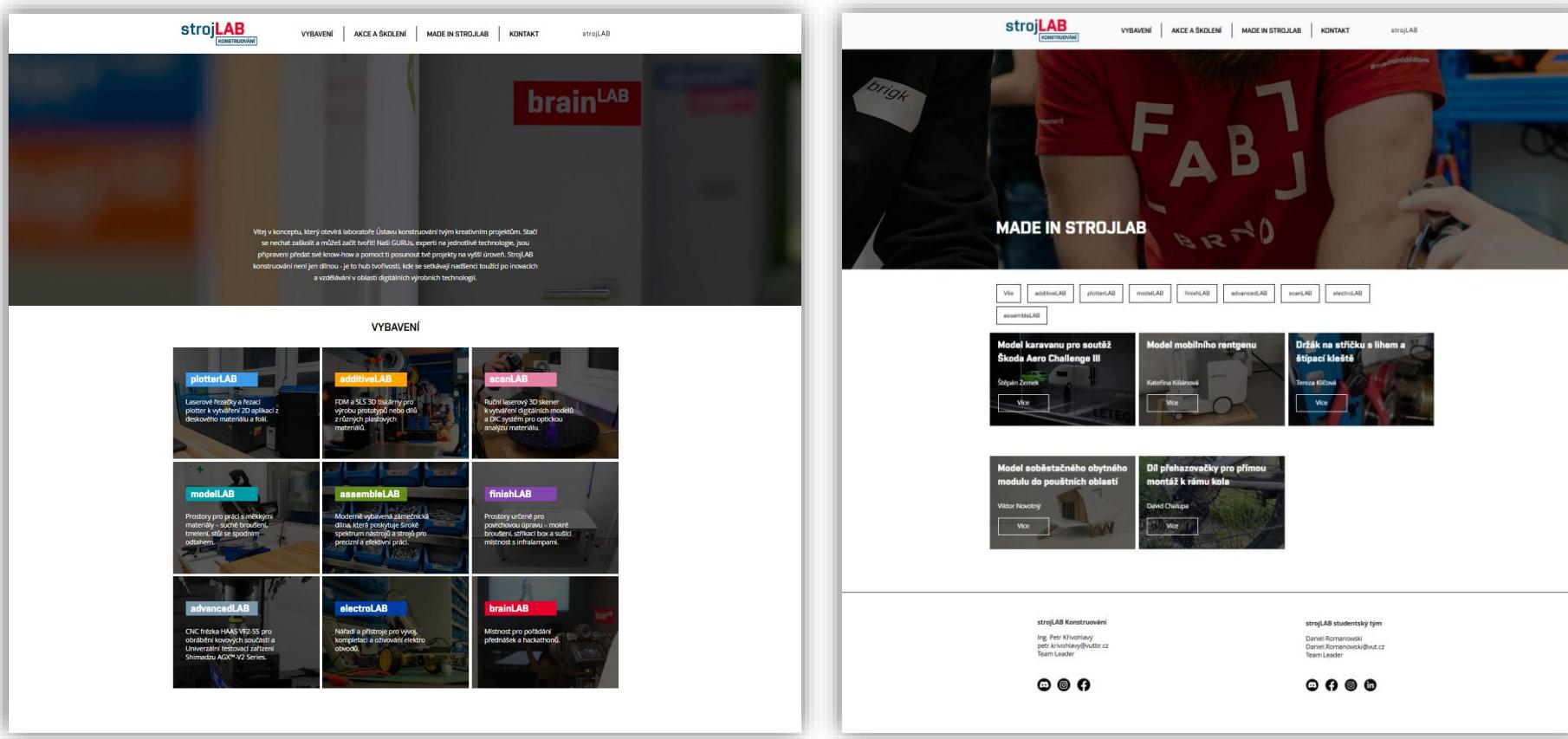
PLOTTER LAB

- Training on laser cutters
- Training on the vinyl plotter
- Machine maintenance
- Development of teaching materials



STROJLAB

DEVELOPMENT AND MANAGEMENT OF THE STROJLAB.CZ WEBSITE



The website features a dark header with the strojLAB logo and navigation links for VYBAVENÍ, AKCE A ŠKOLENÍ, MADE IN STROJLAB, and KONTAKT. The main content area includes a banner for 'brainLAB' and sections for 'VYBAVENÍ' (Equipment) and 'AKCE A ŠKOLENÍ' (Events and Training). The 'VYBAVENÍ' section displays nine sub-labs: plotterLAB, additiveLAB, scanLAB, modelLAB, assembleLAB, finishLAB, advancedLAB, electroLAB, and brainLAB, each with a brief description and image. The 'MADE IN STROJLAB' section shows student projects: 'Model karavany pro soutěž Škoda Aero Challenge III' by Štěpán Žemek, 'Model mobilního rentgenu' by Kateřina Křížová, 'Držák na stříčku s ilhem a štipací kleště' by Tereza Kličová, 'Model souběžného obytného modulu do pouštích oblastí' by Vítěz Novotný, and 'Díl přepravovačky pro přímou montáž k rámu kola' by David Chalupá. The footer includes team member bios and social media links.

STUDY AT FFA, ACTIVITIES AT IMID

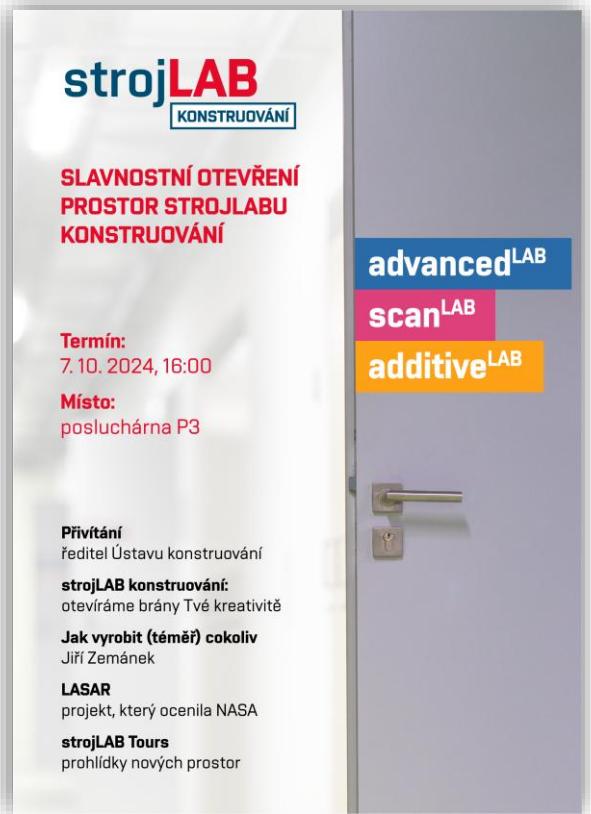
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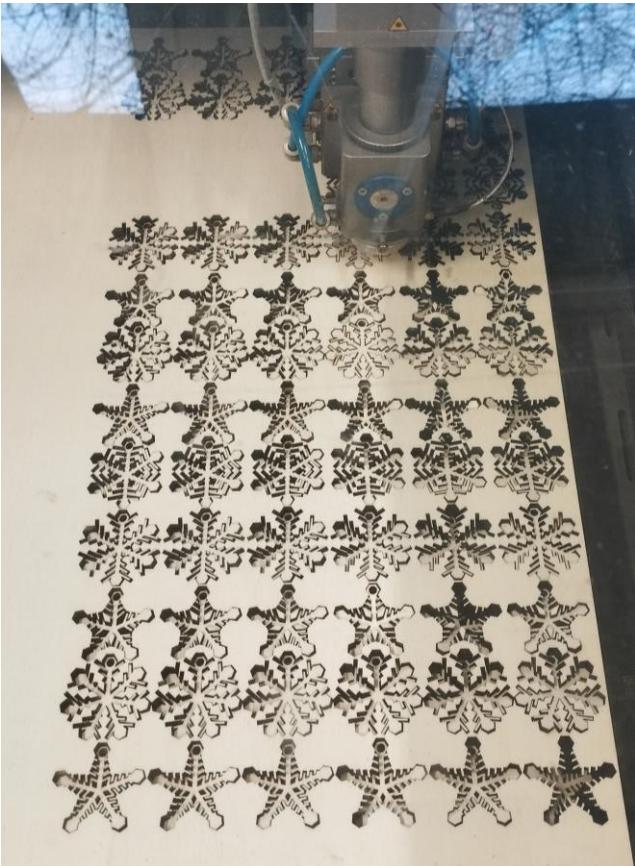
STROJLAB

GRAPHIC AND PROMOTIONAL MATERIALS



STROJLAB

OTHER EVENTS - Christmas workshop, Strojlab Challenge, ...



DISTT PROJECT

PILOT RUNS - WORKSHOPS

- Parametric design
- Laser cutting
- Ceramic 3D printing

GRAPHIC MATERIALS

- Posters, rollu-ps and flyers
- Materials for social media

Interreg CENTRAL EUROPE Co-funded by the European Union

DiSTT is how we do it.

DiSTT = Digital Skills Transformation Toolkit for a Resilient Labour Market
= 6 partners from 5 Central European countries
= 6 pilot actions

The World Economic Forum Identified skills gaps in local labour markets as a main barrier to the adoption of new technologies in manufacturing

Problem Statement

- Mismatch between Education and Labour Market Needs: Traditional education systems have been slow to adapt to the skills required by the digital and entrepreneurial economy of the 21st century.
- Digital Disruption: Increasing digitization is displacing traditional jobs and requires a new skillset that combines technical know-how with creativity and entrepreneurial thinking.
- Limited Access to Skills Development: The inequality in employability and skills development is increasing, particularly in formal higher education, lack opportunities to gain these new skills.
- Inadequate Entrepreneurship Education: Even when entrepreneurship is taught, it often lacks practical, hands-on, and interdisciplinary contexts that foster real-world skills.

Opportunity

- FabLabs and Makerspaces as Learning Ecosystems: They naturally blend digital fabrication (like 3D printing and CNC machining) with problem-solving, creativity, collaboration, and innovation.
- Multi-Disciplinary Learning: These spaces bring together people from different backgrounds and expertise (e.g., engineers, business), promoting peer learning and real-world application of skills.
- Early-Stage Entrepreneurship Support: They serve as low-barrier environments where users can turn ideas into prototypes, and potentially into start-ups.
- Social and Economic Inclusion: By offering free or low-cost access to tools and mentoring, FabLabs can democratize access to future-relevant skills, especially in underserved areas.



strojLAB
Brno University of Technology
University students

Goal: Modernize university curricula, implement practical, project-based learning with collaboration between universities and companies

Region: South Moravia Region, Czech Republic

FabLab Brno
Students

Goal: Deliver hands-on workshops in FabLabs to enable students with digital production and prototyping skills.

Region: South Moravia Region, Czech Republic

HappyLab Wien
Craftsmen

Goal: Deliver hands-on workshops in FabLabs to equip craftsmen with digital production and prototyping skills.

Region: Lower Austria and Vienna, Austria

brigk
SMEs

Goal: Pilot training modules in SMEs to support adaptation to Industry 4.0, foster innovation and digital tool adoption

Region: Upper Bavaria, Germany

NOI Techpark
People (employees, unemployed, trainees, artisans...) involved in research and upskilling to be able to work better within companies & SMEs

Goal: To offer modular workshops aimed at supporting the acquisition of digital fabrication skills – such as CAD, Int, CNC, and 3D printing through hands-on, project-based learning experiences.

Region: South Tyrol, Italy

FabLab Zagreb
Less privileged citizens in rural areas

Goal: Run training for digital fabrication in FabLabs targeting citizens with low formal employability and social inclusion.

Region: Central Croatia and Zagreb Region, Croatia

Interreg CENTRAL EUROPE Co-funded by the European Union

Pilot Actions



fablab

fablab

fablab

fablab

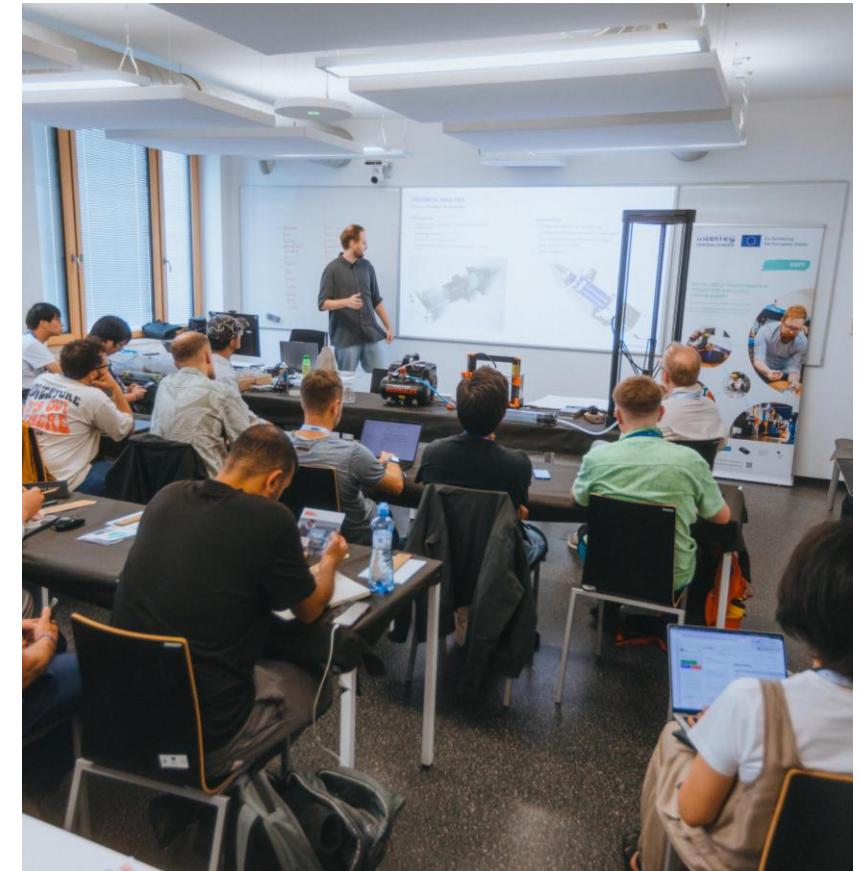
DISTT PROJECT

FAB 25 – CLAY 3D PRINTING WORKSHOP



DISTT PROJECT

FAB 25 – CLAY 3D PRINTING WORKSHOP



DISTT PROJECT

WORKSHOP - PARAMETRIC SEATING ELEMENTS



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PROJEKT DISTT

WORKSHOP - PARAMETRIC SEATING ELEMENTS



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PROJEKT DISTT

WORKSHOP - PARAMETRIC SEATING ELEMENTS



PROJEKT DISTT

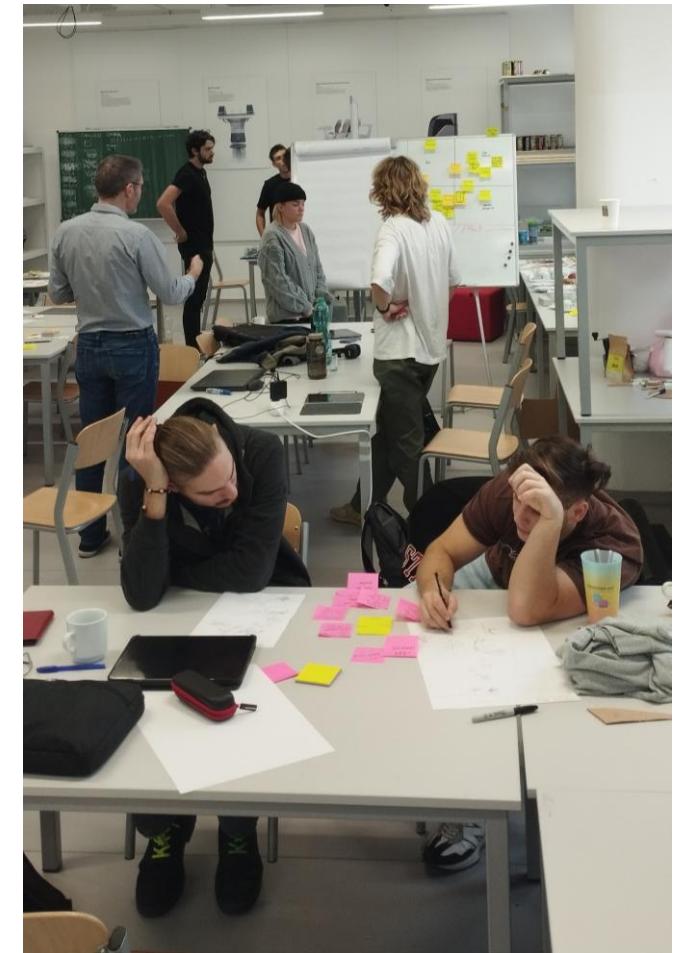
WORKSHOP - PARAMETRIC SEATING ELEMENTS



OTHER ACTIVITIES

HONEYWELL WORKSHOP

- Design thinking workshop
- Two workshops – winter and summer semester
- Topic: automated warehouse systems
- Excursion to Honeywell



DALŠÍ AKTIVITY

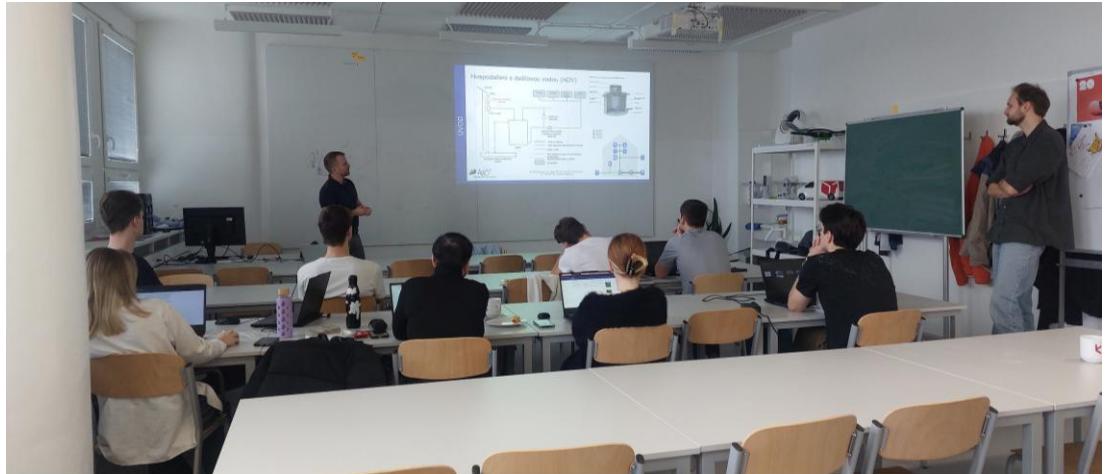
HONEYWELL WORKSHOP



OTHER ACTIVITIES

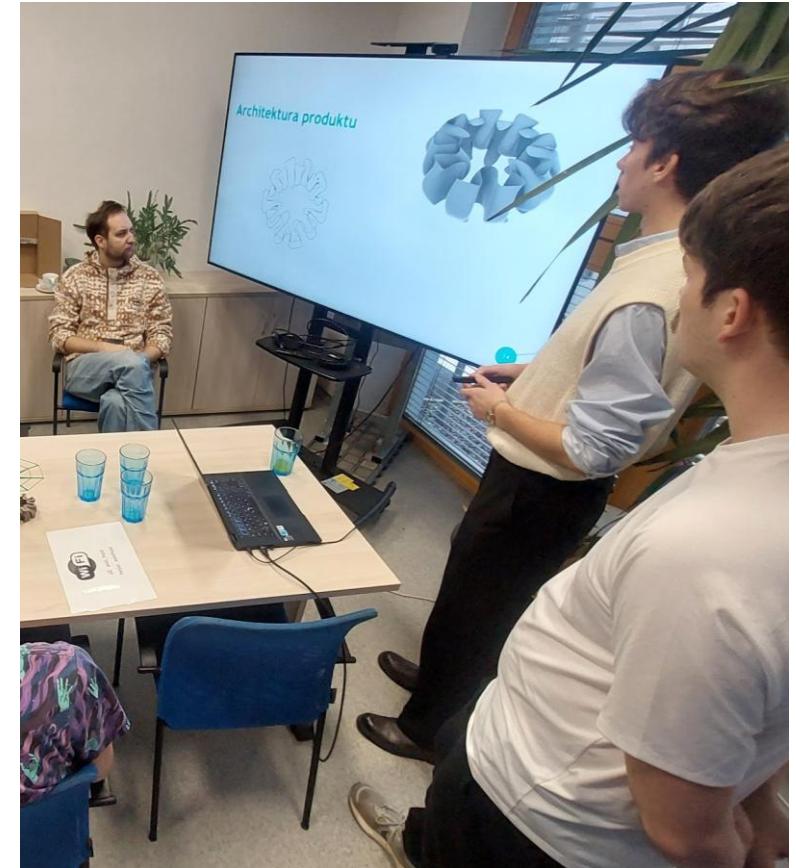
WORKSHOP WITH ASIO

- Design thinking workshop
- Blue-green infrastructure – objects for large-scale 3D printing in concrete or clay
- Greater emphasis on prototyping (ceramic 3D printing)



OTHER ACTIVITIES

WORKSHOP WITH ASIO



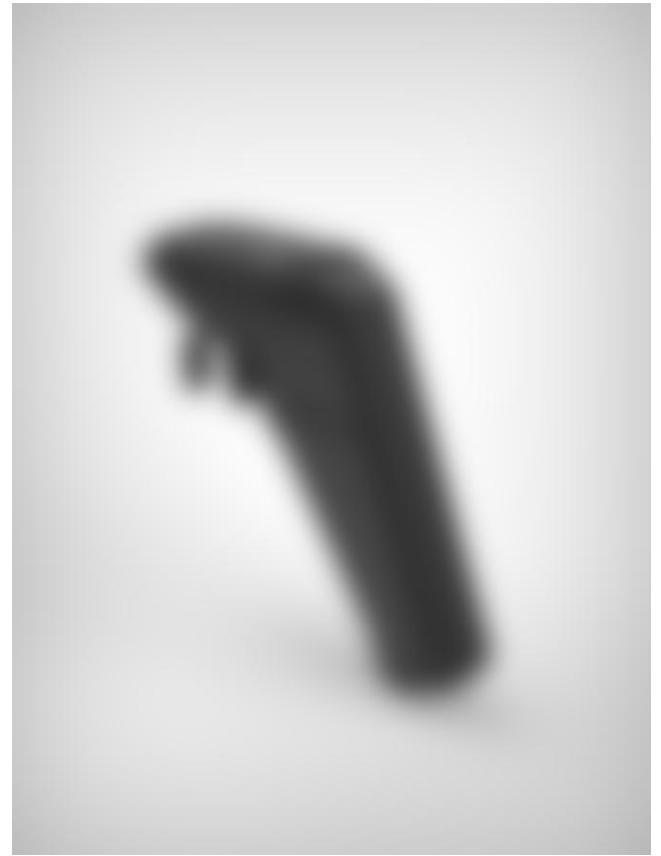
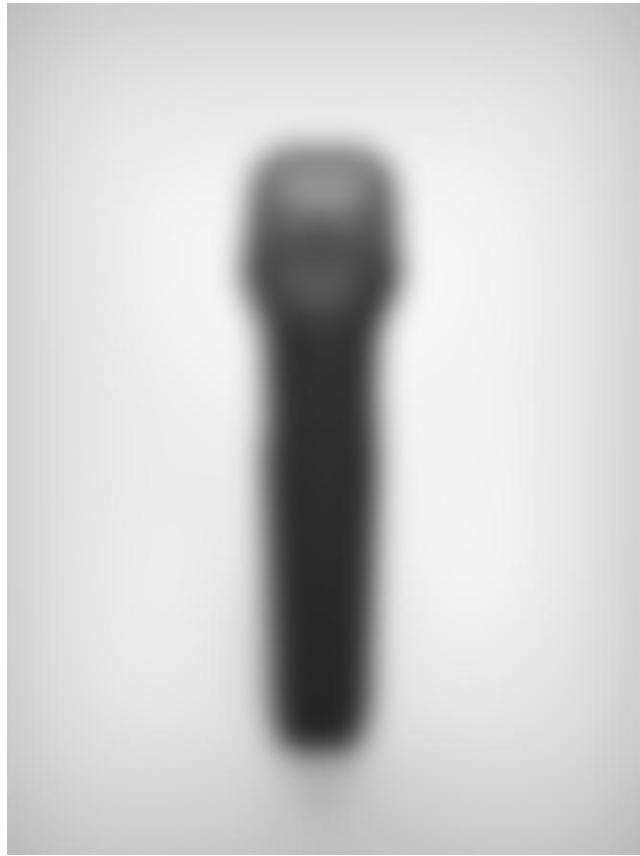
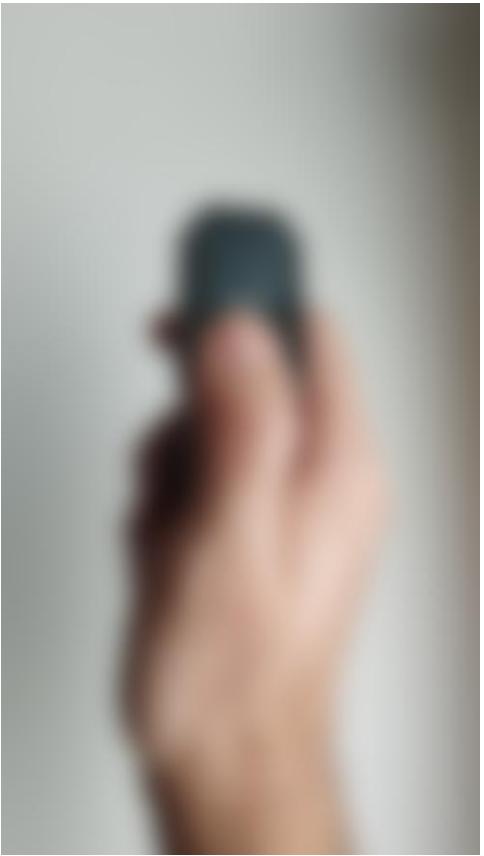
REGISTRY OF ARTISTIC OUTPUTS

Id	Kód	Segment	Druh činnosti	Závažnost	Velikost	Název díla
89426	CKZ	DES/Grafický design	Realizovaný design	C	K	Deserting
89433	BKY	DES/Produktový a průmyslový design	Realizovaný design	B	K	Design ovladače k elektrickému longboardu
89414	BKX	DES/Produktový a průmyslový design	Realizovaný design	B	K	Kola pro elektrickou mobilitu
76855	CMZ	DES/Grafický design	Realizovaný design	C	M	Etiketa pro Nový sklep pod Starým vrchem
72649	CMZ	DES/Grafický design	Realizovaný design	C	M	Logo Kavárny na kině
72731	BLY	DES/Produktový a průmyslový design	Vystavený design	B	L	Elektrický motocykl do městského prostředí
100833	BLZ	DES/Produktový a průmyslový design	Vystavený design	B	L	Kreativní Technika
72645	CLZ	DES/Produktový a průmyslový design	Vystavený design	C	L	Deserting
59311	CLY	DES/Produktový a průmyslový design	Vystavený design	C	L	Odpočinková židle Armadillo
72647	BLY	DES/Sklo, porcelán, keramika	Realizovaný design	B	L	Šálek Bostrico Algoritmico

Y NCSD - Národní cena za studentský design
Česká republika, Praha
06.12.2023
Upřesnění: Dobrý studentský design

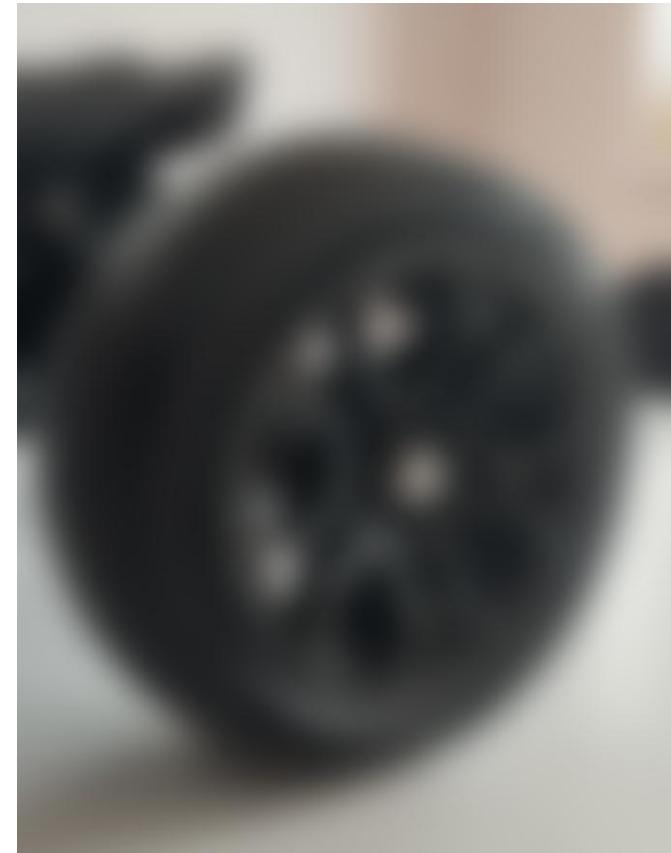
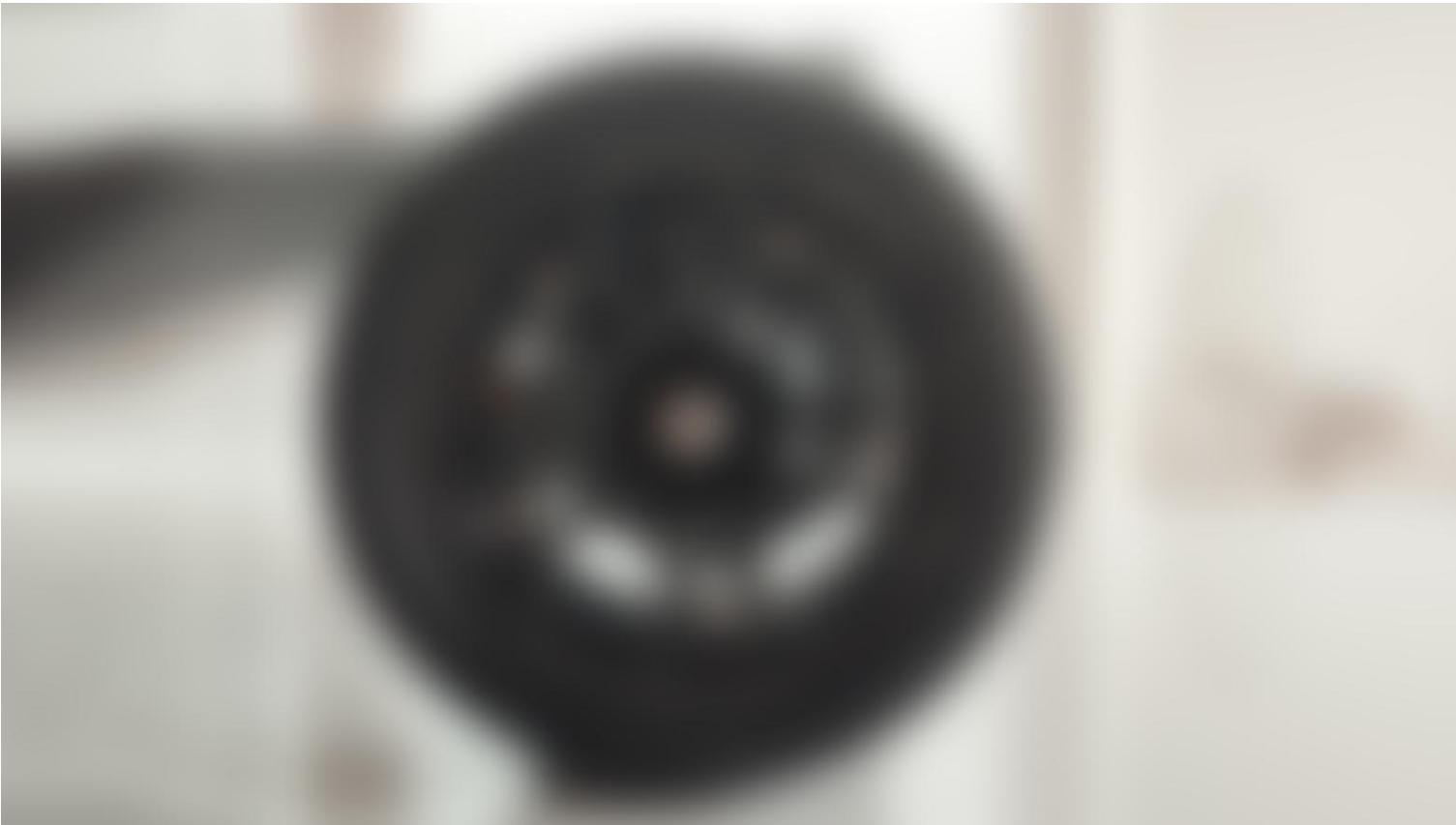
OTHER ACTIVITIES

JETSURF - design, prototyping and development



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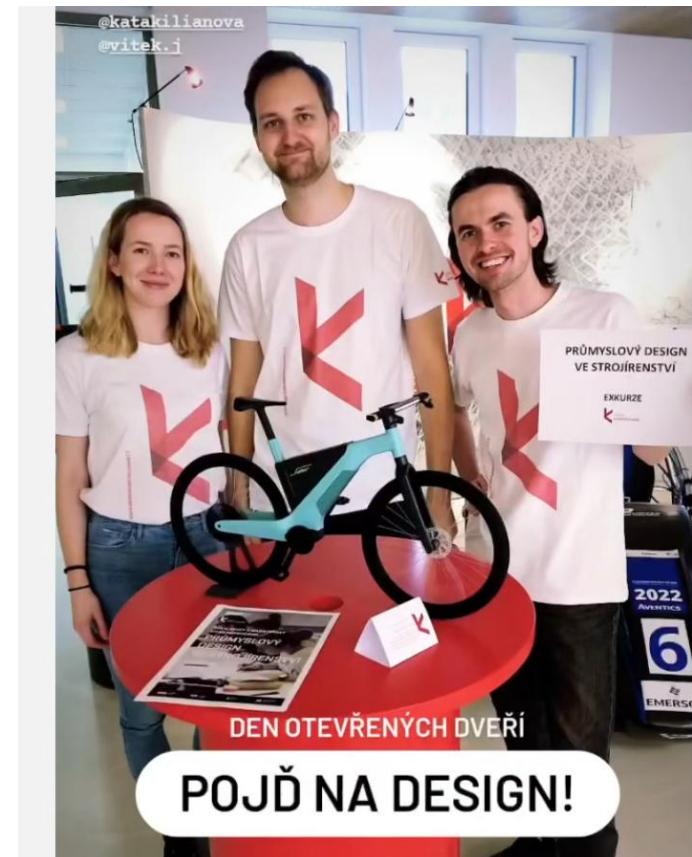
OTHER ACTIVITIES

JETSURF - design, prototyping and development



OTHER ACTIVITIES

OPEN DAYS



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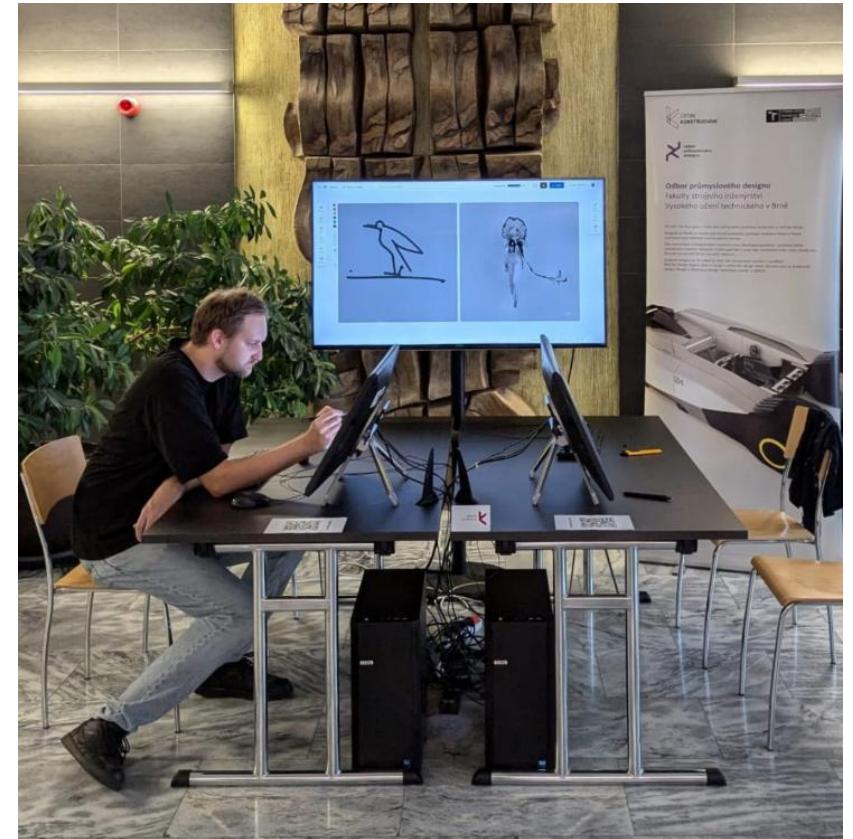
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OTHER ACTIVITIES

RESEARCHERS' NIGHT



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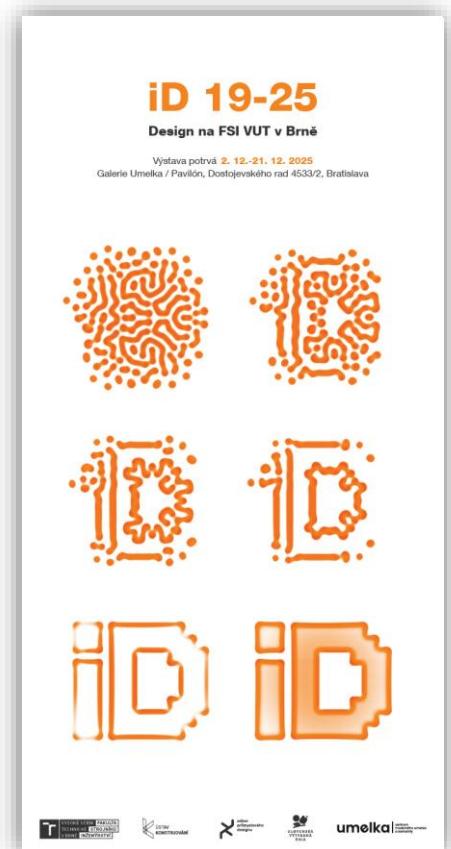
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OTHER ACTIVITIES

GRAPHIC DESIGN OF THE EXHIBITION ID 19–25



OTHER ACTIVITIES

GRAPHIC DESIGN OF THE EXHIBITION ID 19–25



STUDY AT FFA, ACTIVITIES AT IMID

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THANK YOU FOR YOUR ATTENTION

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