

# Informed Creativity

## Exploring thresholds of AI-powered authorship by Vladimír Boroň

Doctoral research:

Artificial intelligence in automotive  
design process

Realization:

2023 — ongoing

Researcher:

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Text:

Michala Lipková





What exactly happens when hand-sketched ideas are interpreted into three-dimensional shapes? How can AI design tools become a source of formal inspiration? Starting with the same initial idea, expressed by a hand sketch, the two 3D-printed vase-resembling objects explore the visuality of different form-finding workflows in the CAD environment.

The first vase is a manually modeled result driven by purely subjective aesthetic preferences. It is created using standard 3D modeling tools in Blender and powered by the author's embodied expression. The second object results from AI images prompting iterations in Vizcom and their subsequent transformations in a 3D program.

The objects are an early outcome of Vladimír Boroň's dissertation research, which focused on the use of AI-supported tools in the automotive design process. The research aims to explore practices that could enable the use of emerging AI tools in a way that empowers, rather than exploits, human creativity.

As a graduate of transportation design with a focus on exterior design and automotive styling, Vladimír Boroň approaches his doctoral research from the standpoint of an experienced, creative maker:

"The reason for my insight into fine art practices is a decline and unoriginality of current production design, oversaturation of the market with generic products, and a personal need to experiment and get out of the vicious circle. (...) In the portfolio of many students, there are often generic, even identical projects, the execution of which is at a very high level, but without a special character." (Boroň, 2021, p.14)

Being aware of the divide between free artistic practice and the industry standards of automotive design, Boroň admits that "design is a field in which we also have to follow the logic and not just personal feeling," and therefore, he tries to "interpret a feeling and cultivate fragments of free work into a kind of design language." (Boroň, 2021, p.26)

The currently started dissertation research aims to explore two streams of creative exploration within the practical part of the thesis:

- Exploration of the potential of emerging design **tools enabled by generative artificial intelligence (GenAI)**, trained on large, publicly available datasets that include copyrighted works - nowadays, only emerging but widely discussed and problematic areas of design practice.
- Simultaneous **dive into analog, authentic hands-on practice** inspired by psychic automatism or even surrealism (Chouca, 1991, p. 51), which we could compare to the author's own "creative intelligence model," trained on his embodied hands-on experience of creating and experimenting with different media. The objects presented at the Milan exhibition are the

first results of the outlined strategy. By casting the objects in delicate, handmade porcelain, the strategy spotlights the differences between the physical, 3D-printed outputs.

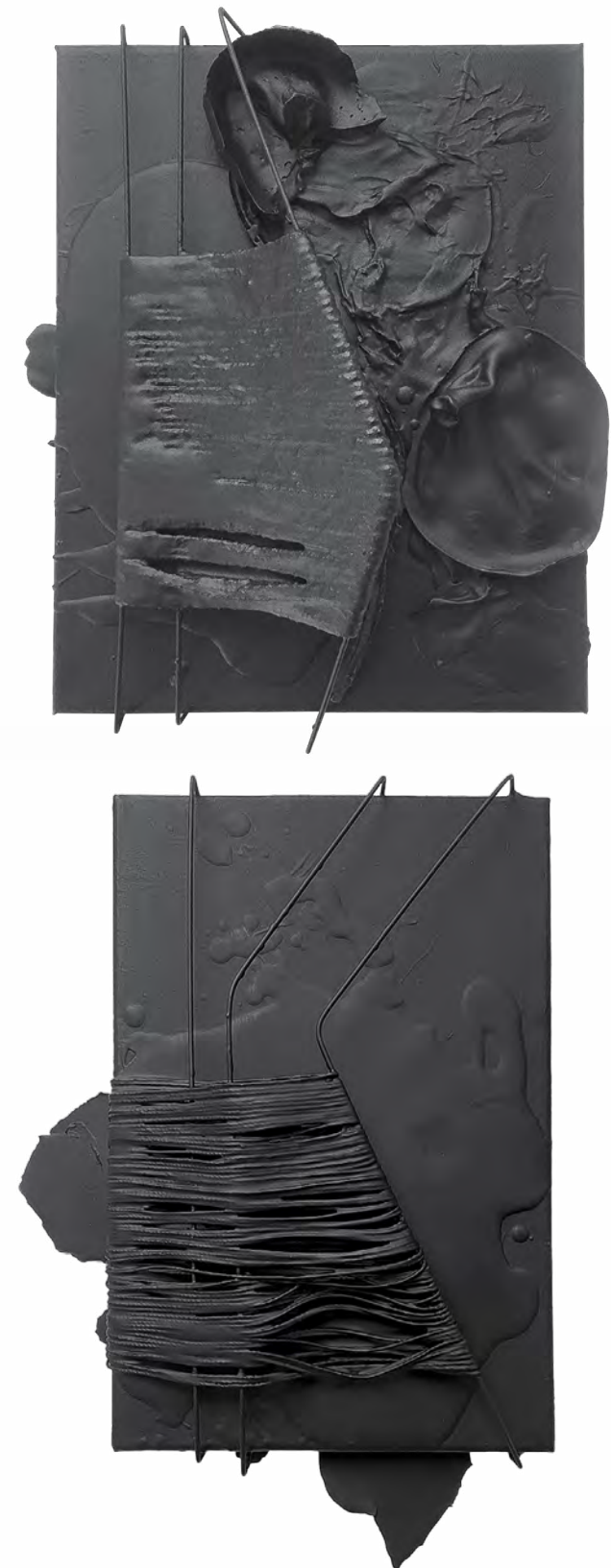
With advancements in AI technologies, the automotive industry is witnessing a paradigm shift where AI is revolutionizing how vehicles are designed and manufactured. The dissertation research aims to explore various applications of artificial intelligence in automotive design and methodically describe the potential of GenAI tools to increase creativity and efficiency in the design process. Over the last year, many AI tools, as well as add-ons to existing programs, have appeared, which can generate digital imagery, textures, or even animations. However, many of these programs draw from internet portals and databases where they select and then apply the characteristic features of the handwriting of established artists. At this point, the question arises about the extent to which artificial intelligence is ethical and whether it can be considered an author's acceptable entry into the design work.

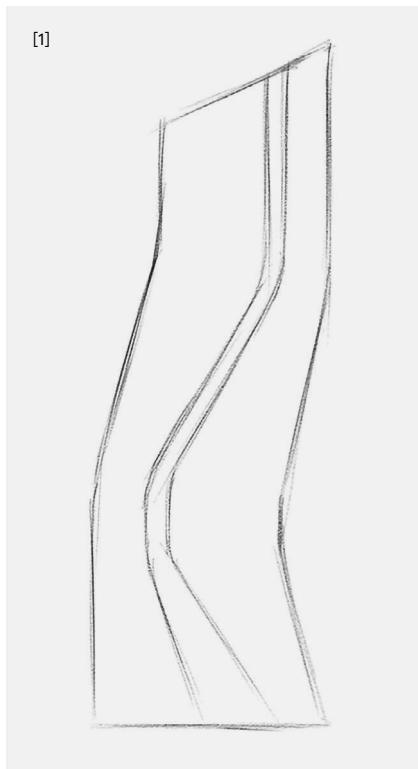
The goals of the dissertation research are:

- **Mapping the use of GenAI tools in automotive design:** This project will examine the historical development of AI and its integration into the field of automotive design to provide an overview of the timeline and key milestones that shaped the current environment.
- **Critically evaluate the impact of GenAI tools on creativity and innovation in design:** Artificial intelligence provides new

Right: Form-finding 'post graffiti' experiments from V. Boroň's diploma project

Next page: 4 steps of AI-supported design process:  
[1] Input sketch  
[2] Ai Vizcom outcome  
[3] Ai Zoe Depth outcome depth map  
[4] 3D model from height map





opportunities to expand the creative capabilities of automotive designers. Through a series of case studies with FAD STU students, we will explore how AI-based tools and algorithms can help designers create innovative concepts, explore different design options, and push the boundaries of conventional aesthetics.

- **Analyze the role of GenAI in increasing the efficiency of the automotive design process:** GenAI has the potential to streamline the design process by automating repetitive tasks, facilitating the rapid creation of design variations. The research will explore the integration of AI-driven design tools, simulation techniques, and virtual reality to increase efficiency, reduce development time, and minimize costs.
- **Discuss the ethical and societal implications of GenAI in automotive design:** The research will explore ethical questions regarding authorship, safety, and bias, which are coded into the publicly available large language models. We aim to identify potential risks, challenges, and opportunities associated with adopting GenAI in the automotive industry, ensuring a comprehensive understanding of the wider implications.

To achieve the objectives of this research, a methodology involving a combination of case studies, interviews with industry experts, and analysis of relevant data will be used. In addition, hands-on experimentation with AI-based design tools and software, analog and digital drafting, and 3D modeling will be conducted to gain practical insights into their capabilities and limitations. Ultimately, this project aims to inspire further innovation and collaboration between AI and automotive design.



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Vladimír Boroň graduated in transportation design at the Academy of Fine Arts and Design in Bratislava. He has hands-on experience from both the automotive industry (Superiore Design studio) and startup world (Appara Technologies Ltd.). He is actively engaged in “post-graffiti” creation-abstract and analog painting & modeling) which he perceives as a way of forming an author's expression in design work.



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