

Graduation Plan

Master of Science Architecture, Urbanism & Building Sciences



Graduation Plan: All tracks

Submit your Graduation Plan to the Board of Examiners (Examencommissie-BK@tudelft.nl), Mentors and Delegate of the Board of Examiners one week before P2 at the latest.

The graduation plan consists of at least the following data/segments:

Personal information	
Name	Šimon Knettig
Student number	5398185

Studio		
Name / Theme	City of the Future	
Main mentor	Roberto Cavallo	Architecture
Second mentor	Piero Medici	Building Technology
Third mentor	Stefan van der Spek	Urbanism and VR
Argumentation of choice of the studio	<p>I chose the studio for multiple reasons listed below:</p> <ol style="list-style-type: none">1. Multidisciplinary approach2. Research focused3. Student-driven approach4. Meaningful guidance through the thesis agenda <p>I had my own research fascination long before graduation year that I wanted to freely investigate. Therefore, I wanted to choose a studio that would allow me enough freedom to specify the topic and choose my own methodologies. At the same time, to get the most out of my studies, I was looking for a mentorship that would provide me with interesting inspirations and suggestions as well as overall guidance to be able to fulfill thesis requirements successfully. City of the Future perfectly fuses enough freedom with expert guidance to fulfill my needs. On top of it, it specializes in a multidisciplinary approach which is also needed for my research topic. It was, therefore, a perfect fit.</p>	

Graduation project	
Title of the graduation project	UX of Arch – Shaping the user experience of architecture through evidence-based design
Goal	
Location:	Jižní Město, Prague, Czech Republic
The posed problem,	From small building interventions to large urban scale planning, architectural designs witness a recurring failure to meet their intended goals of enhancing

	<p>user experience (UX) in the built environment. Various iconic projects, such as Trellick Tower, Brasilia, and the Masdar City have fallen short of their utopian visions, leading to undesirable, or even tragic, consequences. Despite the undeniable potential of architectural designs to positively influence UX, the lack of clear evidence and understanding of the impact of specific interventions during their design phase raises concerns.</p> <p>These concerns and lack of tangible proofs generate a distrust among stakeholders towards an architectural expertise, undermining the discipline and its positive potentials.</p> <p>The challenge lies in the ultimately individualistic nature of one's perception - how can a single person effectively grasp perceptions of hundreds, thousands, or more individuals. Furthermore, data such as the low adoption of post-occupancy evaluation unveils a surprising long distance of architects to their end users and their experience with proposed designs. This prompts questions about the reliability of knowledge that informs architects' decisions, the probability of success, and the efficiency of different methods in designing for user experience.</p> <p>To investigate this topic, a testing site facing UX issues was chosen – Jižní Město.</p>
research questions and	<p>Main research question: What kind of architectural design process could provide evidence-based suggestions to efficiently and reliably enhance the individual users' experience of Jižní Město to the point when the district becomes desirable for new generations across classes?</p> <p>Sub-research questions:</p>

	<p>Localizing the problem</p> <ol style="list-style-type: none"> 1. When was or is Jižní Město undesirable regarding the UX? 2. Where, in which areas, is Jižní Město undesirable regarding the UX? 3. Which social group finds Jižní Město undesirable regarding the UX? <p>Understanding the problem</p> <ol style="list-style-type: none"> 1. Which research methods historically brought possibly false conclusions about users' needs and desires in Jižní Město? 2. What kind of architectural design methods did not target specific user needs in Jižní Město correctly and efficiently? <p>Targeting the problem</p> <ol style="list-style-type: none"> 1. Which research methods could unveil the true individual users' needs and desires in Jižní Město? 2. What are the individual users' needs and desires in Jižní Město? 3. What kind of architectural design methods could target specific user needs in Jižní Město with a definable efficiency supported by evidence?
design assignment in which these result.	<p>In order to meet the crucial need derived from the research study for an appealing and functional environment, a comprehensive strategy is proposed. This involves design interventions of all scales ranging from pavement styling to new additions and shifts of the existing modular panel constructions, along with essential urban features like parking facilities. Through systematic participatory testing using VR, the impact of these interventions will be compared and ordered based on their efficiency in bringing an optimal UX. A merge of these most suitable interventions from every typological category will be proposed as a final design for the site.</p>

[This should be formulated in such a way that the graduation project can answer these questions.

The definition of the problem has to be significant to a clearly defined area of research and design.]

Process

Method description

The research is focused on 3 areas of knowledge – perception and use of the built environment, and methodologies to research these. The following steps and methods will be taken:

1. Study of existing literature on the topics and the site
2. Evaluating the local needs through systematic relational study
3. Preparing a testing site – a mock-up representing a typified environment of the site area
4. Preparing a series of design interventions on the testing site
5. Participatory qualitative and quantitative evaluation and comparison of the design studies in VR
6. Determining interventions most fulfilling the needs per typological category
7. Merging these interventions into a final proposal
8. Reassessment of the final design

[A description of the methods and techniques of research and design, which are going to be utilized.]

Literature and general practical references

In general, I've been seeking sources that could provide knowledge on the ways of conducting UX research, understanding human cognition/perception in the context of the built environment, and insights into the site specifics.

Architectural research on the perception and use of space

Jacobs, Jane. *The Death and Life of Great American Cities*. Vintage Books ed. New York: Vintage Books, 1992.

Lynch, Kevin. *The Image of the City*. 33. print. Publication of the Joint Center for Urban Studies. Cambridge, Mass.: M.I.T. Press, 2008.

Sim, David, and Jan Gehl. *Soft City: Building Density for Everyday Life*. Washington ; Covelo ; London: Island Press, 2019.

Healthcare

Tawil, Nour, Izabela Maria Sztuka, Kira Pohlmann, Sonja Sudimac, and Simone Kühn. "The Living Space: Psychological Well-Being and Mental Health in Response to Interiors Presented in Virtual Reality." *International Journal of Environmental Research and Public Health* 18, no. 23 (January 2021): 12510.
<https://doi.org/10.3390/ijerph182312510>.

Psychology/sociology

Kahneman, Daniel. *Thinking, Fast and Slow*. Penguin Psychology. London: Penguin Books, 2012.

Mazumder, Robin. "The Downside of Building Up: An Exploration into the Psychological and Physiological Impacts of Exposure to High-Rise Buildings." University of Waterloo, 2020.
<https://uwspace.uwaterloo.ca/handle/10012/16504?show=full>.

Mazumder, Robin, Hugo J. Spiers, and Colin G. Ellard. "Exposure to High-Rise Buildings Negatively Influences Affect: Evidence from Real World and 360-Degree Video." *Cities & Health* 6, no. 6 (November 2, 2022): 1081–93.
<https://doi.org/10.1080/23748834.2020.1839302>.

Site context

Kouhout, Michal. *Sídlíště, jak dál?* Prague: České vysoké učení technické v Praze, 2016. <https://www.kavkabook.cz/p/sidliste-jak-dal>.

Lux, Martin, Petr Sunega, and Petr Kubala. "Dráhy bydlení mileniálů." Prague: Sociologický ústav AV ČR, 2021.
https://seb.soc.cas.cz/attachments/article/133/TZ_Dr%C3%A1hy%20bydlen%C3%AD%20mileni%C3%A1l%C5%AF.pdf.

Špaček, Ondřej. "Michal Kohout, David Tichý, Filip Tittl, Jana Kubánková, Šárka Doležalová: Sídlíště, Jak Dál?" *Sociologický časopis / Czech Sociological Review* 53, no. 4 (August 1, 2017): 635–37.

Sunega, Petr, Boumová, Ladislav Kážmér, and Martin Lux. "Jak jsme spokojeni se svým bydlením? Jak si představujeme své ideální bydlení?," January 1, 2014. https://seb.soc.cas.cz/images/postoje2013/tiskovka_spokojenost_ideal.pdf.

UX Research

Nunnally, Brad, and David K. Farkas. *UX Research: Practical Techniques for Designing Better Products*. 1st ed. Beijing Boston Farnham Sebastopol Tokyo: O'Reilly, 2017.

Soares, Marcelo M., Francisco Rebelo, and Tareq Z. Ahram, eds. *Handbook of Usability and User-Experience: Methods and Techniques*. Accessed January 22, 2024. <https://www.routledge.com/Handbook-of-Usability-and-User-Experience-Methods-and-Techniques/Soares-Rebelo-Ahram/p/book/9780367357702>.

VR

Jones, Phil, and Tess Osborne. *Virtual Reality Methods: A Guide for Researchers in the Social Sciences and Humanities*. Bristol: Policy Press, 2022.

[The literature (theories or research data) and general practical experience/precedent you intend to consult.]

Reflection

1. What is the relation between your graduation (project) topic, the studio topic (if applicable), your master track (A,U,BT,LA,MBE), and your master programme (MSc AUBS)?

The studio topic concerns literally "City of the Future" – ideas we need to develop for successful urbanization. According to the UN, 70% of the world's population is expected to live in cities by 2050. However, the way of living could differ significantly ranging from highly dense skyscrapers to urban sprawled private homes. And all of these typologies can have a very different impact on the environment. User choices of where to live are driven by their needs and desires. If we manage to find a union between these needs and sustainable urban forms, we could create more resilient and enjoyable cities. Something that all architects, urbanists, and other experts in the built environment should strive for. Research in UX to which this paper aims to belong becomes a key tool for achieving this goal.

2. What is the relevance of your graduation work in the larger social, professional and scientific framework.

In connection with the point above, the paper investigates methods for achieving more enjoyable UX for the end users of architecture with definable and expectable impact. This knowledge could significantly speed up the design process and increase its reliability, and efficiency. This will ultimately generate more trust among other stakeholders and as a consequence possibly speed up the overall decision-making. Furthermore, the development of new VR technologies striving to become everyday wearables will provide in the future even more opportunities for the methodology's expansion, speed, and impact.