Graduation Plan
Master of Science Architecture, Urbanism & Building Sciences
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:

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<th><strong>Personal information</strong></th>
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<th><strong>Studio</strong></th>
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<td>Name / Theme</td>
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<td>Teachers / tutors</td>
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<th><strong>Argumentation of choice of the studio</strong></th>
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<th><strong>Graduation project</strong></th>
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<th><strong>Goal</strong></th>
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zoos and the society has gone through the different phases exotic wildlife exhibition has undertaken a comparison study can be made between the zoos. Zoos in the Netherlands will be the primary field of study but methods or proposals should be applicable for all the western European zoos. Within the Netherlands, focus will be on making a future zoo design proposal for **Diergaarde Blijdorp in Rotterdam** were a strong urban embedment will be a focus point. Blijdorp is a unique location since its close to the city centre, but also the harbour districts and agricultural land, with possible available space, but still capsulated between infrastructure lines and build-up area. Further has the replacement of the main entrance from the city site towards the highway site created new urban relationships in recent year. Besides Diergaarde Blijdorp other zoos with special interest are Artis in Amsterdam within its high urban condition and Burgers Zoo in Arnhem which is situated at some distance from the city centre at the edge of the forest.

### The posed problem,

Ethical and conservation issues put in increasing pressure on the layout and functioning of the zoo within our urban environment. Even questioning if there is within our cities or urban environment in the future still a place for the zoo. Or should it all be removed to nature parks far from our urban environment. Meanwhile, zoos have been part of our society for hundreds of years and established a strong position within the city’s fabric, culture and recreation infrastructure. Removing them from their urban habitat would make the educational function harder and the feasibility more difficulty since the accessibility would decrease. Do we want to hid animals form our (urban) lives or to we want to invite them? The opportunity and challenges in zoos today is to transform themselves from traditional static animal collections into true conservation centres, where their message is delivered more effectively through a combination of both entertainment and education open to the public and city. What is a sustainable method for exotic wildlife exhibition within the urban environment in the future?

### research questions and

**Main Research Question:**

What is a sustainable method for the exotic wildlife exhibition within the urban environment in the future?

**Sub questions:**

What are the reasons and methods the exhibition of exotic wildlife in western cities has developed?

How can we describe type of zoos nowadays based on the different basic elements and functions of zoo in its urban environment?
How is our society looking at the captivity of animals? What are potentials for the zoo in our future urban environment?

**design assignment in which these result.**

The design goals of this research will be to develop an approach for a sustainable zoo in the Netherlands, with principles and methods that could also be implemented within the western European context. The design will be developed by a first mapping, analysing and decompose the existing zoos in the Netherlands. Out of these methods, design principles or a framework for the build-up of the zoo should be clarified. By establishing a vision about what the future of the zoo in the urban environment should look like and what its role will be scenarios should be developed. Applying different scenarios for the zoo within the urban environment Diergaarde Blijdorp and Rotterdam will function as the main case study. In this case study design, a sustainable zoo design in one specific scenario will be accomplished. The designs will be developed through scales considering urban qualities as well as specific animal welfare requirements. The designs of the case study for the future zoo will be used to reflect on the literature concerning animal welfare as well as a recreation industry. The aim of the design is to visualize how the principles or framework of the future zoo will influence the contemporary zoo and the urban environment. Which may be then exemplified in draft proposals for Artis and Burgers Zoo.

**Process**

**Method description**

See Questions and methods table for a overview.

- Literature study
- Mapping and analysing the developments in different zoos in history in western Europe
- Semi structured interviews with experts on the field of urban planning, leisure industry, zoo industry etc.
- Analysing and mapping urban flows concerning the zoo, like people, knowledge, food, waste, water etc.
- Comparative study between different zoos in western Europe especially the Netherlands
- Mapping different elements within a zoo, like exhibits, paths, food drink, shops etc.
- Analysing different elements between different zoos, like layout, entertainment, number of species, type of species, policies in education, research and conservation etc.
- Survey or debate concerning animals in captivity
- Literary study on the field ethics of keeping animals in captivity and their welfare (pet, farm, zoo, research)
- Analysis of space and welfare of different types of captive animals
- Literary study
• Research current trends and innovative manner of wildlife exhibition
• Different scenario creation

**Literature and general practical preference**

Herzog, H., & Foster, M. (2010). *Some we love, some we hate, some we eat*: Tantor Audio.

**Reflection**

**Relevance**

Social

Nowadays zoos hold an important place in connecting people with exotic wildlife. Since the up close real experience of seeing a living animal is far greater than by television or as a stuffed animal in a museum. Zoos therefore over an extra ability to create awareness for the conservation of species and ecosystems all over the world. In this, they play an important educational role for the public. Furthermore, the zoo is a place for recreation and leisure that attracts both high and low-income greats as well as higher and lower educated people.
has a place within the high culture in for of lectures about the natural world that they often give but also a nice and easy place to go with your family and children.

As the ethical discussion around exotic wildlife, captivity becomes increasingly commonplace. The zoo, especially the ones with spatial constraints within our city need to rethink what their role will be in the future and if and how they are going to exhibit exotic wildlife. The urban environment and especially the inner-city zoos like Artis or Antwerp Zoo will have to find a method to maintain an institution for living nature education and recreation within the dense urban constraints. And keep playing the important cultural function they play in their communities.

Scientific

As described previously zoos play an important part in the recreation and tourism industry of cities, attracting sometimes millions of visitors. Besides a recreation and education institutions, they are now increasingly important as conservation centres. We’re as ethical concerns have brought spatial pressure on the layout of zoos. Zoos are a special and characteristic spatial, cultural and economic element within our urban environment. Investigating how this type may change in the future can give us insides in how our cities and society might change regarding the experience and handling of nature and wildlife. And what the future cultural and economic role of exotic wildlife exhibitions will be and how cities can add or benefit from these special urban elements.

**Time planning**

See attachment
### Research Question and Methods

#### Main Research Question:  *What is a sustainable method for the exotic wildlife exhibition within the urban environment in the future?*

<table>
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<tr>
<th>Question</th>
<th>Method</th>
<th>Output</th>
<th>Goal</th>
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<tr>
<td><strong>What are the reasons and methods the exhibition of exotic wildlife in western cities has developed?</strong></td>
<td>Literature study&lt;br&gt;Mapping and analysing the developments in different zoos in history in western Europe</td>
<td>Theory paper reviewing the reasons and methods of wildlife exhibition within the city&lt;br&gt;Overview of different types of exotic wildlife exhibitions</td>
<td>Describing the zoo as a type has developed and what influenced these developments&lt;br&gt;Finding out how the exhibit for animals has developed and what were courses of these developments.</td>
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<td><strong>How can we describe type of zoos nowadays based on the different basic elements and functions of zoo in its urban environment?</strong></td>
<td>Literature study&lt;br&gt;Semi structured interviews with experts on the field of urban planning, leisure industry, zoo industry etc.&lt;br&gt;Analysing and mapping urban flows concerning the zoo, like people, knowledge, food, waste, water etc.&lt;br&gt;Comparative study between different zoos in western Europe especially the Netherlands&lt;br&gt;Mapping different elements within a zoo, like exhibits, paths, food drink, shops etc.&lt;br&gt;Analysing different elements between different zoos, like layout, entertainment, number of species, type of species, policies in education, research and conservation etc.</td>
<td>Model that describes the interrelations between a zoo and the urban environment&lt;br&gt;Model indication the qualitative urban flows between the zoo and the urban environment&lt;br&gt;Categorisation of different zoos&lt;br&gt;Ranking major western European zoos according towards different topics/functions&lt;br&gt;Developing (design) guidelines how leisure and the zoo - urban environment context can be the most beneficial of each other&lt;br&gt;Framework and model with the core design guidelines of an (future) zoo</td>
<td>Finding out how the zoo and the urban environment related to each other&lt;br&gt;Describe how the zoo and the urban environment can better benefit from each other using urban flows of people, knowledge, food, waste, water etc.&lt;br&gt;Categorise different types of zoos&lt;br&gt;Develop a balance between research, education and conservation of captive animals and the leisure industry&lt;br&gt;Finding out the core elements a zoo is based on&lt;br&gt;Developing elements and guidelines a zoo should be based on to create the optimal environment for animals, people and the city</td>
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<td><strong>How is our society looking at the captivity of animals?</strong></td>
<td>Survey or debate concerning animals in captivity&lt;br&gt;Literary study on the field ethics of keeping animals in captivity and their welfare (pet, farm, zoo, research)&lt;br&gt;Analysis of space and welfare of different types of captive animals</td>
<td>Paper reviewing the developments of animal captivity both spatially as ethically&lt;br&gt;Design principles for keeping animals in captivity&lt;br&gt;Framework of different types of animal captivity and how they are viewed and socially accepted. Related to wellbeing of the animals</td>
<td>Reflect on how are western European society related towards animals in captivity&lt;br&gt;Describe how changes in the attitude towards the exhibition of exotic wildlife influence the zoo typology&lt;br&gt;Finding out what the optimum way is for keeping exotic wildlife in captivity within urban environments in western Europe</td>
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<td><strong>What are potentials for the zoo in our future urban environment?</strong></td>
<td>Literary study&lt;br&gt;Different scenario creation</td>
<td>Different scenarios for how the zoo may develop in the next 50 years</td>
<td>Developing creative, new and out of the (ethical) box possibilities of urban (facilities) in combination with exotic wildlife exhibition</td>
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In the organised workshop, we tried to gain more insight in how to deal with the societal issues that come with alterations in the urban environment, due to large-scale transitions because of climate change. Learning from other disciplines was one of the goal of the workshop, from solutions that were designed on the drawing table to specific tools for the user level.

Transitions in our way of living will have a significant impact on our urban environment. Our graduation topics focus on renewable energy sources, reduction and sustainability of personal transport and the value of green in the city. Therefore, we invited different experts to show their (professional) perspective, on the public challenges of climate change.

For my graduation, I wanted to get more insight on the following question/points with the use of this workshop.

- How can the current green structure with redesigned to create a more climate adaptive urban fabric?
- What our ways that we can preserve (foreign) ecosystems system threatened by climate change within our urban environment?
- How can we combine the need for green and energy in a climate resilient urban environment?
- How can we make people more aware of climate change and it’s influences within the urban fabric?

Three of them agreed to participated in the workshop.

Professor Gerd Kortuem, form Industrial Design who is doing research on the Internet of Things at the department of Design Engineering. With a focus on smart cities, human computer interaction and data science and exploring the design of connected products and services for a sustainable future.
Karlijn Kokhuis from POSAD, she works at the consultancy and design bureau POSAD as a project leader and researcher on projects on various scales. Ranging from city regeneration projects to regional and national studies on the impact of renewable energy on the landscape.

Franco Donati from the Centre for Sustainability where they aim to provide research based solutions for enhanced resources efficiency taking into consideration the entire product lifecycle. Together with stakeholders they build bridges between science and society by working together on challenges and opportunities surrounding the transition towards a circular economy.

At the workshop first an introduction was made by us and the speakers. After this introduction, different questions were asked to the experts and debated and discussed by the audience. As a discussion question I wanted to debate about how we can get people more in touch with problems that climate change sis causing (like biodiversity loss), outside our cities with spatial elements within our urban environment. Sadly, we didn’t reach my discussion question within the workshop, so I didn’t receive much insights on this point. In general if found that the workshop was not as useful for me as I had hoped. In the workshop, we didn’t make it to many topics since we discussed for a long time around the topic of more adaptive (driverless) mobility. In this discussion, especially topics around privacy and possible monitoring of commutes being made and how should have access towards this information. In my view we lost here a little bit of our my topic of what the implications of climate change and future related technologies would mean in a social and spatial manner. After this extended discussion, the workshop already had to end with it being time for drinks and more informal discussions.