

ETH zürich

n|w Fachhochschule
Nordwestschweiz

**zh
aw** School of
Engineering

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Zürcher Hochschule der Künste
Zurich University of the Arts
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dyana 

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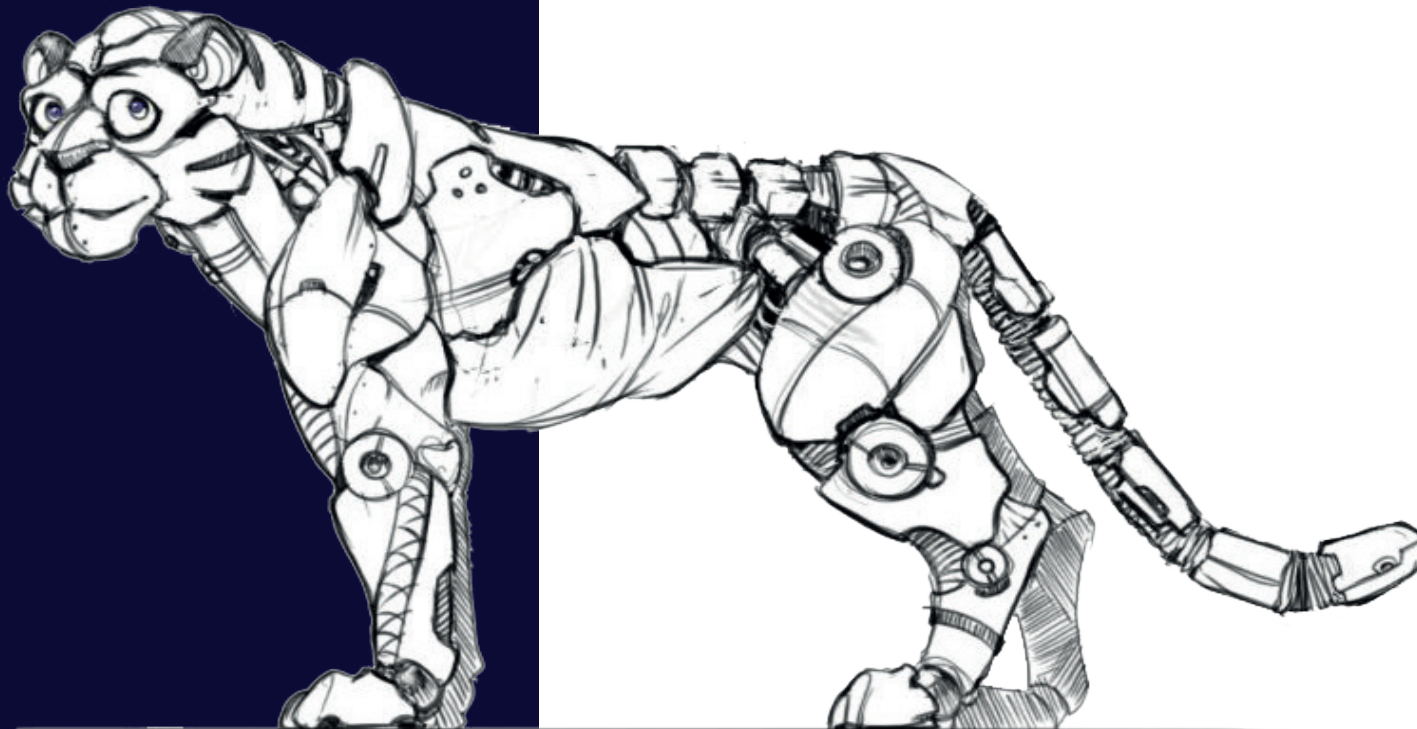
— CONTENT

dynamic animatronic

— RETHINKING ROBOTICS

OUR VISION

Our vision is to bridge the gap between the imaginary world of digital animation and the real, physical world. Our goal is to build a robot that can mimic the movements and body language of a virtual character. To complement the development of our authentic character we will put a special emphasis on design.



OUR VISION

ON ROBOTICS

Numerous quadrupeds (four-legged robots) have already been developed focusing on stability, function, and autonomous navigation. The design of these robots, however, are not appealing nor are they in any way relatable to a real life creature.

ON ANIMATION

In the past few years, Computer Generated Imagery has improved immensely, taking the spectator into a virtual world of limitless imagination. Tools to improve simulations and animations enhance the virtual world. However, the gap from virtuality to the real world, bound by physical constraints, increases. *With our robot, we want to bring these two worlds together.*

Our project aims at combining the expertise in robotics and animation by building a mobile animatronic that can move dynamically, while focusing on fluid movements and an aesthetic design.

THE PROJECT

Our interdisciplinary team of bachelor students from different universities is composed of:

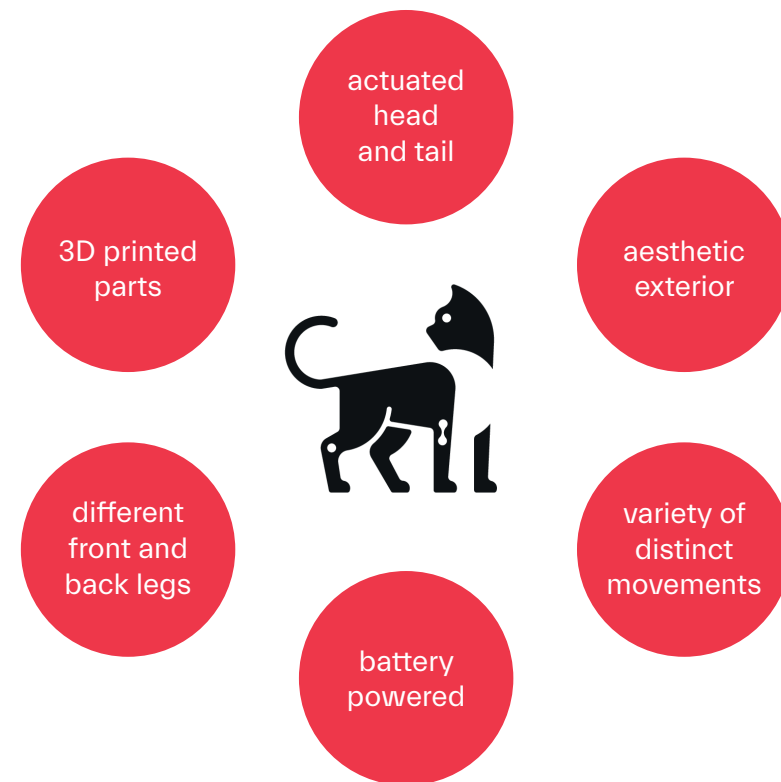
- 6 mechanical engineers ETH ZURICH
- 4 industrial designers FHNW, ZHDK
- 2 electrical engineers ETH ZURICH
- 2 system engineers ZHAW

Supported by coaches of the Robotic Systems Lab ETH Zurich we strive to build a four-legged robot for eight months. We will gain insight into the process of product development including, but not limited to, the concept phase, prototyping, testing, iterating, and production. The highlight will be the demonstration of our final robot at the public rollout-event in June 2021.

THE PROJECT

This Dynamic Animatronic robot brings it all together. Looking like a character from the virtual world but graciously moving in a world ruled by physical constraints.

To achieve this goal we have set up a list of requirements for dyana:



PRIMARY ASPECTS



AESTHETICS

Bio-inspired exterior shell creating the appearance of an animal-robot hybrid



RESEARCH

Innovation in compact, high-torque leg actuation and compliant mechanisms



ROBOTICS

Improving versatility in contrast to classical animatronics



ENTERTAINMENT

Dynamic locomotion and movement patterns to round off the life-like impression

OUR TEAM

MECHANICAL ENGINEER



Andrina, ETH Zurich



Peter, ETH Zurich

ELECTRICAL ENGINEER



Dominique, ETH Zurich



Timon, ETH Zurich

INDUSTRIAL DESIGN



Delia, ZhdK



Meret, ZhdK



Jannis, ETH Zurich



Klemens, ETH Zurich

SYSTEMS ENGINEER



Sophia, ETH Zurich



Marco, ETH Zurich



Cyril, ZHAW



Raffael, ZHAW



Thibaut, ZhdK



David, FHNW

OUR MENTORS



Marco Hutter
Professor
ETH Zurich



Fabian Tischhauser
Head Coach
ETH Zurich



Felix Crazzolaro
Student Coach
ETH Zurich



Ruben Grandia
PhD Supervisor
ETH Zurich



Markus Montenegro
Supervisor
ETH Zurich



Maria Trodella
Admin & Finance
ETH Zurich



Roland Haas
Coordination
ETH Zurich



Konrad Meyer
Tech Support
ETH Zurich



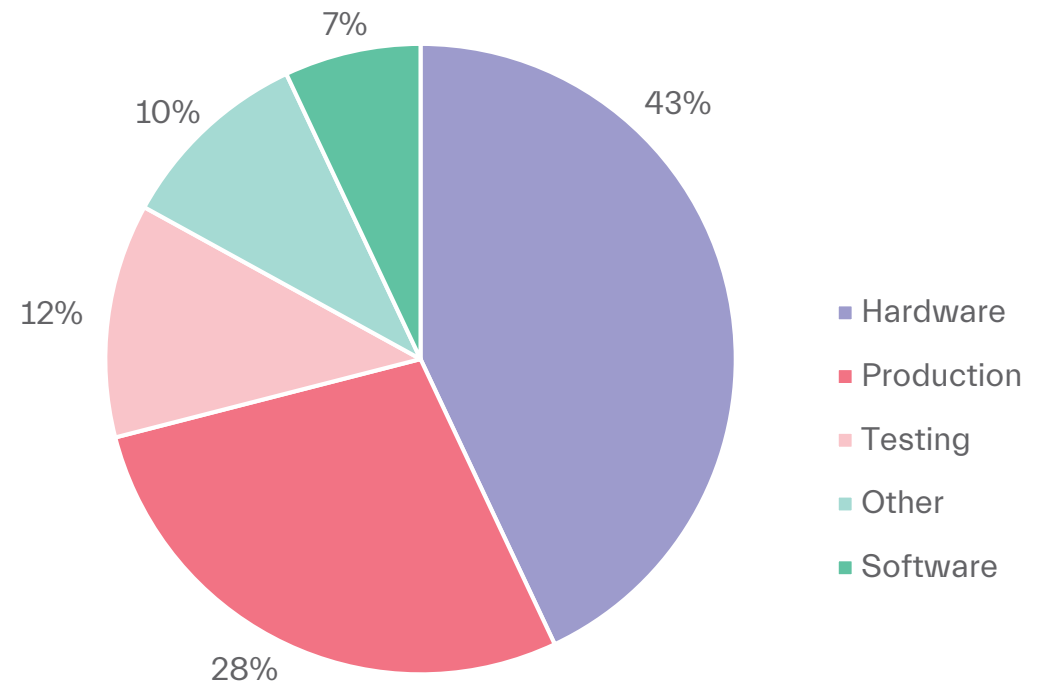
Michael Wüthrich
Lecturer
ZHAW



Roman Jurt
Student Coach
ZHdK

BUDGET

For our project, we estimate a budget of 50'000 to 60'000 CHF. The main part of our hardware costs results from precise actuators enabling dynamic movements. The use of innovative manufacturing technologies broadens the scope of design freedom for our robot.



SPONSORING

INDIVIDUAL SPONSORS

Please feel free to contact us, if you prefer to make an individual offer. We will be happy to find a solution which suits your expectations.

Financial, material and technical support are essential in our product development. You can support us in the following manner:

	Patron	Bronze	Silver	Gold	Diamond
	<i>from CHF 200.-</i>	<i>from CHF 1'000.-</i>	<i>from CHF 2'500.-</i>	<i>from CHF 5'000.-</i>	<i>from CHF 10'000.-</i>
Logo on website	✓ small	✓ small	✓ medium	✓ big	✓ jumbo
Logo on banner on e-exhibition		✓ small	✓ medium	✓ big	✓ jumbo
Social media posts		✓	✓	✓	✓
Special invitation to rollout-event			✓	✓	✓
Logo on team-shirt				✓ back	✓ front
Presentation of the project at a company event					✓

CONTACT

ETH ZÜRICH

Jannis Bähler - Sponsoring
Focus Project Dyana

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We are an interdisciplinary student team working on dyana, a dynamic animatronic robot. Our vision is to bridge the gap between the imaginary world of digital animation and the real, physical world. Our goal is to build a robot that can mimic movements and body language of a virtual character.