Alexander Kübler
Co-Founder @ RoBoa
alexander.kuebler@roboa.ch

Zurich, 2024

Robotics is growing!
It replaces humans in dangerous, hazardous, and challenging tasks.

A limitation persists in the ability of robots to navigate **extremely harsh and confined** spaces!

wintra.com

anybotics.com

voliro.com

> 200b USD
annual cost of
unplanned downtime

workers health
at risk in confined spaces

RoBoa goes where **no human** or **robot** can go**!**

RoBoa comprises a set of **unique technologies**

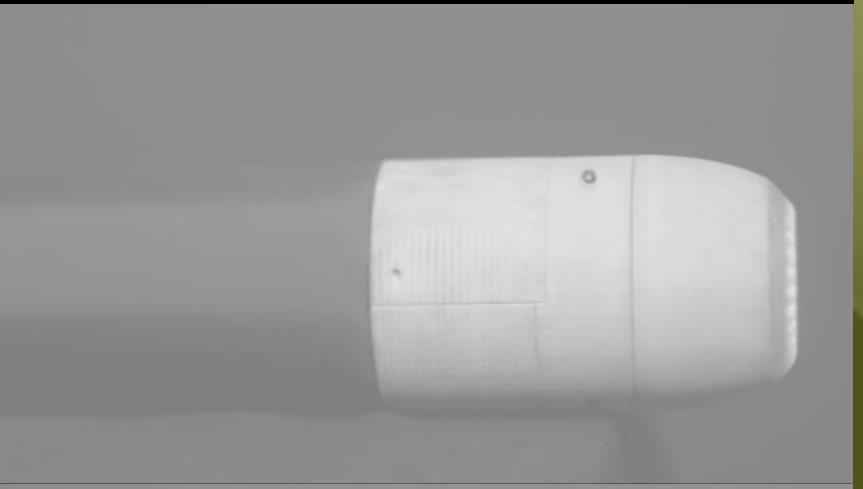
–

at a **TRL of 7**

–

patent-pending

Long Locomotion



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Small & Safe

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Advanced Sensing

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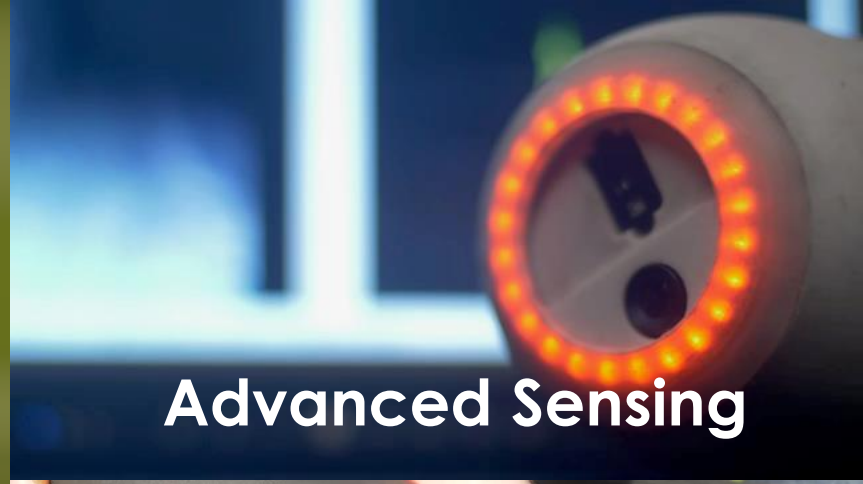

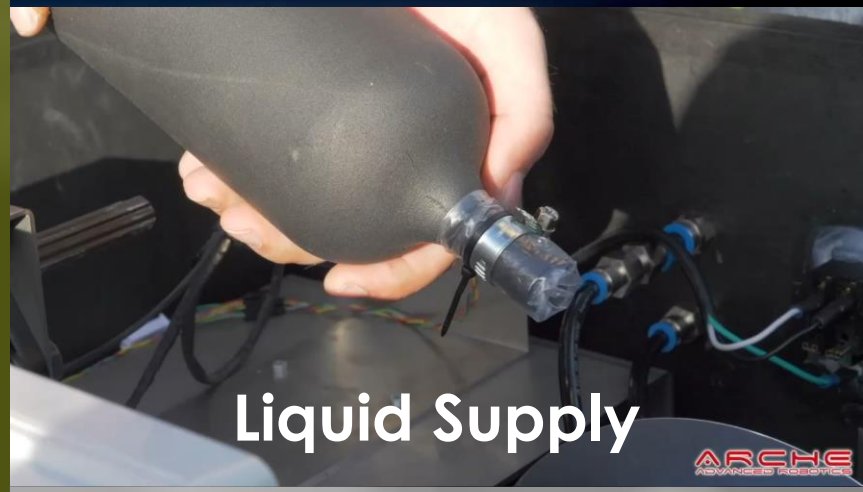

Long Locomotion

Small & Safe

High Maneuverability

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Advanced Sensing

Liquid Supply

Modular & Easy Operation

Long Locomotion

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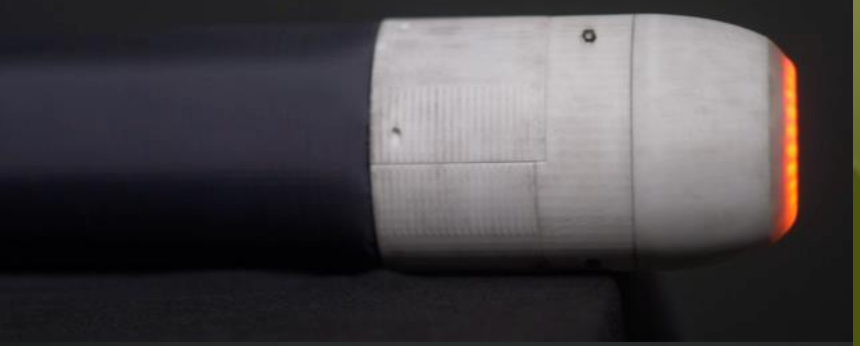

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Advanced Sensing

Liquid Supply

Modular & Easy Operation

RoBoa's **Unique Value Proposition**

RoBoa goes where no human, drone, or other robot can go!

quickly move along **bends** > 2" pipes

move over slippery, delicate, or sharp **surfaces**

safety in explosive environments

advanced **data** collection and analysis

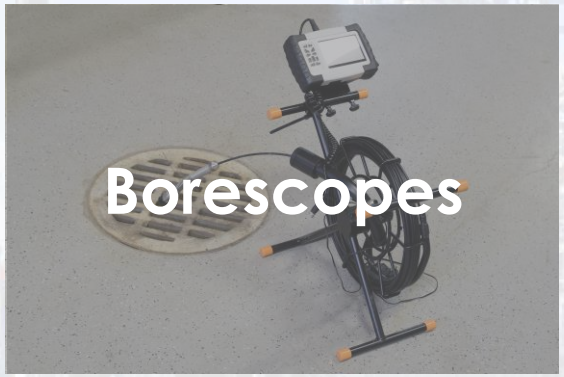
Making inspection **faster** and more **reliable.**

To reduce costly downtime!

Our visionary **RoBoa Kit** will serve your requirements!

We exceed **competitor** solutions in process pipes!

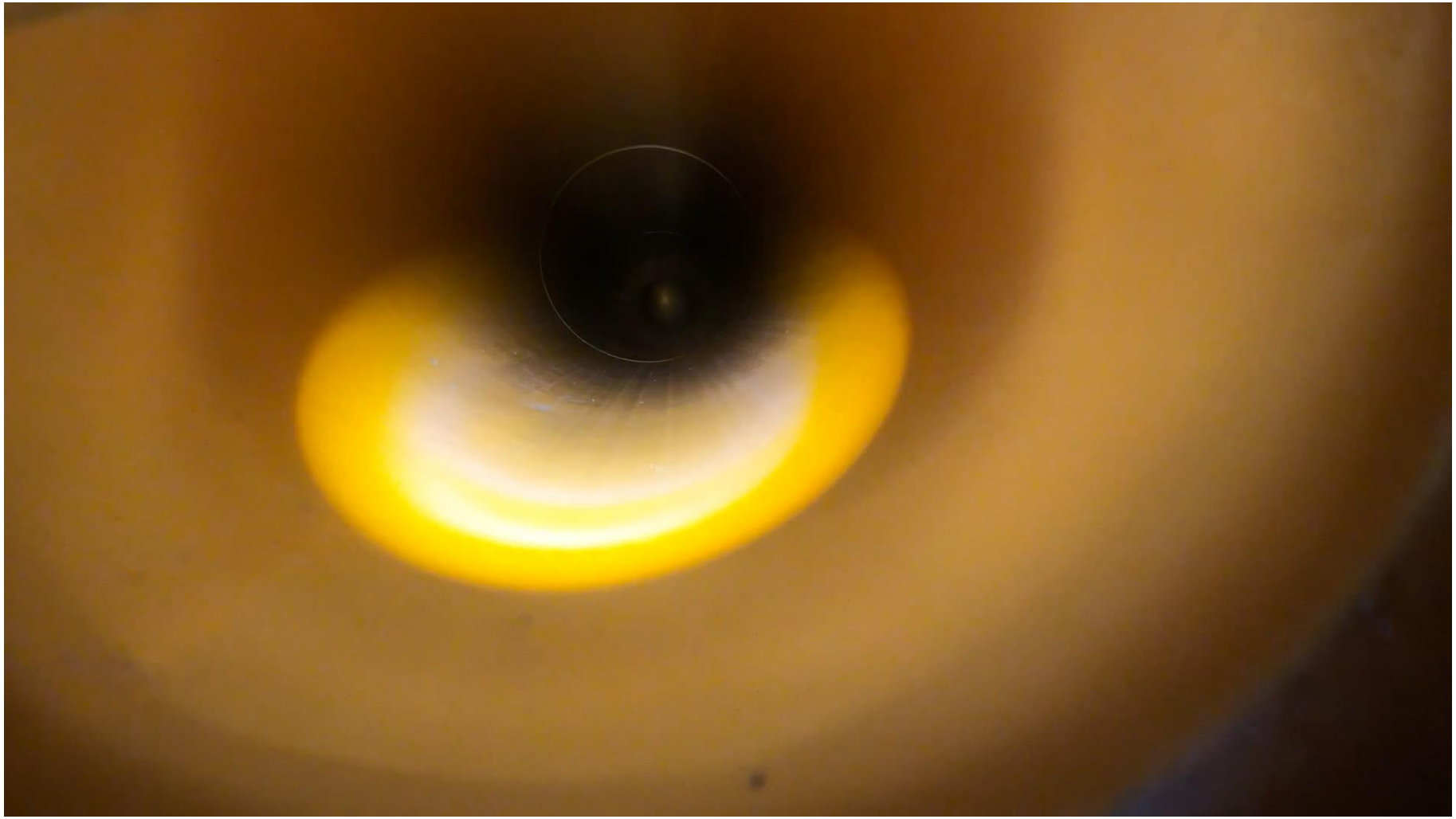
- **cannot** fly in very confined spaces like **pipes**
- **limited** battery and **operation** life
- **limited sensor** capabilities
- **no safety** tether



- **manual work** for passive locomotion
- increasing **friction limits** locomotion
- **no automation**
- **limited sensing**

- increasing **friction limits** locomotion
- cannot quickly move around **multiple bends**
- **loss of traction** if slippery
- **no** / very few systems for **< 6"**

Case Study 1: **Winding process pipe**



- 6" pipe
- 9 meters
- 1 min travel
- 9 m/min
- 1D bends
- 405° in total

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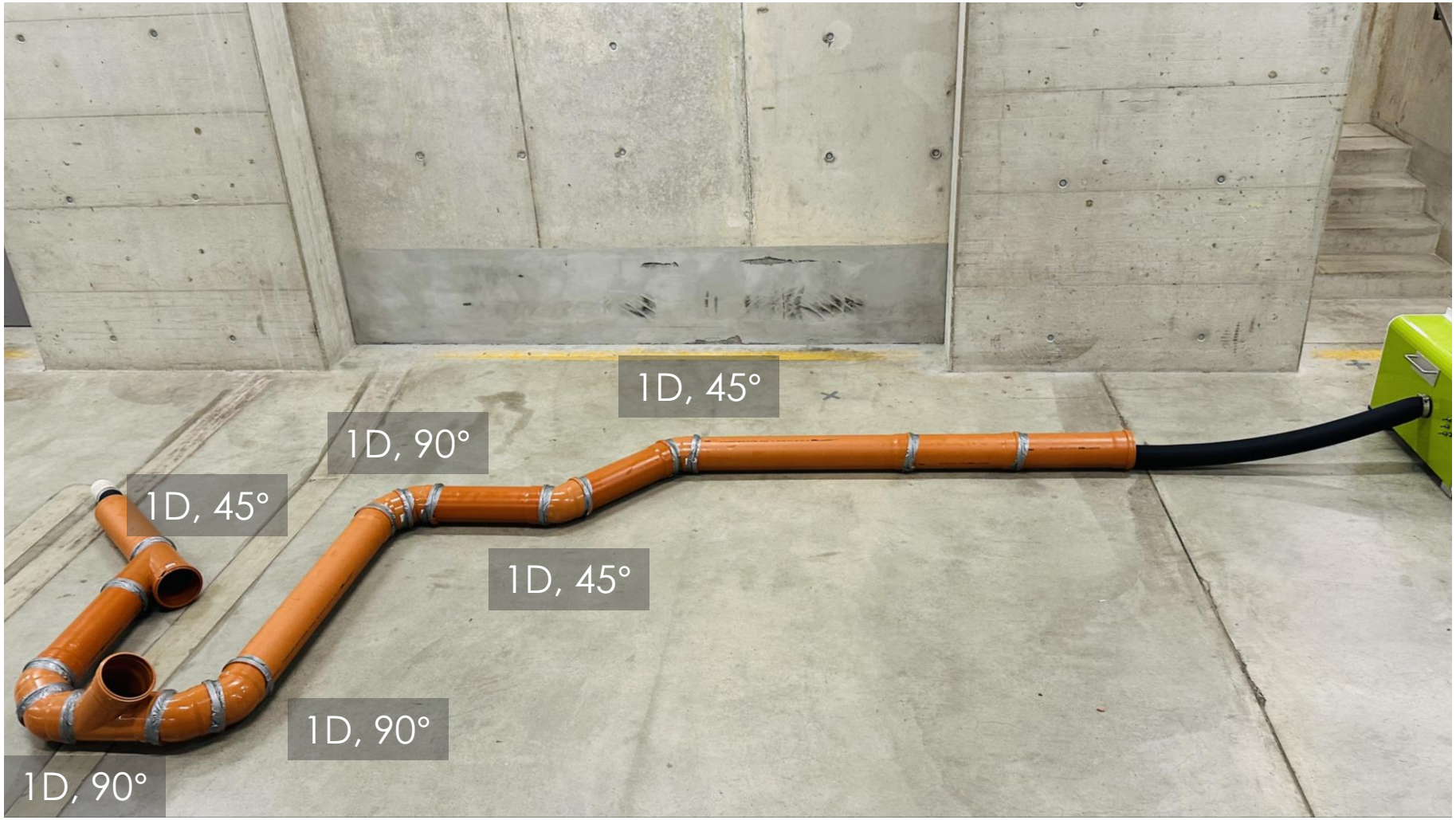

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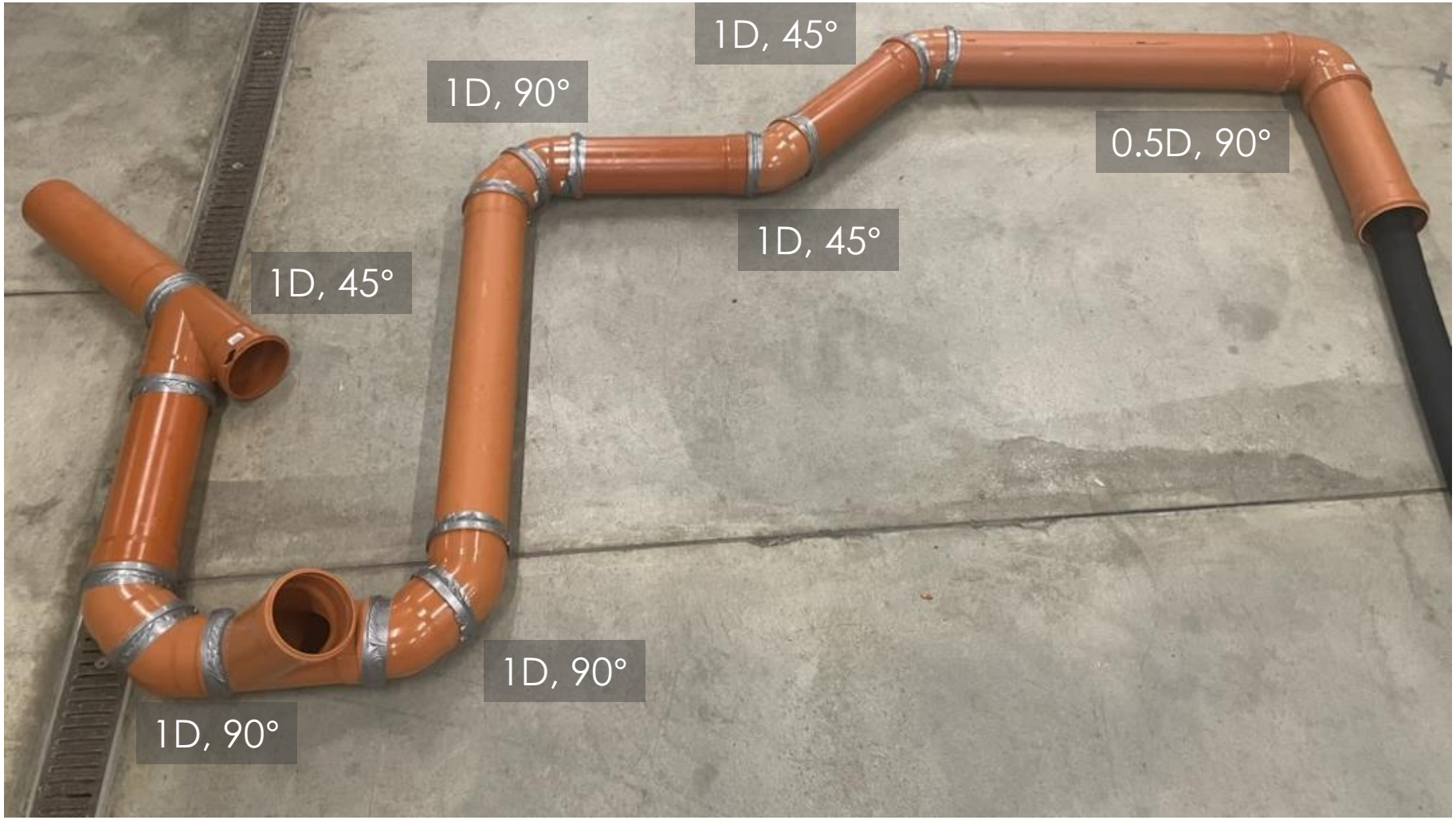
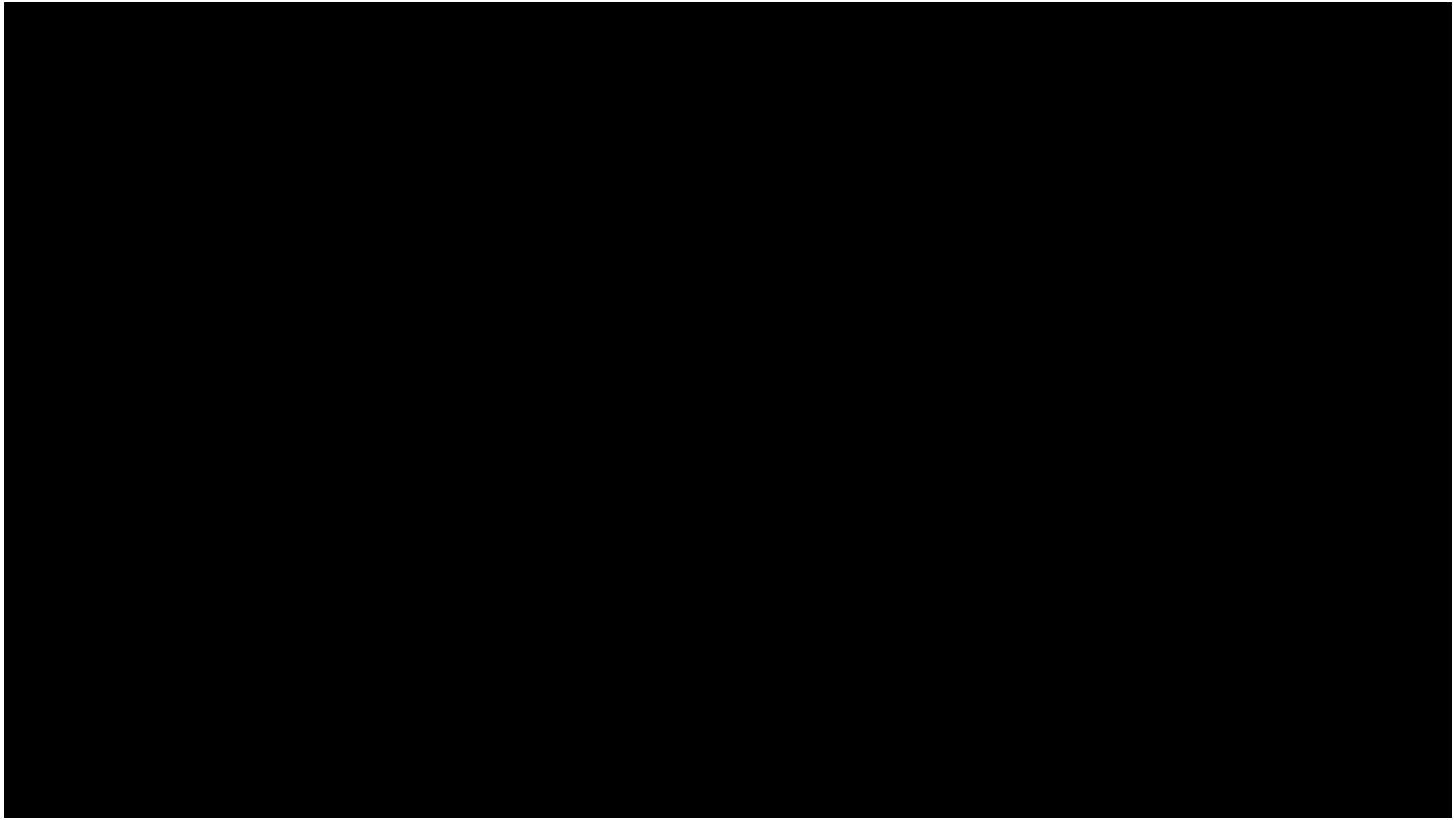


- 6" pipe
- 9 meters
- 1 min travel
- 9 m/min
- 1D bends
- 495° in total

- RoBoa moves around **bends easily**.
- RoBoa is **fast**.

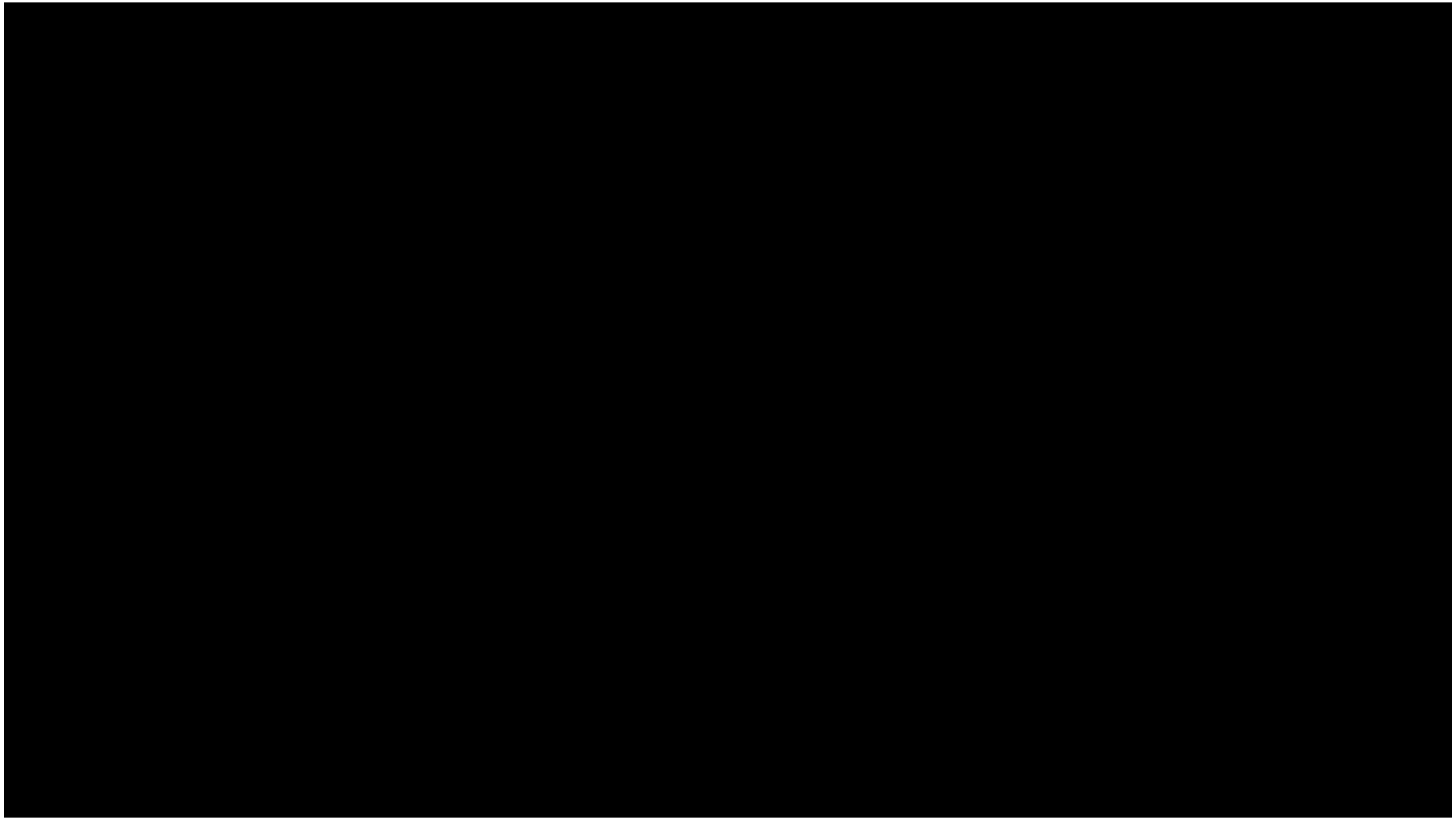
Case Study 2: **Wet sewer**



- 6" sewer
- 15 meters
- wet conditions
- entering from above

- RoBoa works on different **surfaces**.
- RoBoa has no problems in **wet conditions**.
- RoBoa **steers** into sewers and pipes.

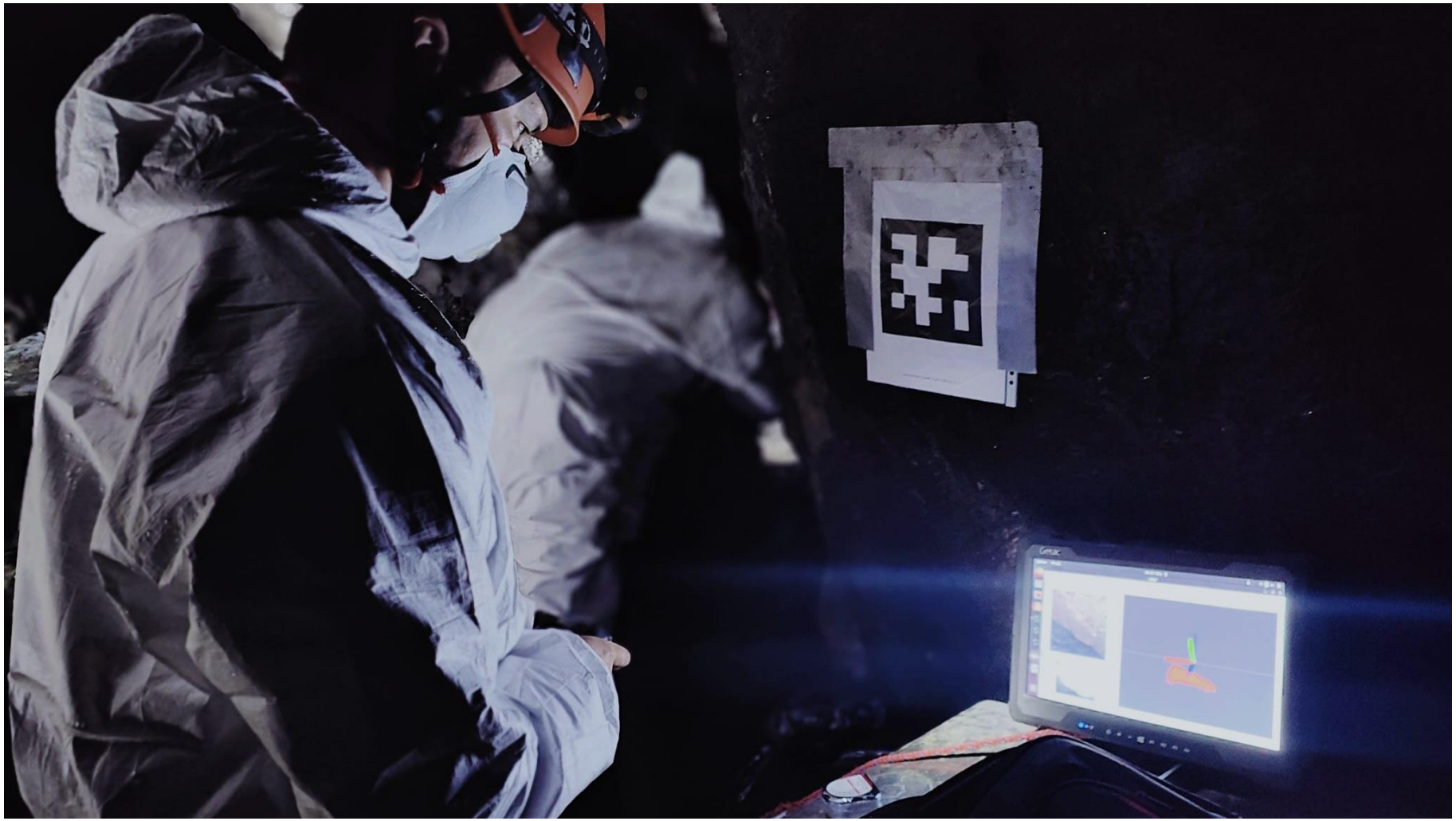
Case Study 3: **Collapsed building**



- building after earthquake
- 20 meters
- challenging terrain and surface
- small and open areas

- RoBoa moves over **any surface**.
- RoBoa **steers** along **complex** paths.

Case Study 4: **Exploded bunker**



- 3-day mission
- unexplored caves of up to 12 meters
- extremely challenging terrain, including vertical passage

- RoBoa is **robust** in the most challenging environments.
- RoBoa can perform **long missions**.
- RoBoa **always comes back**.

Our **prototype** demonstrated **robustness and capabilities** in challenging missions!

Now, it's all about **product development!**

RoBoa will transform the inspection of **process pipes**

Early Adopter Program to develop market-ready product

Your Advantages

- Early **tests**
- **Influence** our technology **development**
- Quick **integration** of product
- New **robotic inspection** tool

Our Advantages

- Practical **understanding** of the application
- **Experience** from testing
- Help with **market entry**
- Early **revenue**

What we are **looking for** …

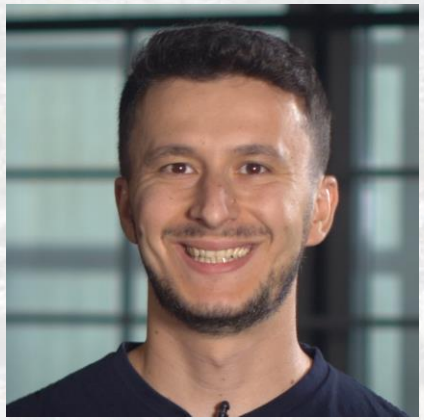
Insights into the Industry

- ✓ Deeply understand the "**pain points**" of inspection providers and plant owners.
- ✓ Understanding the **operating framework** of inspection.

Partners & Pilots

- ✓ Early adopter **partnerships**.
- ✓ **Cooperation in developing** our technology.
- ✓ **Test** RoBoa on real sites.
- ✓ **Gather feedback** for continuous improvement and development.

Our **team** at ETH brings RoBoa to the market



Betim Djambazi

Teamlead

MSc Mechanical Engineering
ETH Zurich

Alexander Kübler

Business Development

MSc Mechanical Engineering
ETH Zurich & Stanford University

Pascal Auf der Maur

Technical Development

MSc Robotics, Systems & Control
ETH Zurich

Nicolas Aymon

Finances & Operations

MSc Mechanical Engineering
ETH Zurich

Roland Siegwart

Advisor

Professor ETH

ETH zürich

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

ETH zürich
pioneer fellowship

TALENT KICK

Autonomous Systems Lab

LVb G/Rttg/ABC

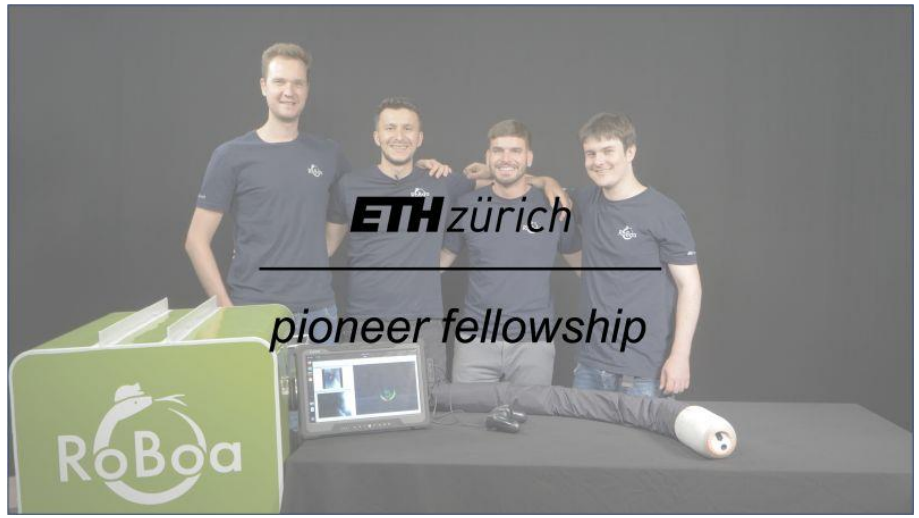
swissnex

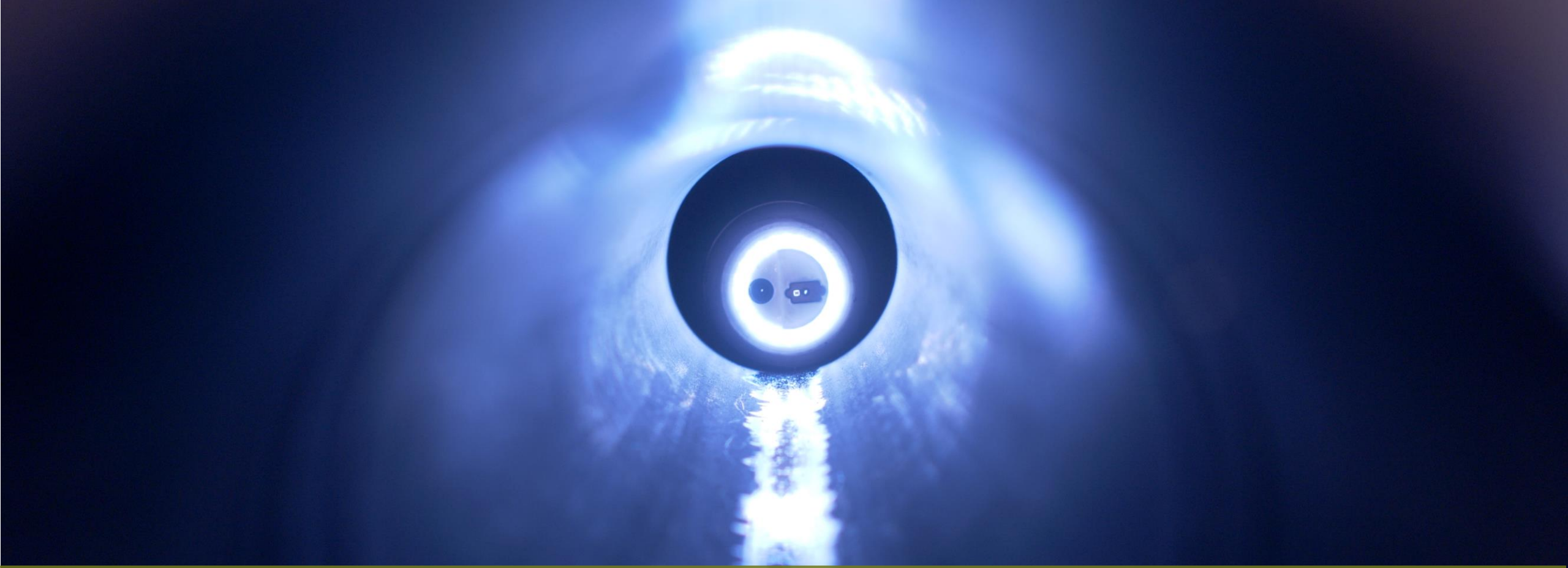
venturelab

2019 – 2020: ETH bachelor project

2020 – 2023: ETH master

2023 – …: Establishing a business





Let’s build the robotic revolution to
go where nothing else goes!

RoBoa

SUSTAINABLE DEVELOPMENT GOALS

3 GOOD HEALTH AND WELL-BEING

6 CLEAN WATER AND SANITATION

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

The robotic revolution to **go where nothing else can go!**

- Length of ~100 m
- 3D steering
- Down to 2" pipes
- Advanced Sensing
- Communication
- Supply of liquids
- Safety in explosive areas
- Easy operation
- Modular design

info@roboa.ch

www.roboa.ch

www.linkedin.com/company/roboa

RoBoa
Autonomous Systems Lab
ETH Zürich
Leonhardstrasse 21 / LEE J
8092 Zurich
Switzerland