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POLITECNICO
MILANO 1863
ellis
AIRIC
ML

Foundational research

Expected outcome

- A new scientific breakthrough
- Publication in a top-ranked venue

Primary perspectives

- National/international research laboratories
- PhD program
- AI/ML scientist

Industrial research

Expected outcome

- Design of a Proof of Concept
- Real-world test

Primary perspectives

- Industrial research and development (R&D) groups
- AI/ML scientist/engineering

Industrial deployment

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Creating the **AI** of the **future**

amazon

Meta

Google

Microsoft

Massachusetts Institute of Technology

Columbia University

Carnegie Mellon University

Harvard

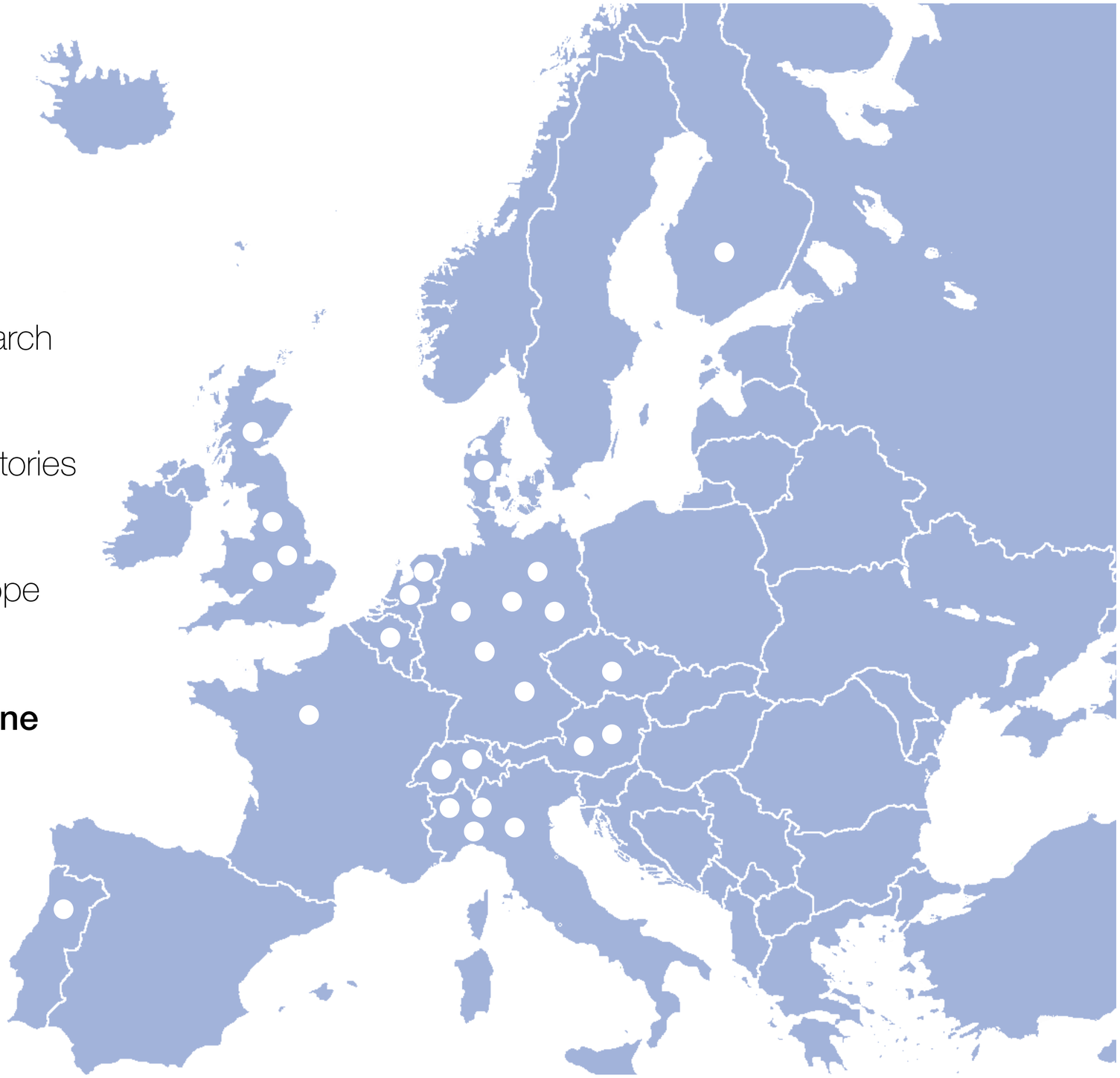
European Laboratory for Learning and Intelligent Systems

Ellis gathers European excellence in scientific research

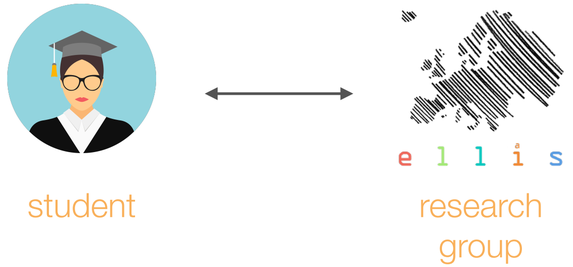
Goal: competing with the top US and China laboratories

Since September 2019, > 30 units created in Europe

Ellis Milan Unit is the largest Italian unit and one of the European top



Foundational research



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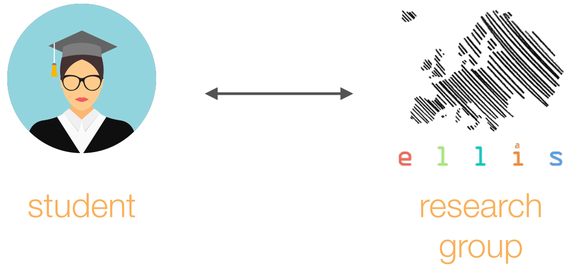
aaai
ICML
International Conference
On Machine Learning

KDD
IJCAI
ec

NEURAL INFORMATION
PROCESSING SYSTEMS
ICLR

Foundational research



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Supporting the **AI revolution** of the companies

AGRATI
World Fastener Solutions

TERRANOVA
INNOVATIONS FOR UTILITIES

INAIL
ISTITUTO NAZIONALE PER L'ASSICURAZIONE CONTRO GLI INFORTUNI SUL LAVORO

Atos

snam

AGRATI
World Fastener Solutions

digitiamo

MBDA
MISSILE SYSTEMS

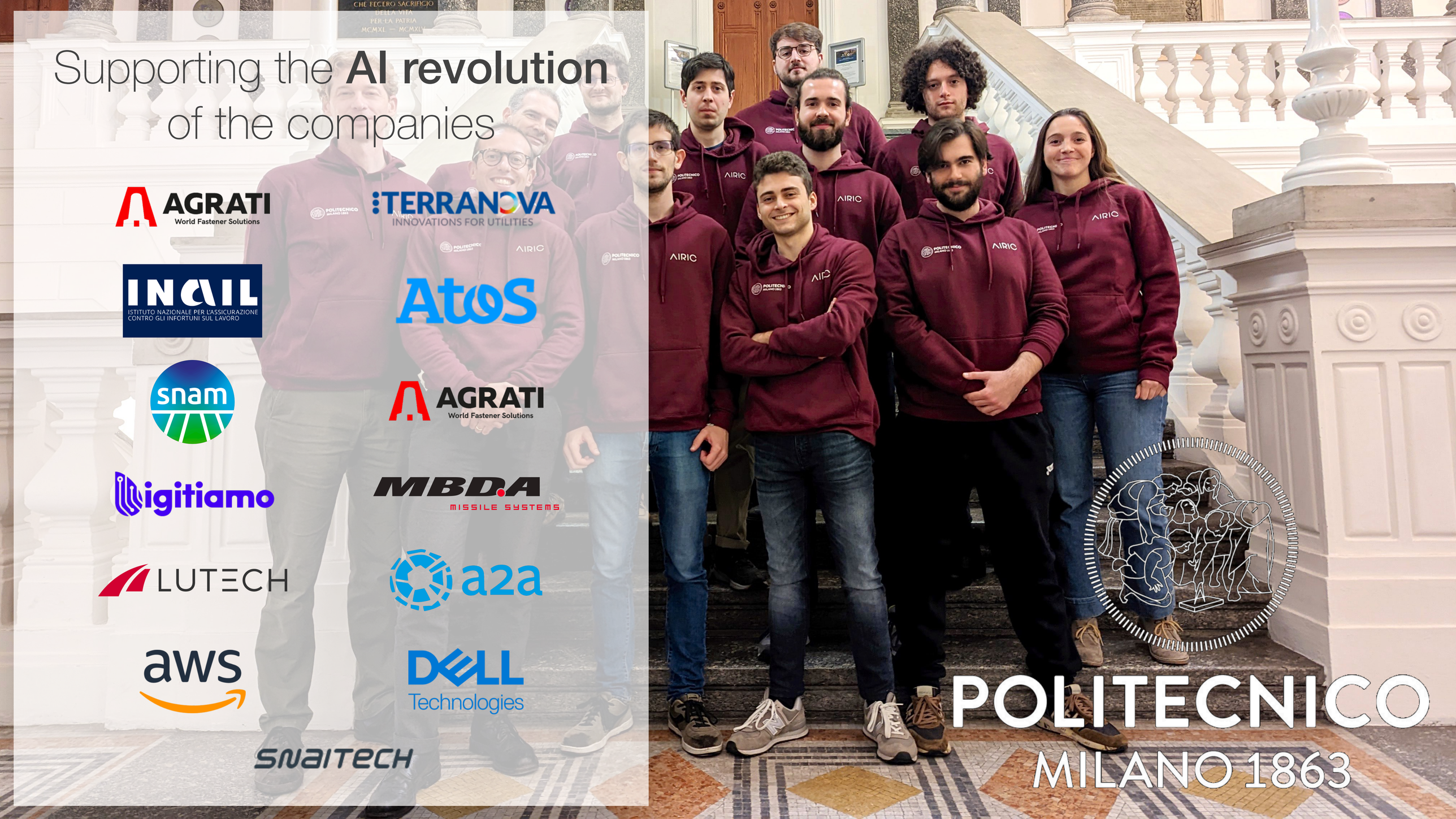
LUTECH

a2a

aws

DELL
Technologies

SNAITECH



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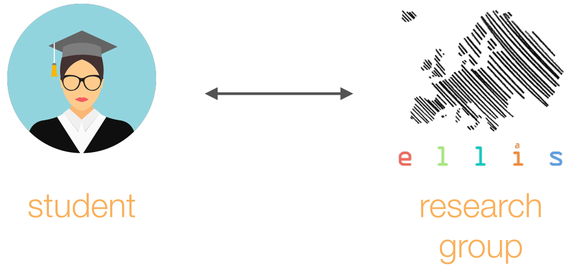

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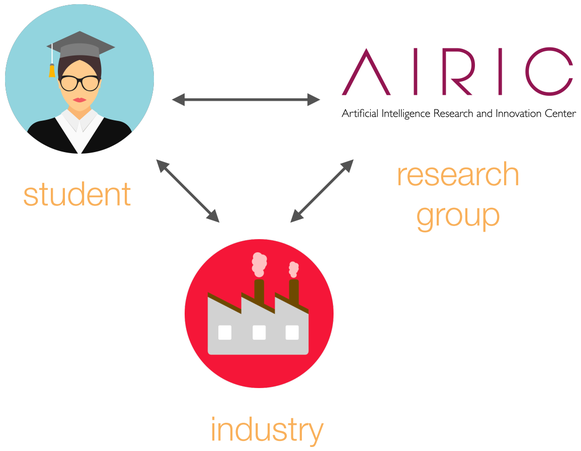

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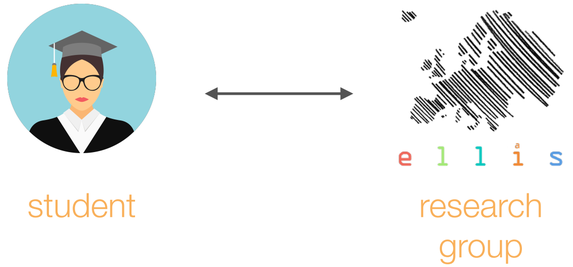

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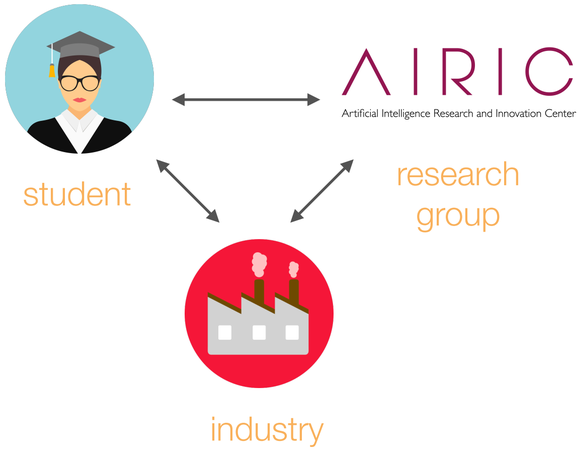

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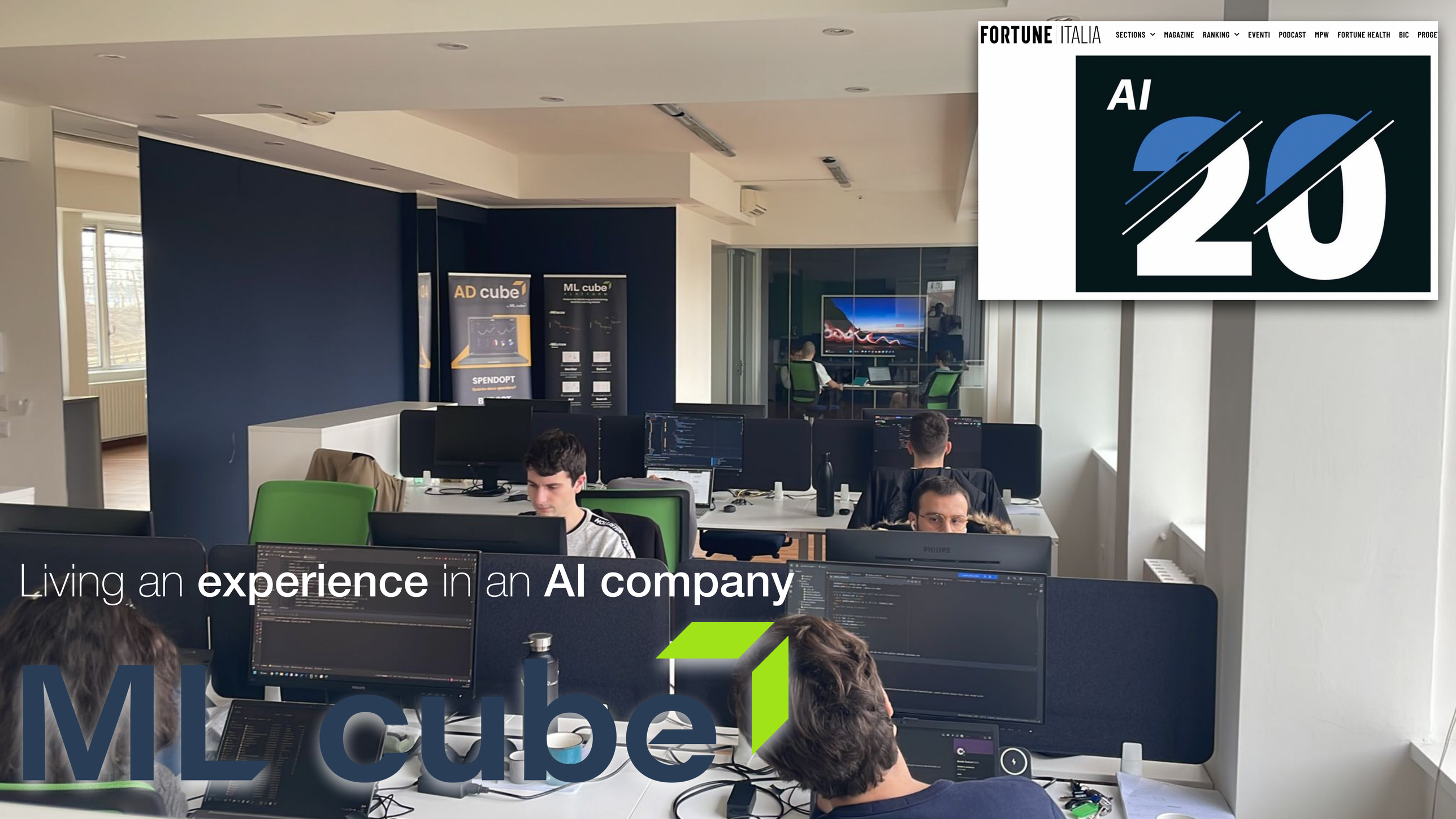


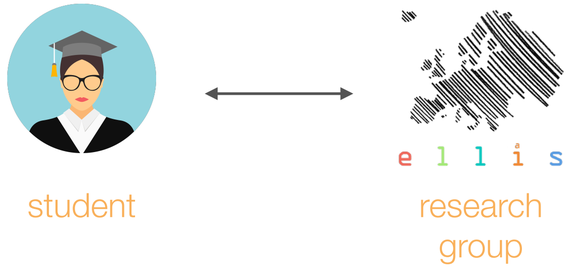
FORTUNE ITALIA SECTIONS MAGAZINE RANKING EVENTI PODCAST MPW FORTUNE HEALTH BIC PROGE

AI 20

Living an **experience** in an **AI company**

ML cube

Foundational research



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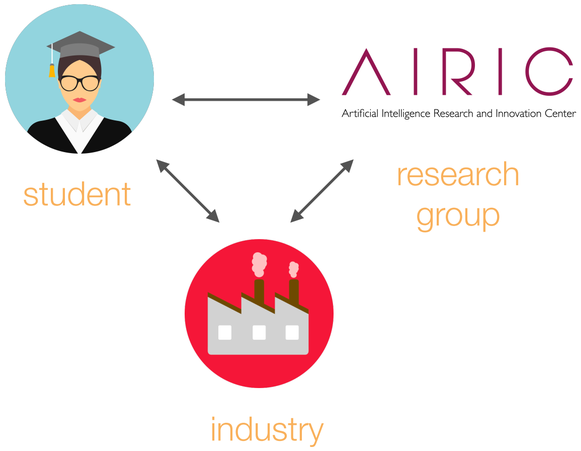

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Machine learning

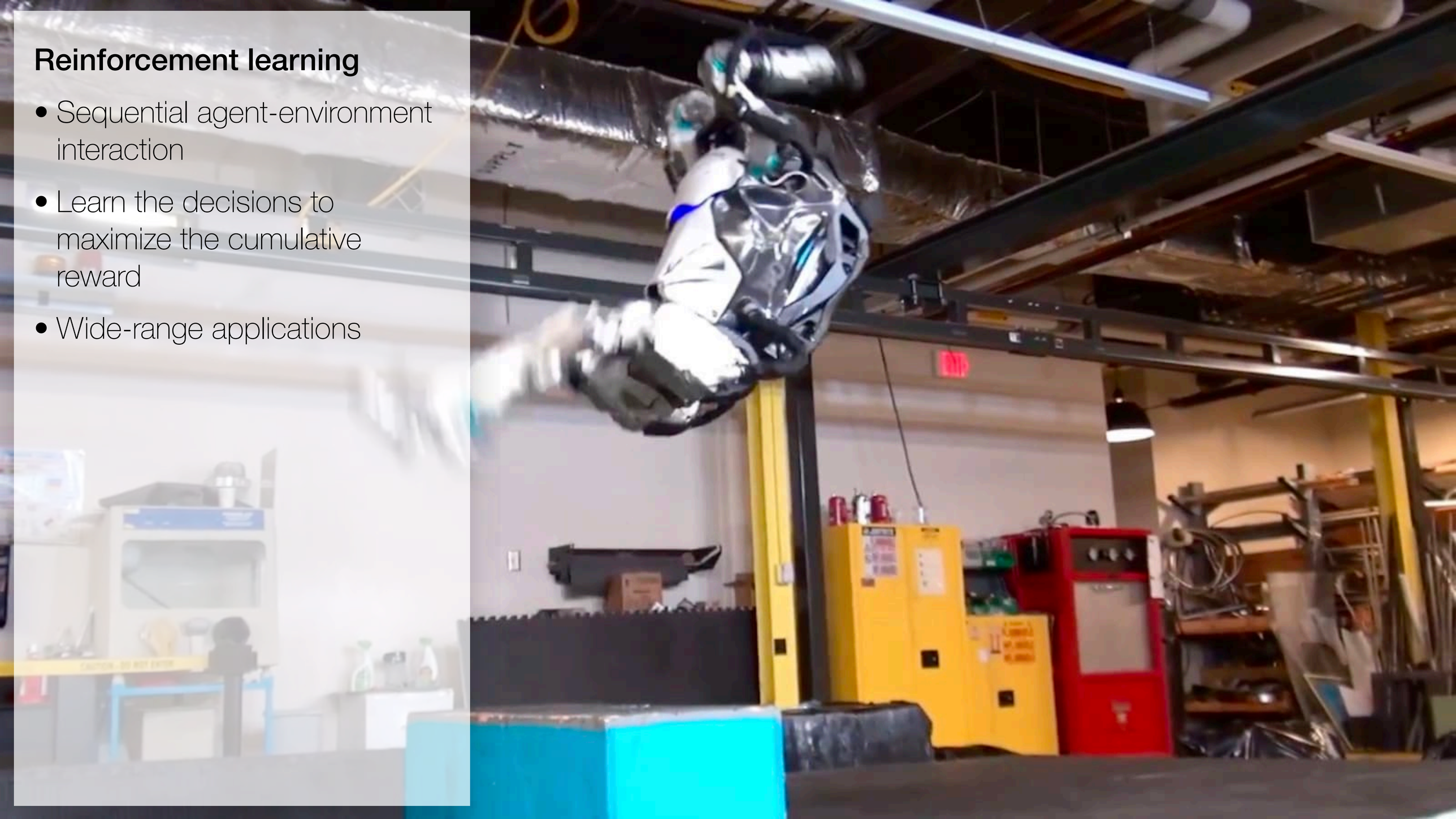
Machine learning

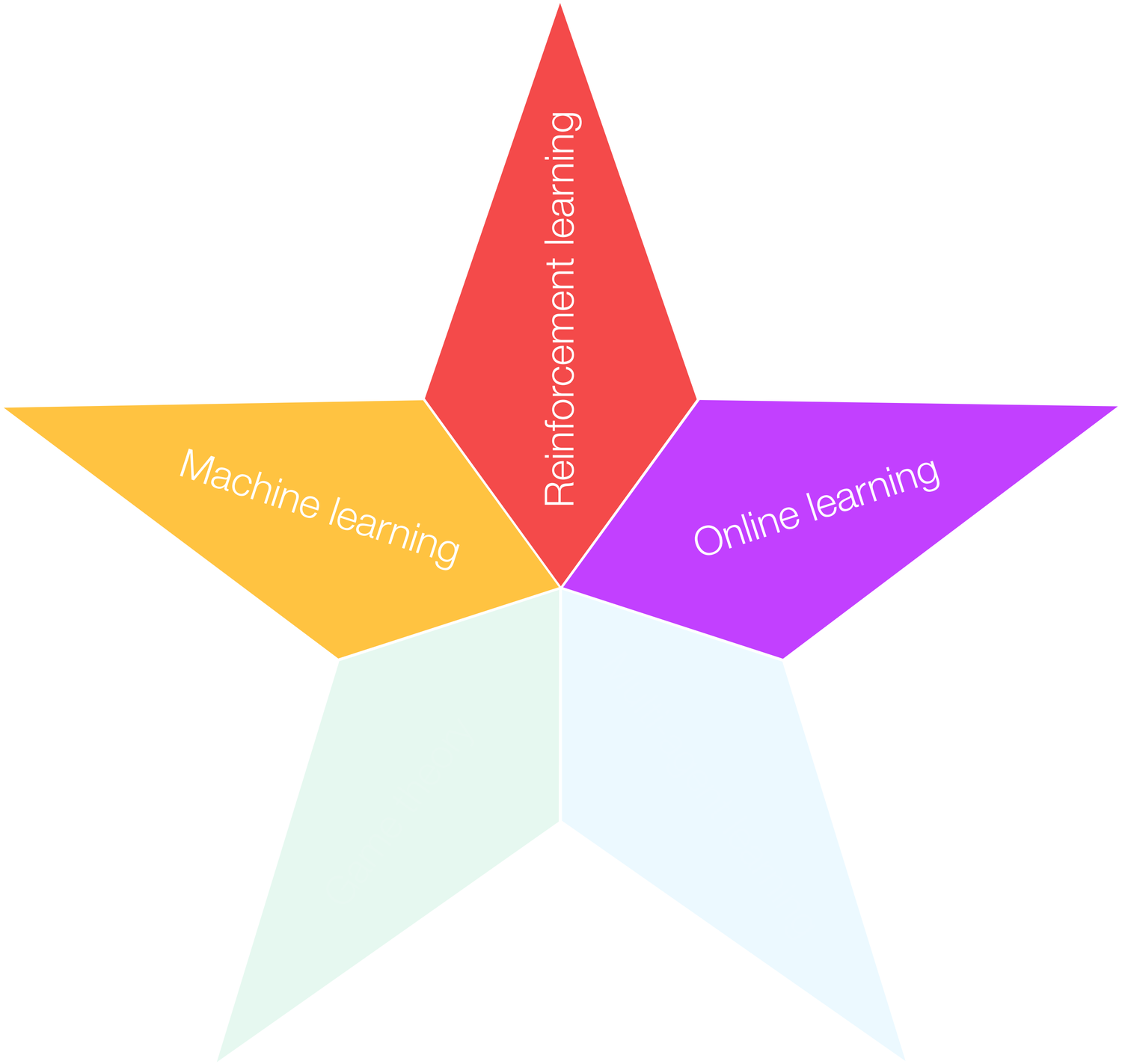
- Data-driven learning of models
- Learn to predict target variable and/or group data based on their characteristic
- Address complex high-dimensional sparse datasets

Reinforcement learning
Machine learning

Reinforcement learning

- Sequential agent-environment interaction
- Learn the decisions to maximize the cumulative reward
- Wide-range applications




Reinforcement learning
Machine learning
Online learning

Online learning

- Learning during execution time
- Converge guarantees even in non-stationary environments
- Wide-range applications (e.g., marketing and commerce)

Reinforcement learning
Machine learning
Online learning
Multi-agent learning

Multi-agent learning

- Decision-making in complex competitive and cooperative scenarios with multiple agents
- Use game theoretical notions of equilibrium to prescribe behavior to agents
- Learn under adversarial environment (usually by online convex optimization)

Reinforcement learning
Online learning
Multi-agent learning
Algorithmic game theory
Machine learning

Algorithmic game theory

- Modeling complex situations with multiple rational entities
- Assessing the complexity of computing optimal solutions
- Applying algorithms to economic settings (e.g., persuasion and contracts)

Foundational research

Industrial research

Industrial deployment

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Machine learning
Reinforcement learning
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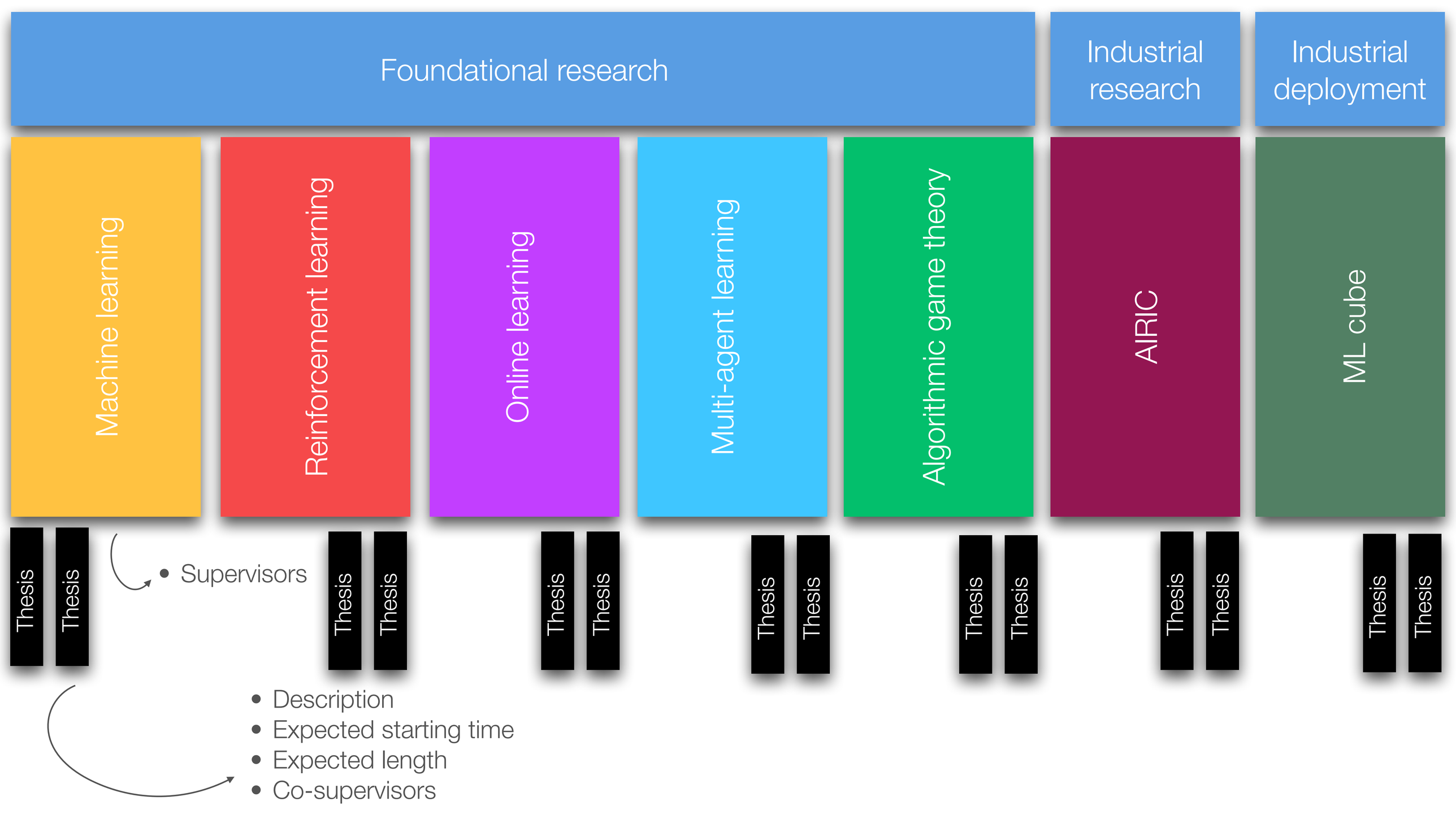
Multi-agent learning
Algorithmic game theory
AIRIC
ML cube
Supervisors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Supervisors
Description
Expected starting time
Expected length
Co-supervisors

Read the description of the thesis proposals here

Bid the thesis proposals you are interested in here

Deadline: September 13, 11:59 pm