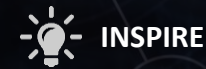




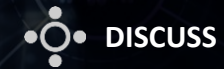
Fall Series 2021  
Robots, Automation and  
Learning Systems  
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INSPIRE



CONNECT



DISCUSS



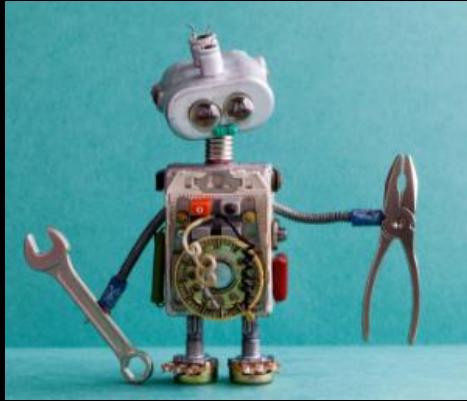
IGNITE

# Physical Human-Robot Contact Detection

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# Motivation (why)

## Today's needs for industry

- We want a robot to be smart and easy-to-use like a **smartphone** to help human workers in doing their tasks.
- But how and what to do with a BRAINLESS, BLIND, DEAF, DUMB, and largely INSENSIBLE “metal fellow”.

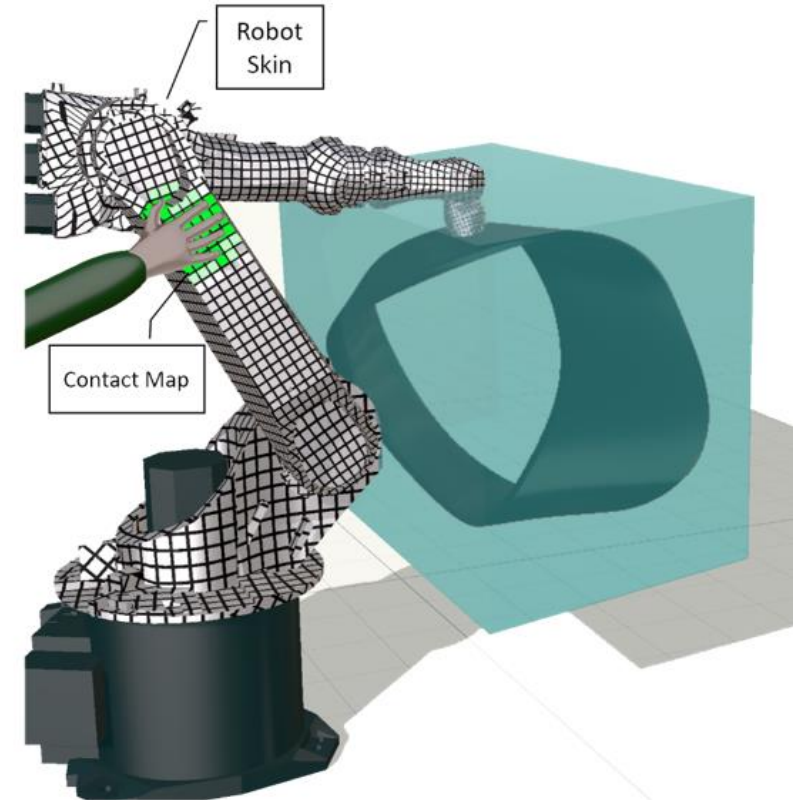
## My Motivation

- Making robots more intelligent by giving them more sensory skills, cognition, and the ability for proactively behaving in complex situations.



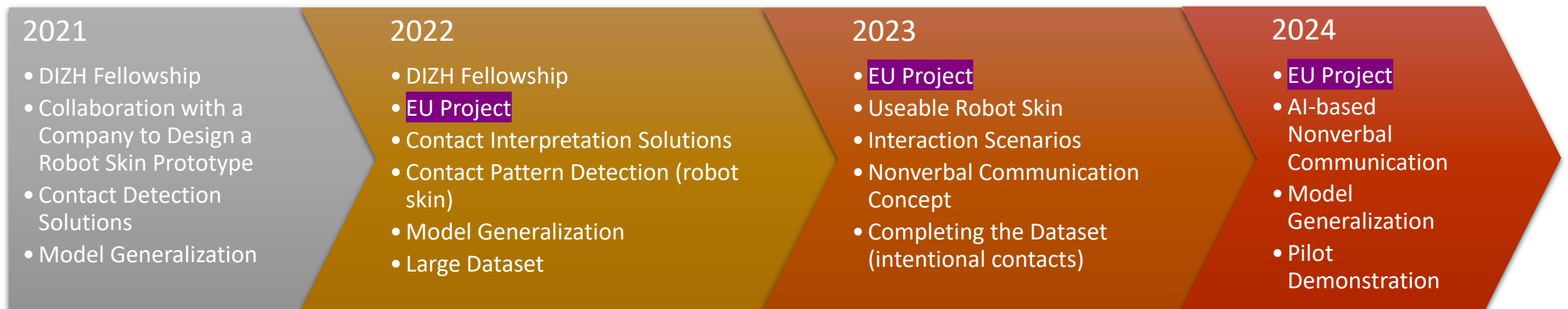
# Challenge

- What is cooperation without physical contact?
  - Robot sensor data is not enough!
  - Contact location along the robot arm
  - Multiple contact detection
- What is sensation without understanding?
  - How is the touch pattern?
  - Is the physical contact intentional or incidental?
  - What does a human want the robot to do?



# Support (how)

- **Discussion**: getting ideas about solutions for artificial skin
- **Know-how**, in AI to interpret physical human-robot contacts, develop nonverbal communication and increase the model generalization power (we have a pilot dataset to work with)
- **Software**, for human-robot nonverbal communication
- **Access to data**, we want to collect a larger dataset.



# Contact

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