



Provides the **Human Sense  
of Touch** to Robots



# About XELA



WE ARE A

**Hardware and Software Company**

INTO

**Tactile Sensing Technology**

ESTABLISHED TO

**Provide the Human Sense of Touch**

## Quick Facts

**70+**

- Combined Years of Tactile Sensing Experience
- On the Forefront of Tactile AI

**2018**

- Started as a Spin-out from Waseda University

## Contact Information

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# Our Mission

Why are we doing this?

# Labor Shortage



The problem that many countries, including Japan, are experiencing is a labor shortage due to our rapidly aging society and associated with that is a high cost of human labor.




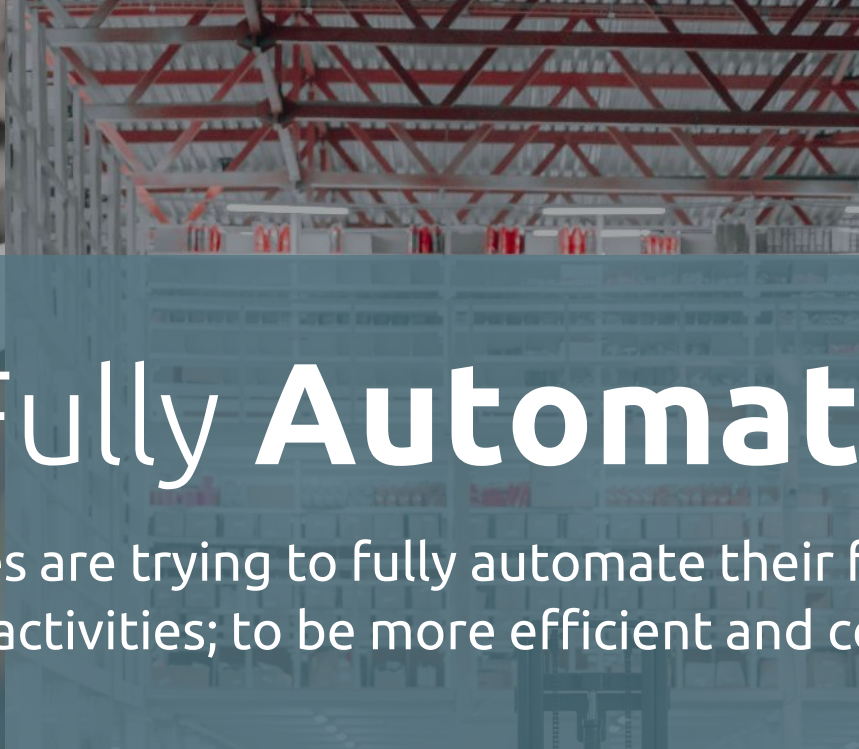


# Fully Automate

To combat this, companies are trying to fully automate their factories, warehouses, and agricultural activities; to be more efficient and cost-effective.



**Factory**  
Operations



**Warehouse**  
Operations



**Agricultural**  
Activities

# The Reality

unfortunately remains that robots are still very clumsy and not yet ready for many tasks.

Robots **Cannot**  
**Perform** All Tasks





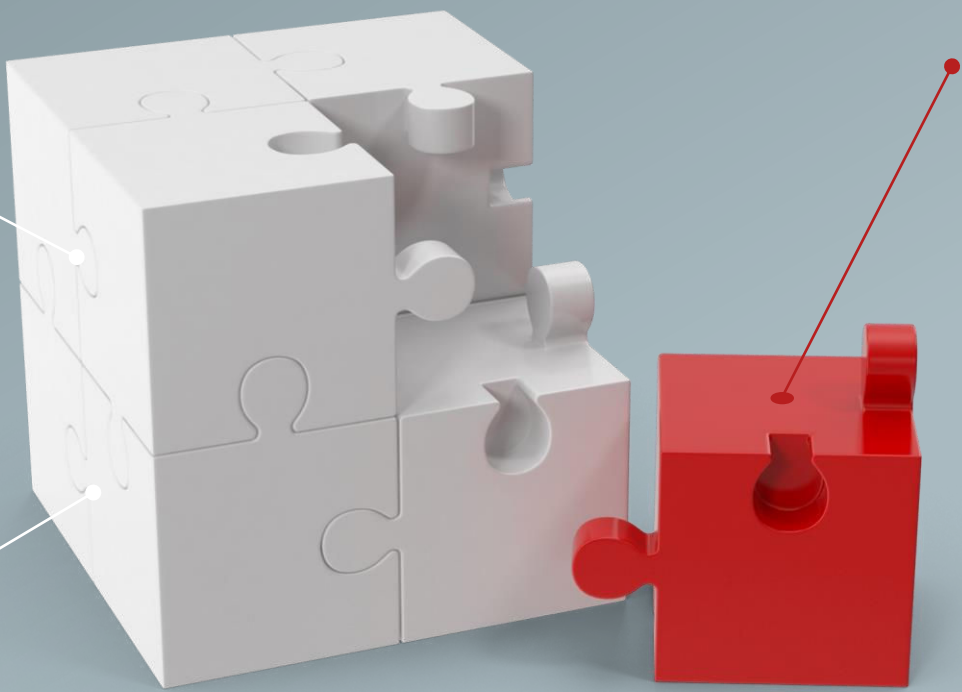
# The Missing Piece

Most companies focus on **Visual Data** and **Smart AI**, which are very important to locate an object. However, visual data is not enough to grasp, hold, and manipulate an object. **Tactile data** is required to solve this problem.

**Smart AI**

**Locate an Object**

**Visual Data**



**Tactile Data**

**Securely Handling  
an Object**

**Few Competition**

# Our Solution



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# Our Solution



## High-density 3-axis **Tactile Sensors**

Available in various shapes and sizes, in a thin, soft, durable package with minimal wiring.





Example

**XR1911 | 1x1**

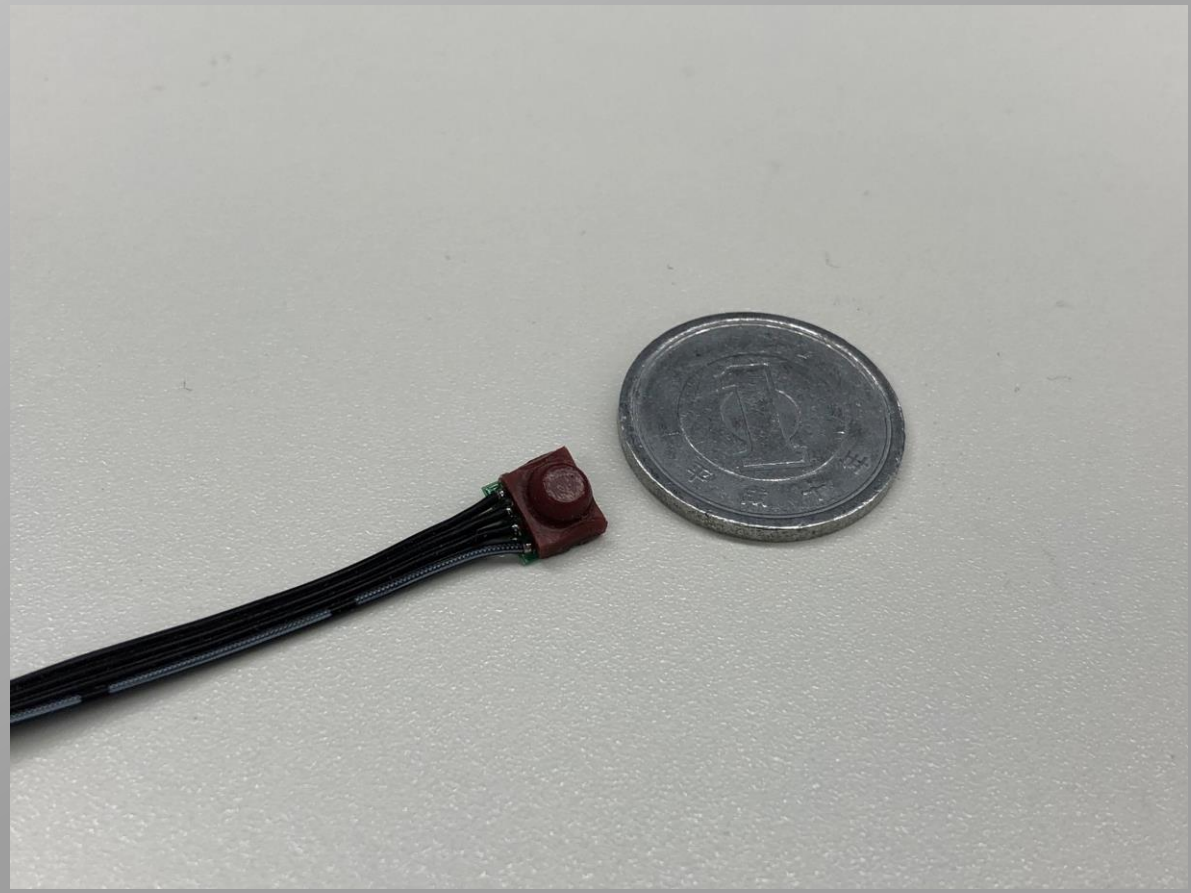
Small → can be mounted on various surfaces

3-axis force sensing

Customization is available upon request

Size

XR1911 | 1x1 : 5.5 x 6.4 x 4.6 mm



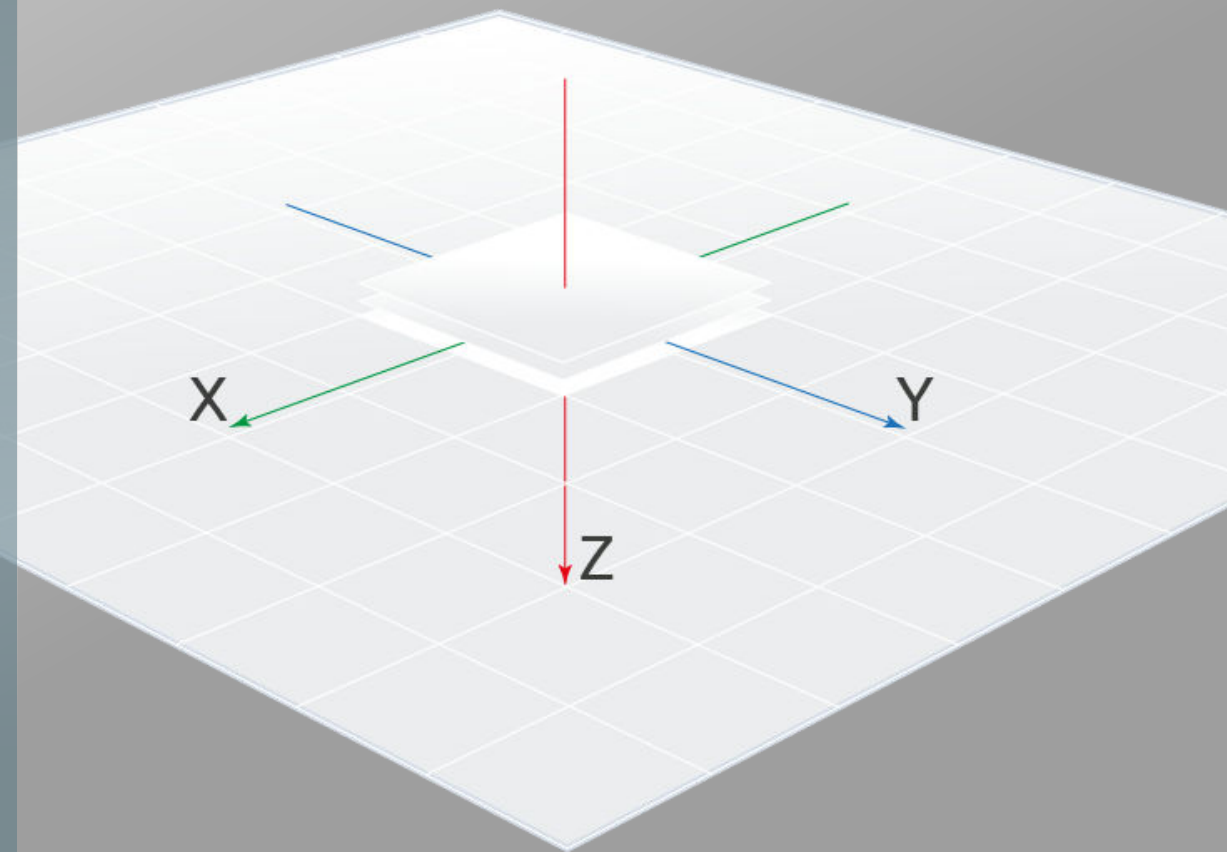


## High Density 3 Axis Measurements

Each taxel in a uSkin sensor module mimics a joystick, measuring **X**, **Y** and **Z** forces:

- (X, Y) **Shear forces** tangential to the surface
- (Z) **Normal force** perpendicular to the surface

Providing you with a more detailed and accurate data collection.





Example

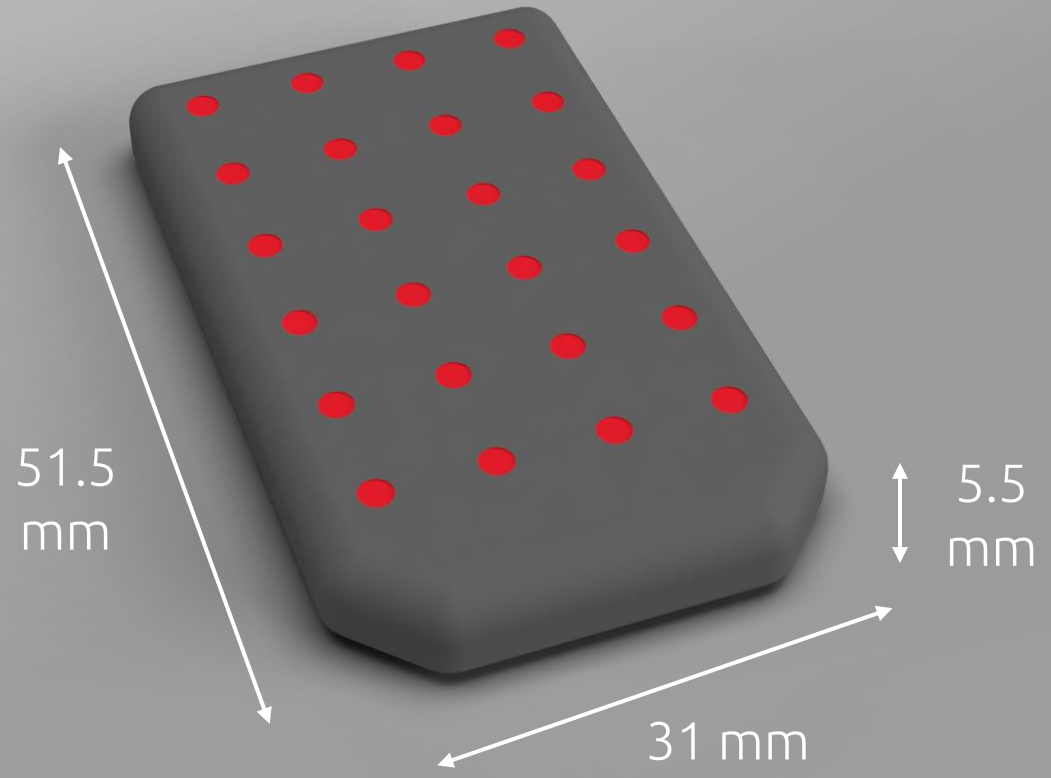
## XR1946 | 4x6

The XR1946 is one of our most popular models and includes 24 individual sensors.

The technology in every uSkin sensor patch is the same and every sensor can measure 3-axis force, not only pressure, and can be customized for your specific application.

### Dimensions

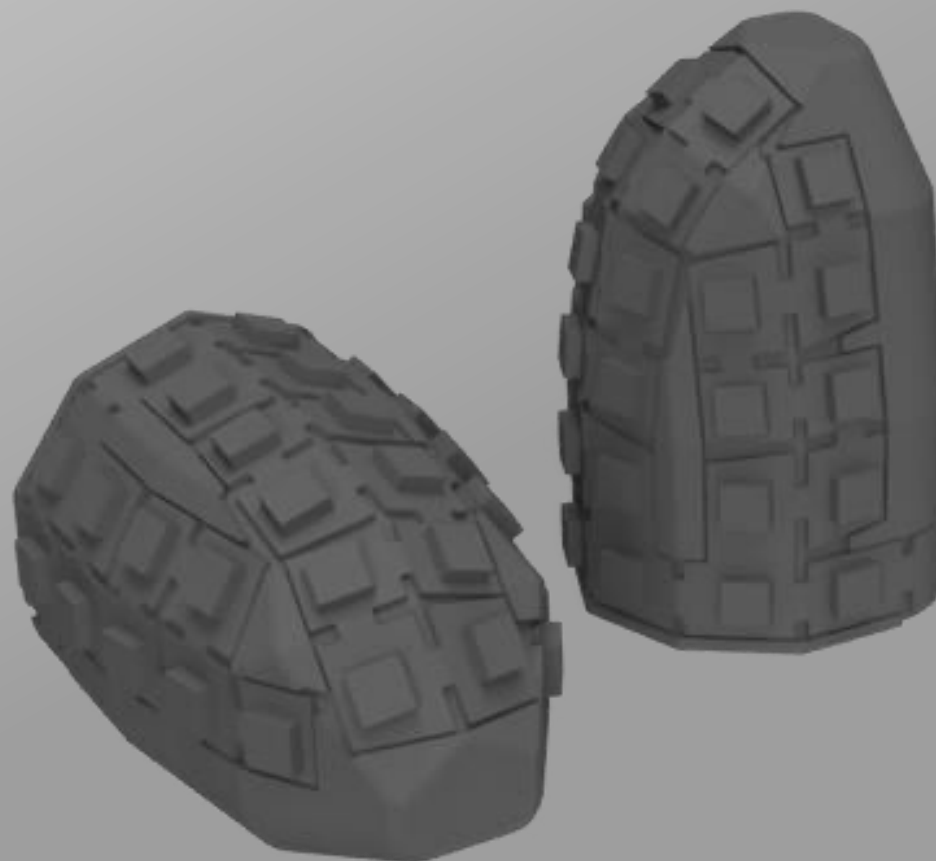
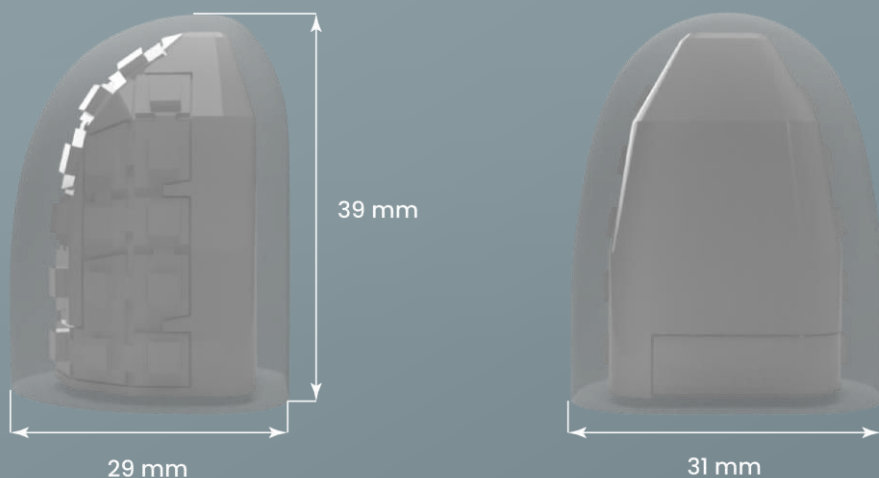
- XR1911 | 1x1 : 5.5 x 6.4 x 4.6 mm
- XR1921 | 2x1 : 6 x 10.5 x 5.5 mm
- XR1922 | 2x2 : 10.5 x 10.5 x 5.5 mm
- XR1944 | 4x4 : 24 x 28 x 5.5 mm





## Fingertip Design Our Newest Model

Each uSkin Curved has 30 taxels and the soft, durable, and curved design allows for a more natural interaction with the object.



# Comparison



Compact

Durable

Easy  
Integration

Distributed  
3D Sensing

Cost  
Effective

**XELA** ROBOTICS



**ATI** INDUSTRIAL  
AUTOMATION

X



X

X

X

SynTouch



X



X

X

**GELSiGHT**

X

X

X



X



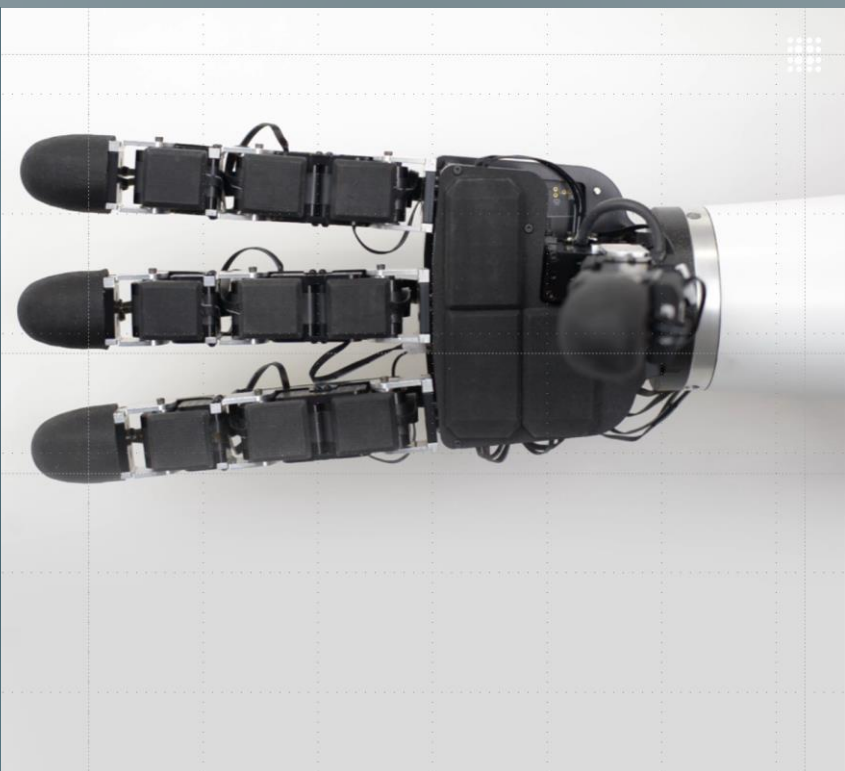
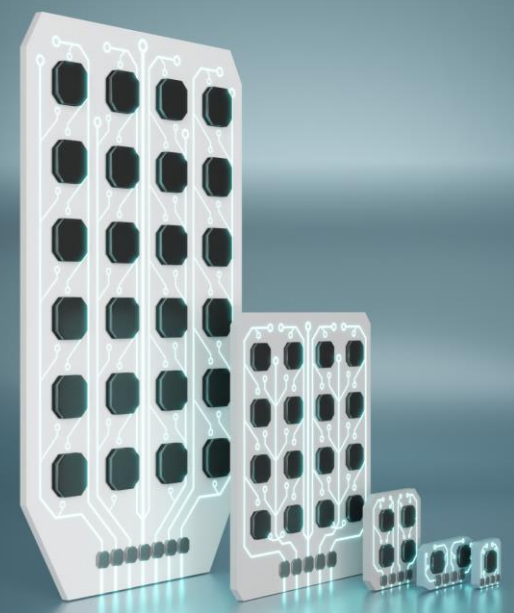
# Our Core

XELA Robotics is specialized within three different fields.

**Tactile Sensor**  
Development

**Integration**  
Robotic Hands & Grippers

**Software**  
Development

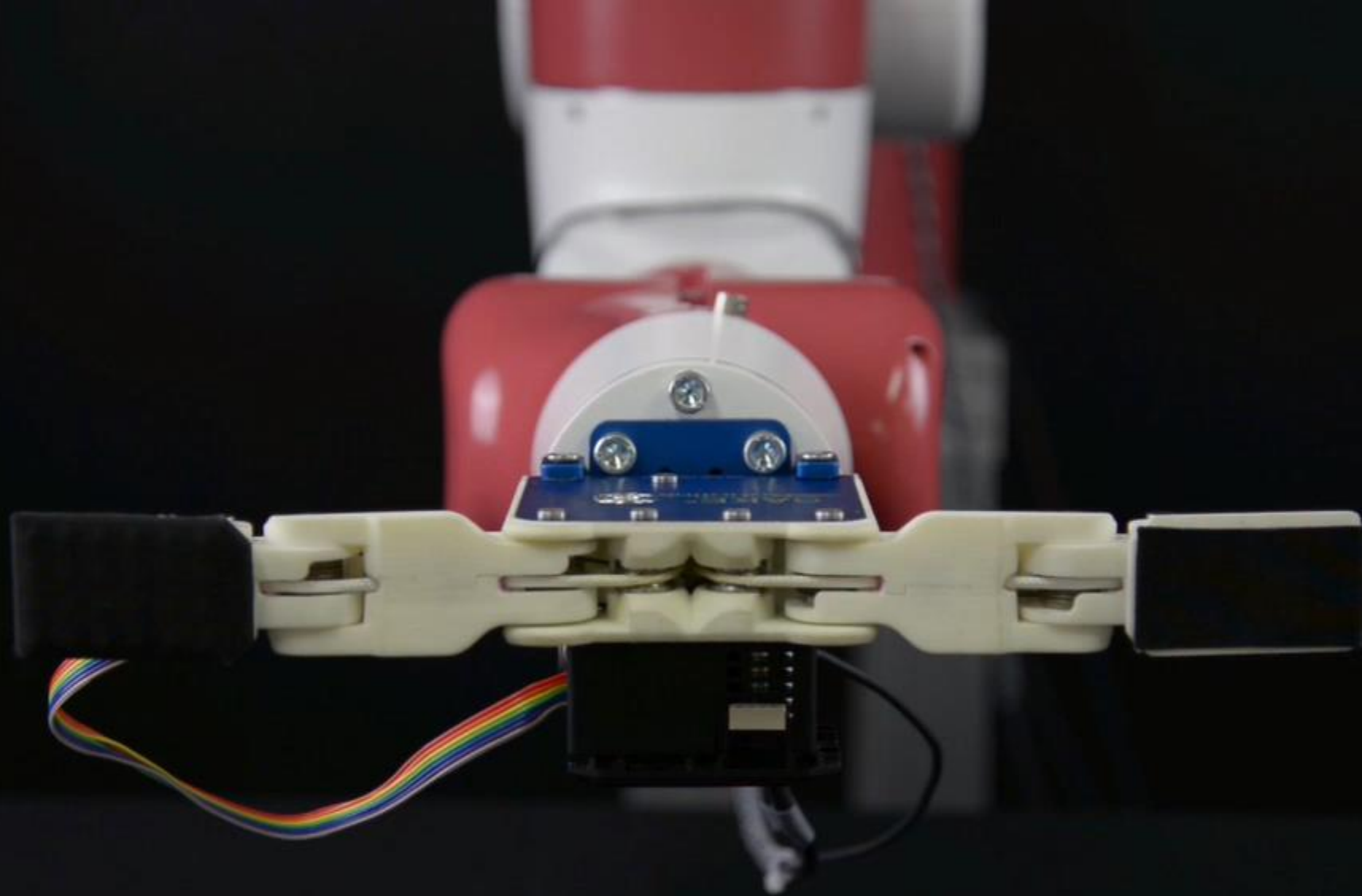




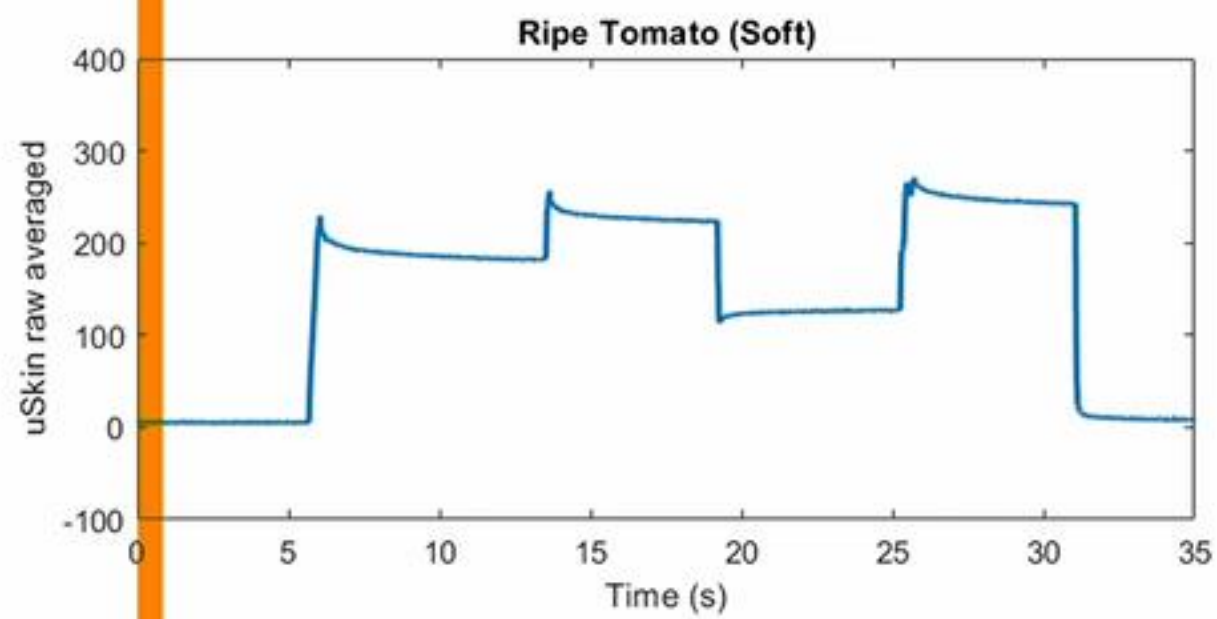
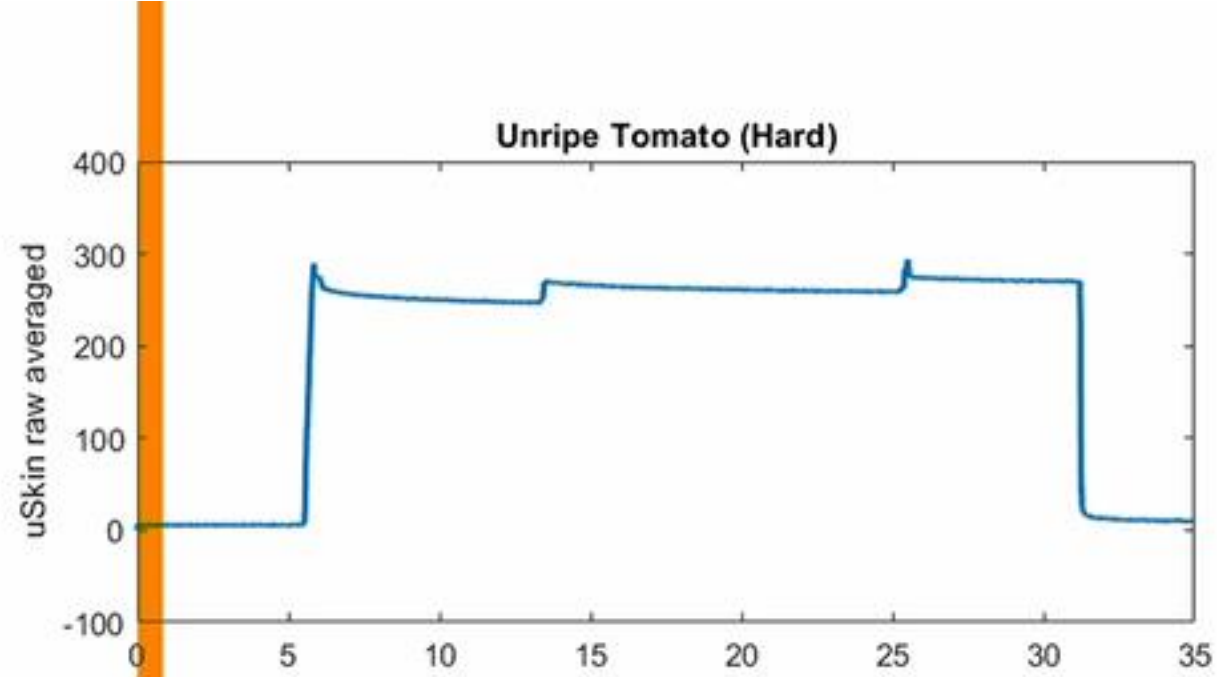




# Grasping Fragile Objects



USKIN FEATURE:  
**SLIP DETECTION**



# Our Clients

**SAMSUNG**

**HITACHI**

 **TAKENAKA**

 **TOYOTA**



**OMRON**

**HONDA**



KONICA MINOLTA

**DENSO**  
DENSO WAVE

 Preferred  
Networks

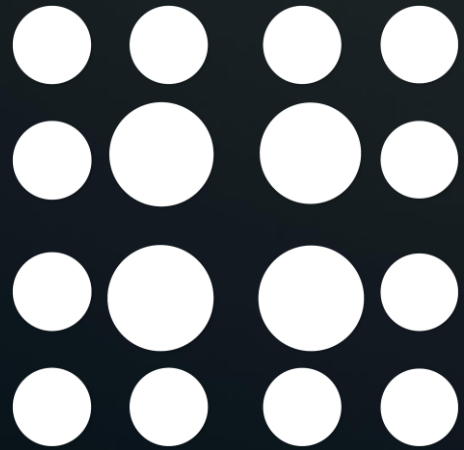
**Nikon**

 **ACE**

 UNIVERSITY OF  
CAMBRIDGE



 東京大学  
THE UNIVERSITY OF TOKYO



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