



**UNSW**  
SYDNEY



## Tactile Sensing for Dexterous Robotic Manipulation

**Robots need a sense of touch if they are to match human capabilities. This patented technology replicates the human sense of touch without being limited by size, strength, environment or fatigue.**

### Competitive advantage

- Soft sensor design can measure 3-D localised force, 3-D localised deflection, 3-D localised vibration, torque, incipient slip and friction at the gripper-object interface. All are the essential parameters for determining whether an object is securely grasped
- The size, density, compliance, measurement range and sensitivity of the sensor can be customised and there are no electronics in the contact surface
- The sensor is resistant to shock, water and chemicals and can be food safe

### Impact

- Enhanced remote tactile sensing for applications such as surgery, unmanned exploration and disarming mines
- Improved robotic gripping for applications such as pick-and-place, disaster response and assistance robots
- More-precise slip sensing in feet for legged robots and exoskeletons

### Successful applications

- Demonstrated large scale sensor prototype with 99% accuracy and 98% precision in force and deflection measurement.
- Demonstrated large scale intelligent gripper prototype with ability to grasp objects of varying friction and weight using an optimal grip force
- Participation in the Commonwealth Scientific and Industrial Research Organisation (CSIRO) ON Accelerate start-up accelerator program for commercialisation

### Our partners

- US Office of Naval Research Global

### More Information

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