

Wrin'Tac: an Active Sensorized Body for Dual-Assessment of Self Deformation and External Interaction

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Conventional sensors' sensing abilities are determined by embedded sensing elements, with the number of modalities depending on the number of corresponding sensing elements. Sensing elements are in fixed locations corresponding to specific sensing tasks. In the present study, we utilize a wrinkled morphology to actively change its sensing abilities in interaction with its environment, using single type sensing elements. Our proposed prototype involves integration of an actuator and strain gauge sensing elements. Under air pressurization, wrinkle patterns can be constructed and deconstructed to alter the posture of sensing elements beneath the skin, resulting in changes in sensor outputs. Preliminary results are expected to pave a new way for exploring the application of morphological control in active tactile sensing systems.

