

## Design, Fabrication and Calibration of a Silicon Micro Force-Torque Sensor

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### Abstract

This work presents the design of a multi-axis micro force-torque sensor. Forces can be sensed in a plane, while a torque perpendicular to this plane can be measured as well. The measurement principle is based on deflection measurements by three pairs of capacitive comb drives. The sensor is fabricated by bulk micromachining of a silicon-on-insulator (SOI) wafer. The multi-axis calibration method is described. The sensor is used to measure the load on a microrobot in a magnetic field.