Capabilities & Research Focus

Department of Mechanical Engineering
2014-2015
Research Focus

- Combination of Carbon Nanotube (CNT) and Ion Sensitive Field Effect Transistor (ISFET)
- MEMS fabrication techniques
  - Thermal oxidation
  - Photolithography
  - Furnace Diffusion
  - Evaporation
  - Lift-off
- Atomic Force Microscopy (AFM)-based surface nanomachining for CNT deposition
- CNT alignment using Dielectrophoresis (DEP)

Application Areas

- pH measurement
- Industrial waste water monitor
- Swimming-pool water monitor
- Biomedical
  - Ultrafast diagnostics
  - Reliable markers with detection to a few molecules
- Drinking water monitor
- Other ion concentration measurement
  - Na⁺
  - K⁺
Research Focus

- Automation
- Robotics
- Control Systems
- Mechatronics
- Industrial Workcell Simulation

Application Areas

- Simulation of Factory Workspaces
- Process simulations
- Industrial Workcell Performance Analysis
- Vision Guided Robotics
- Process Automation
- Process Controller Design