Welcome to the Seminar!

September 10, 2018
Seminar Goals

Take advantage of MIT and what you are learning to design, build, and control interesting and fun devices and systems.

Choose two half-semester projects.

Options for first half-semester:
- making with technology (laser cutting, 3D printing, \(\mu\)processors)
- computation for science/engr (coding to improve understanding)
- autonomous racecar robotics (driverless control)
- FISHBOTS (building robotic fish and other sea creatures)

Options for second half-semester:
- making with technology (laser cutting, 3D printing, \(\mu\)processors)
- computation for science/engr (coding to improve understanding)
- racecar robotics (machine learning)
- FISHBOTS (building robotic fish and other sea creatures)
- crowdsourcing dirt (antibiotic discovery using soil bacteria)
- independent project (proposal required)
Making with Technology

Laser cutting, 3D printing, and microprocessors.

Project leaders: Denny Freeman and Dawn Wendell
Computation for Science and Engineering

Coding to understand the physical sciences.

Project Leaders: Craig Carter and Kyle Keane
Autonomous Racecar Robotics

Driverless control of a physical racecar.

Project Leaders: Sertac Karaman and Andrew Fishberg
FISHBOTS

Building robotic fish and other sea creatures.

Project leader: Tom Consi
Crowdsourcing Dirt: Antibiotic Discovery in Soil Bacteria

Take soil samples from MIT campus to identify antibiotic-producing bacteria. Join a world-wide crowdsourcing antibiotic discovery effort!

Project leader: Lourdes Aleman
Independent Project

Design, build, and debug a project of your choice.

Project leader: Dawn Wendell
Course Mechanics

This is primarily a project seminar.
Weekly meetings (required): Mondays, 3-5pm.
Outside preparation and homework: \( \sim \) four hours per week.
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Today’s Project: Make a Loudspeaker

Conventional loudspeakers combine three main parts:

- a permanent magnet,
- a coil of wire, and
- an acoustic transducer to convert magnetic force to sound.

These transform a voltage $V(t)$ to a pressure $P(t)$ in the air.