6.003: Signal Processing

Wrap Up

- 6.003 Retrospective
- What Comes After 6.003?
- Tell Us How To Improve 6.003

Final Exam: Friday, May 13, 1:30-4:30pm at the Johnson Track

- Covers entire semester with emphasis on final third
- Closed book except for three pages of notes (six sides total)
- No electronic devices (no headphones, cellphones, calculators, ...)

May 10, 2022
Signals are functions that contain and convey information.

Examples:
- the MP3 representation of a sound
- the JPEG representation of a picture
- an MRI image of a brain

Signal Processing develops the use of signals as abstractions:
- identifying signals in physical, mathematical, computation contexts,
- analyzing signals to understand the information they contain, and
- manipulating signals to modify and/or extract information.
Our approach is the same as that in many technical disciplines.

- **model** some aspect of the world,
- **analyze** the model, and
- **interpret** results to gain a new or better understanding.

We tried to include examples of **all three** of these steps:
- develop math/computation skills to **analyze** signal processing problems
- recognize real-world **applications** and apply skills to solve them
What Might Come Next?

6.3100 (6.302) Dynamic System Modeling and Control Design (White)
6.3010 (6.011) Signals, Systems, and Inference (Verghese)
6.2370 (6.161) Modern Optics Project Laboratory (Warde)
6.7411 (6.450) Principles of Digital Communication (Medard)
NEW Computational Imaging: Physics and Algorithms (George Barthastthis, Rajeev Ram, Sixian You)

6.7000 (6.341) Discrete-time Signal Processing (Oppenheim)
6.7010 (6.344) Digital Image Processing (Lim)
6.8371 (6.815) Digital and Computational Photography (Durand)
6.8301 (6.819) Advances in Computer Vision (W. Freeman)

6.8810 (6.556) Data Acquisition/Image Reconstruction in MRI (Adelsteinsson)
6.6300 (6.630) Electromagnetics (Hu)
6.2530 (6.701) Introduction to Nanoelectronics (Baldo)
6.5931 (6.812) Hardware Architecture for Deep Learning (Sze)
6.2300 (6.013) Electromagnetics, Waves, and Applications

6.8801 (6.026) Biomedical Signal and Image Processing (Greenberg)
6.4810 (6.021) Cellular Neurophysiology and Computing (Heldt)

18.103 Fourier Analysis
18.104 Seminar in Analysis (CI-M)
18.085 Computational Science and Engineering I
Please Tell Us How To Improve 6.003

We want to present course material in a way that encourages a deep technical understanding while also being fun and engaging.

We need your help and your feedback in order to make that happen.

Please use the next **15 minutes** to fill out the Registrar’s Subject Evaluation and the 6.003 End-of-Semester Survey.

- Fill out the MIT Subject Evaluation:
  http://registrar.mit.edu/subjectevaluation
- Provide specific feedback on 6.003:
  go to “Survey” tab on 6.003 website under week 14

After you have finished, we will have an open discussion.
Thank You!

Both sections of today’s recitation will be in 24-115.