



University of Illinois at Chicago

College of Engineering

Department of Electrical and Computer Engineering

2nd ECE Lunch Series on Teaching Methods

Extreme Teaching

Presented by Wally Goncharoff

October 11, 2016



About me:

Vladimir “Wally” Goncharoff

1979: BS EECS, UIC

1980: MS EECS, Northwestern

1983: PhD EECS, Northwestern

1983-1988: Assistant Professor, EECS Dept., UIC

1988-1989: Staff Engineer, Martin Marietta, MD

1989-2012: Lecturer, EECS/ECE Dept., UIC

2012-present: (Retired) Part-time Lecturer, ECE Dept.

- Director of Undergraduate Studies 2010 – 2012
- Director of Graduate Admissions 1989 – 1993

- UIC Silver Circle Award for Excellence in Teaching: 1988, 2000, 2003, 2006, 2009
- UIC College of Engineering Faculty Teaching Award: 2006, 2008
- First recipient of the UIC COE Harold Simon Award for Excellence in Teaching, 1985

Courses Taught:

- Advanced Analog Filter Synthesis
- Advanced Network Analysis
- Analog Communication Circuits
- Circuit Analysis
- Communications Engineering
- Communication Theory
- Computer Organization I
- Digital Communications
- Digital Logic
- Digital Image Processing
- Digital Integrated Circuits
- Digital Signal Processing I
- Digital Speech Processing
- Discrete and Continuous Signals and Systems
- Electronics I & II
- Introduction to Electrical and Computer Engineering
- Introduction to Filter Synthesis
- Introduction to Radio Frequency Circuits
- Microprocessor-Based Design
- Network Analysis
- Probability and Random Processes for Engineers
- Semiconductor Devices and Circuits
- Senior Design I & II
- Statistical Digital Signal Processing



Why I, as a teacher, constantly need to improve:

- ECE knowledge is growing rapidly
- Teaching technology is improving
- Students, how they learn, are changing
- I am a curious fellow



A philosophical question:

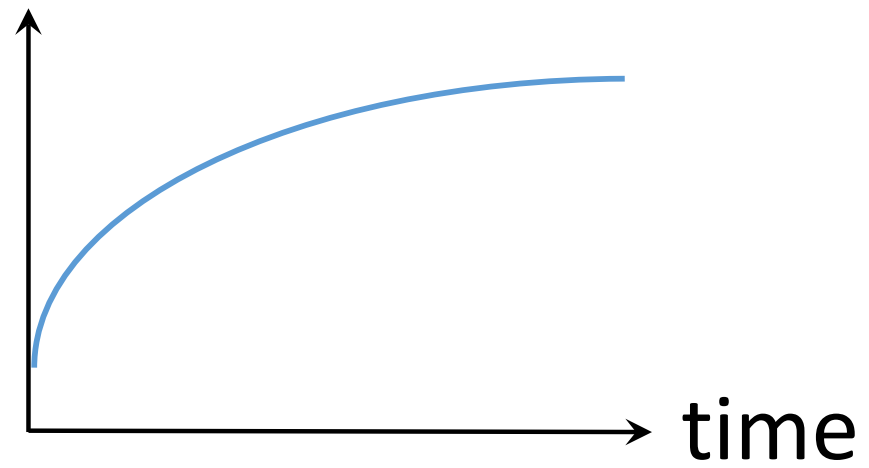
Will live teaching be used in the future?





Teaching Effectively:

Return on investment





Goncharoff's 10 Basic Rules for Effective Teaching:

1. Grab the students' attention
2. Command the audience
3. Be easily heard and understood
4. Show interest in the topic
5. Stay positive, don't criticize



Goncharoff's 10 Basic Rules for Effective Teaching:

6. Encourage interaction
7. Keep it interesting, even if off topic
8. Quickly deal with common disruptions
9. React to the class
10. Respect students



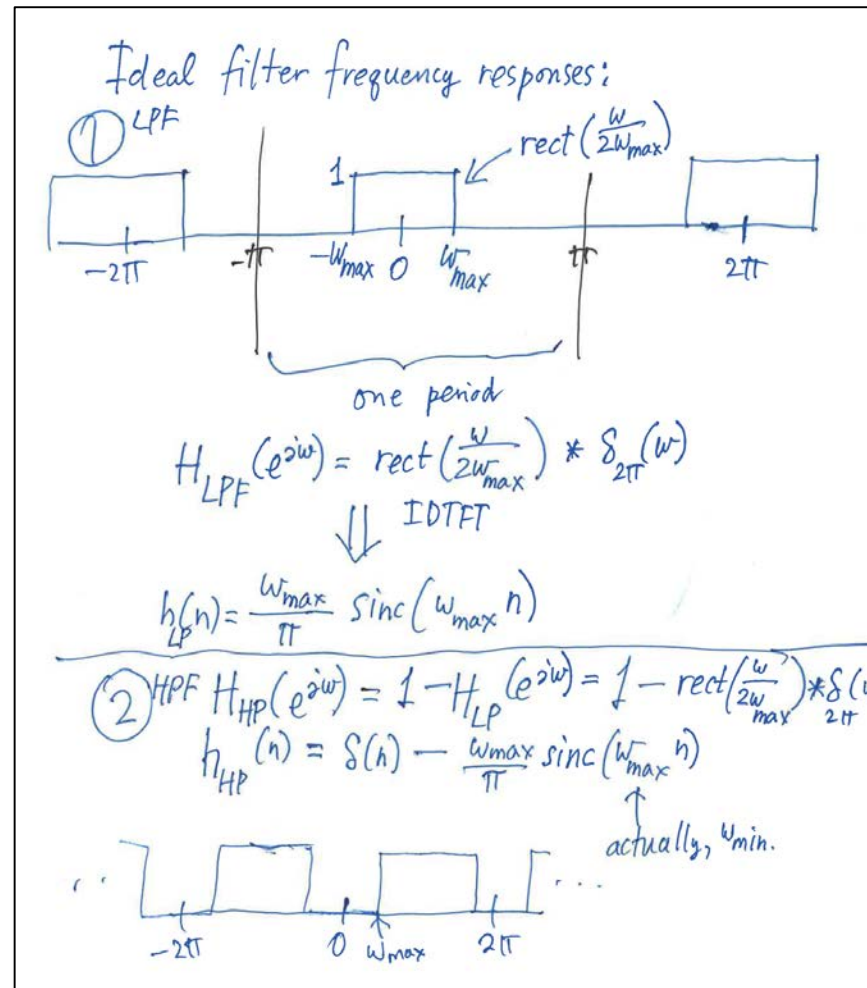
Teaching Methods and Tools:

- Whiteboard



Teaching Methods and Tools:

- Document Camera





Teaching Methods and Tools:

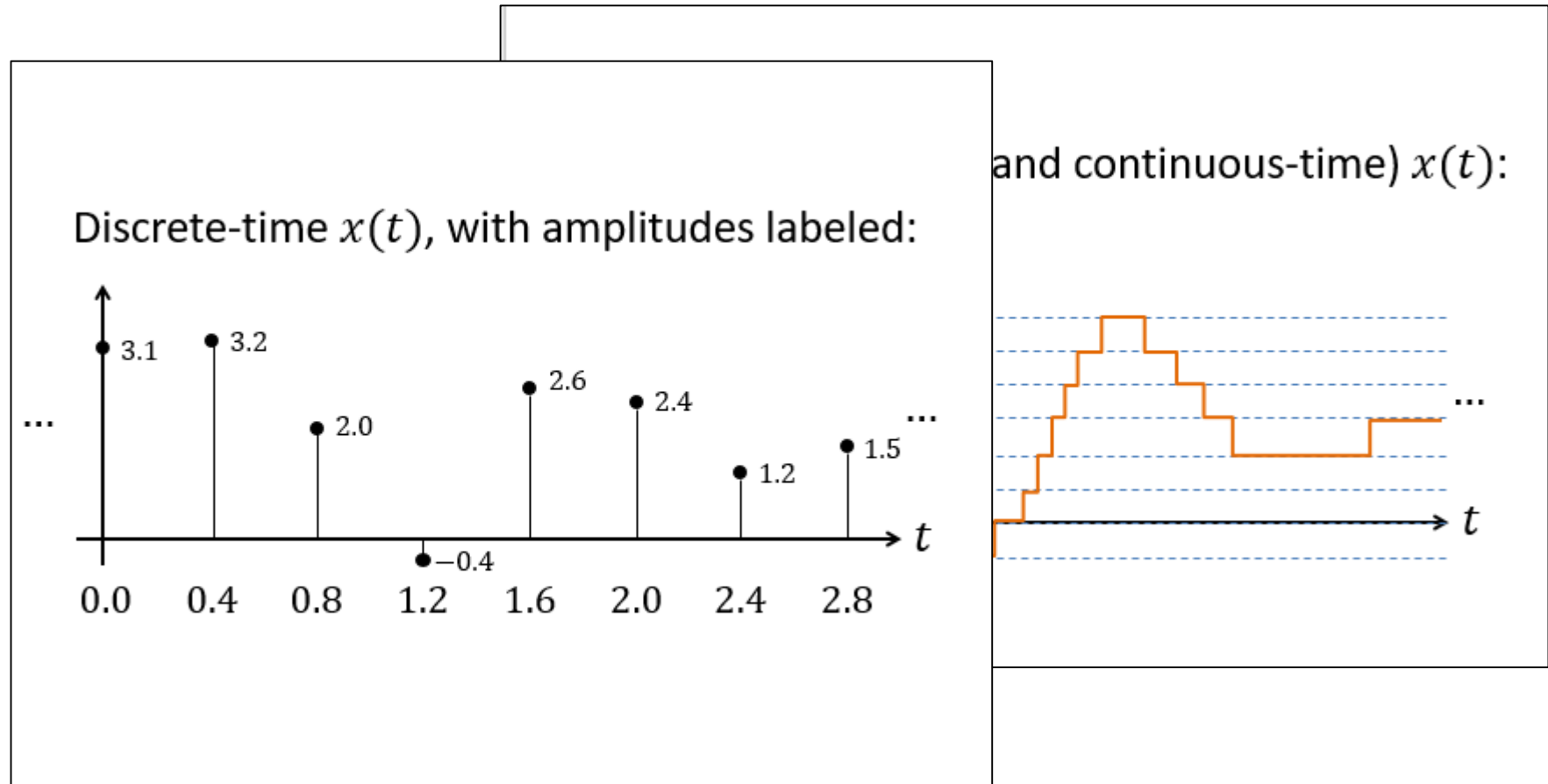
- Echo 360

Video recording of everything that was projected onto the screen during lecture, plus instructor's voice recording, for later playback by students.



Teaching Methods and Tools:

- PowerPoint slide presentation





Teaching Methods and Tools:

- Video Lectures

UIC COE recording studio

Self-made videos

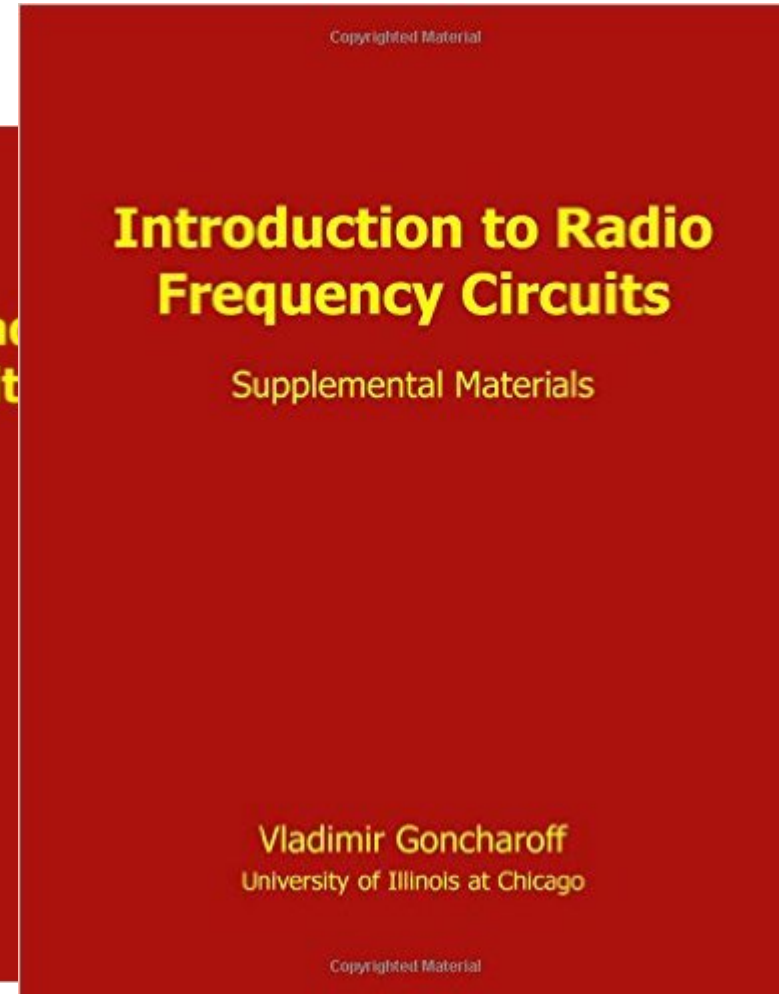
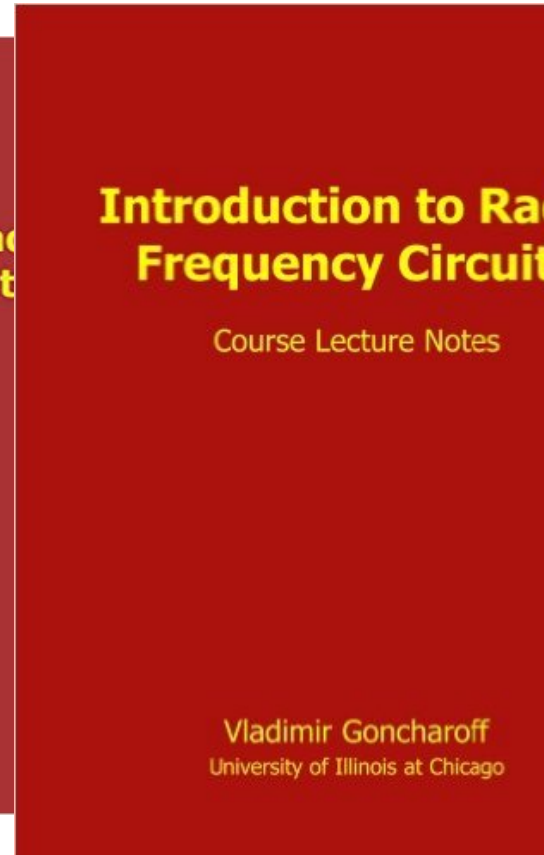
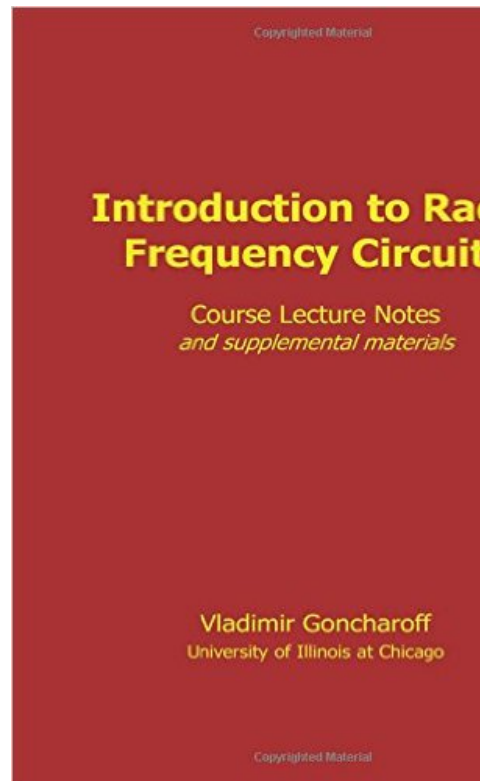
Narrated PowerPoint

[Lightboard](#)



Teaching Methods and Tools:

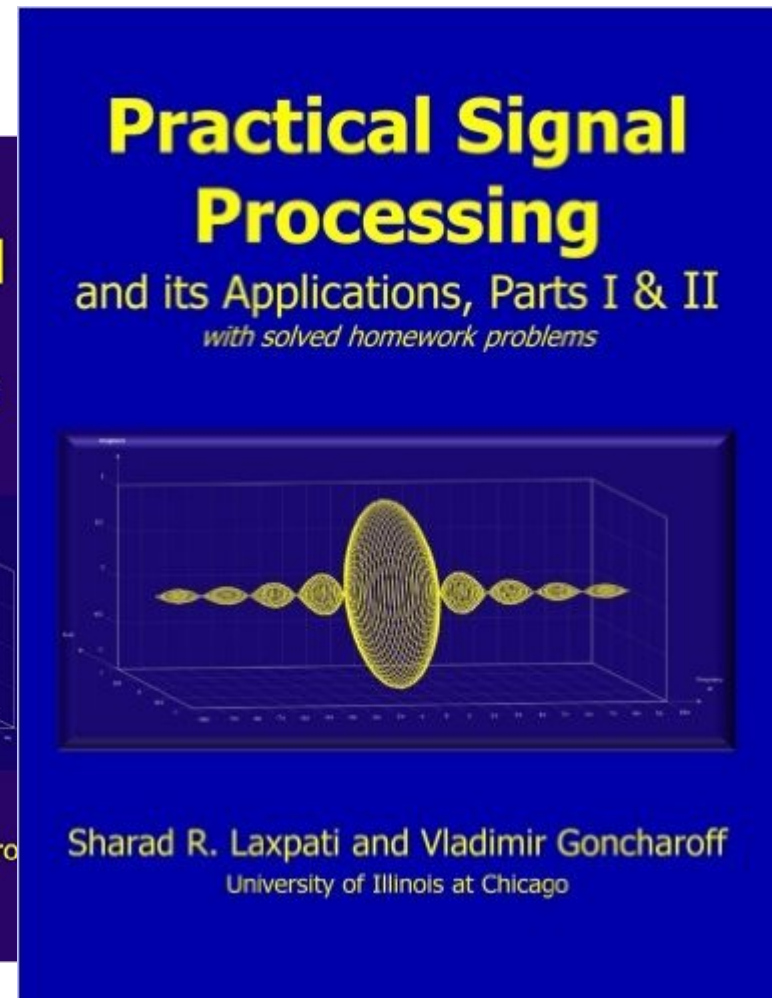
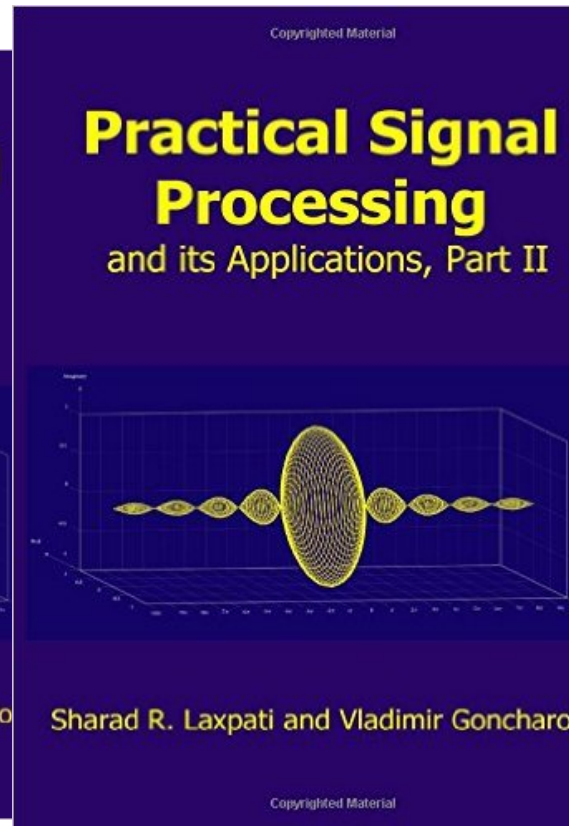
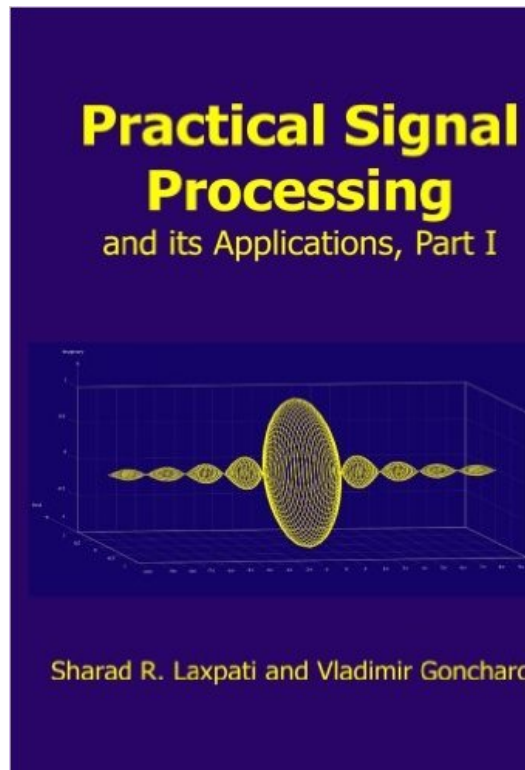
- Published Lecture Notes





Teaching Methods and Tools:

- Self-Published Textbook



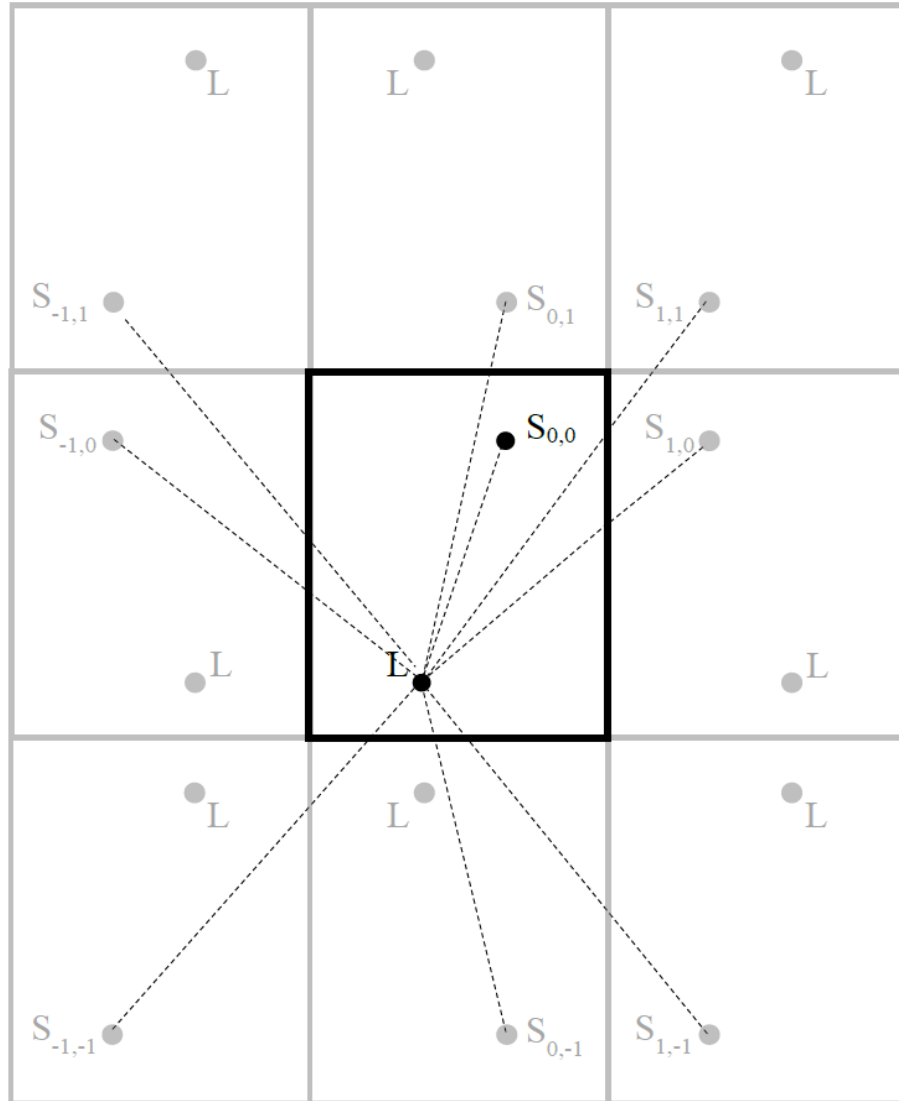


Other Teaching Methods and Tools:

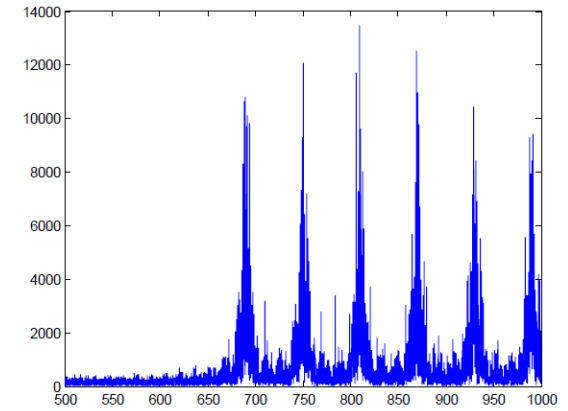
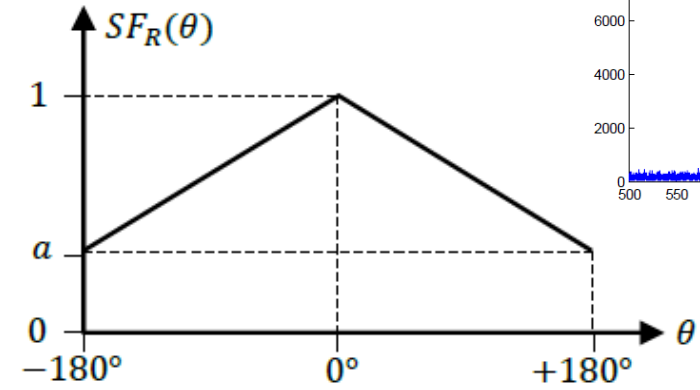
- Blackboard Quizzes
- MATLAB
- Circuit Drawing and Simulation



Lab Experiments



Right ear amplitude scaling factor



Incident sound direction, in degrees (relative to positive x-axis)

International Morse Code

1. The length of a dot is one unit.
2. A dash is three units.
3. The space between parts of the same letter is one unit.
4. The space between letters is three units.
5. The space between words is seven units.

A	● ■	U	● ● ■
B	■ ● ● ●	V	● ● ● ■
C	■ ● ■ ●	W	● ■ ■
D	■ ● ●	X	■ ● ● ■
E	●	Y	■ ● ■ ■
F	● ● ■ ●	Z	■ ■ ● ●
G	■ ■ ●		



Suggestion:

Have peer reviews of teaching





Conclusion