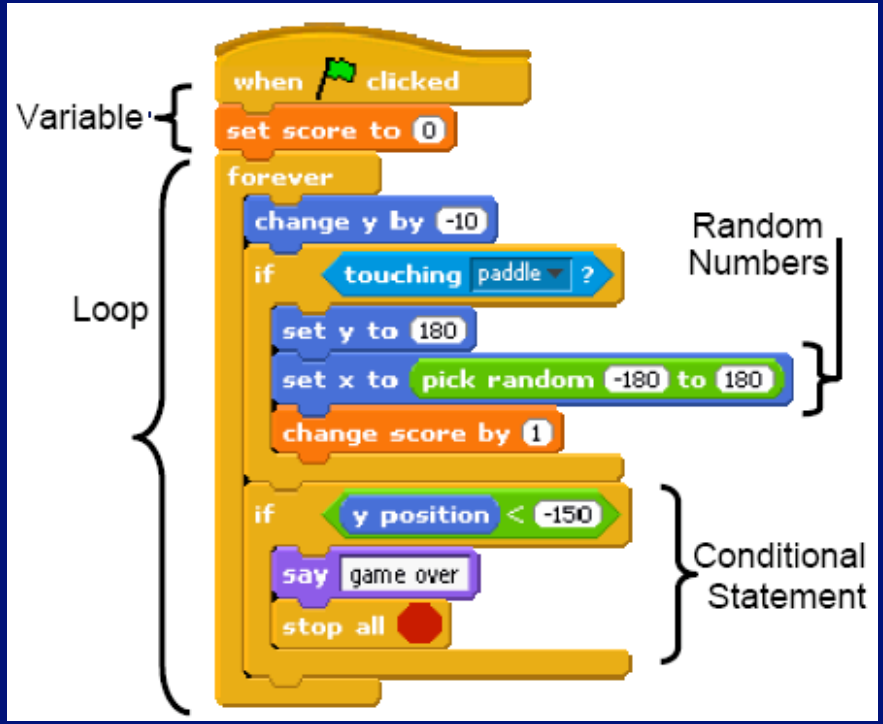
Exploring Post 631

Computer Technology



Exploring Post 631 Computer Technology

Who?

What?

When?

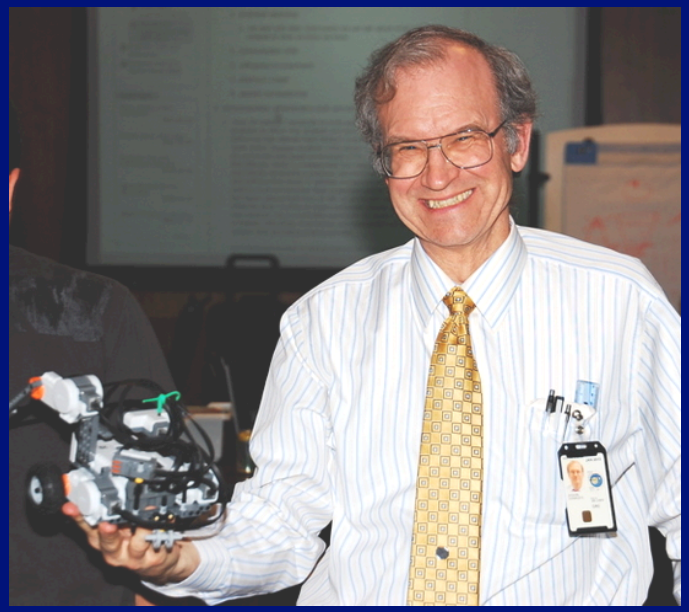
Where?

Why?

Why Join?

- Awareness of what computers can do
- Career exploration
- Learn how to create with a computer
- Leadership development
- Make friends

Post Advisors



Don Braun
Josh Glemza
Matt Kunkel
Tim Palinski
Herb Schilling
Mary Vickerman
Lindsey Wilford

New Explorers and Parents

- Requirements:
  - Basic computer skills
  - Desire to learn
  - Willingness to share and participate in the Post

- Parents
  - Help with transportation on field trips
  - Feedback

Types of Activities

Learning

Guest Speakers

Post 631

Volunteering

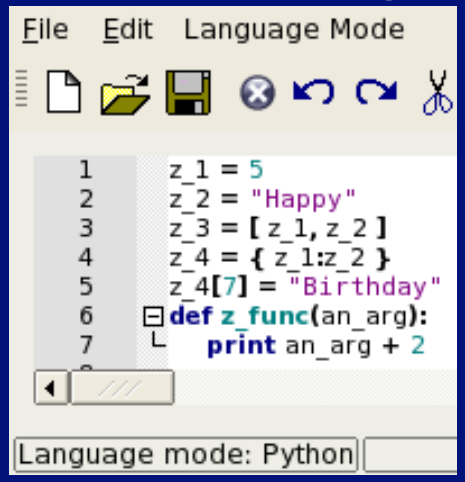
Tours

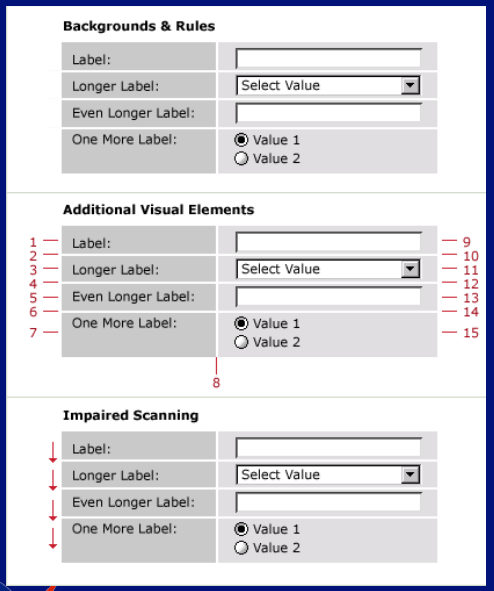
Fun

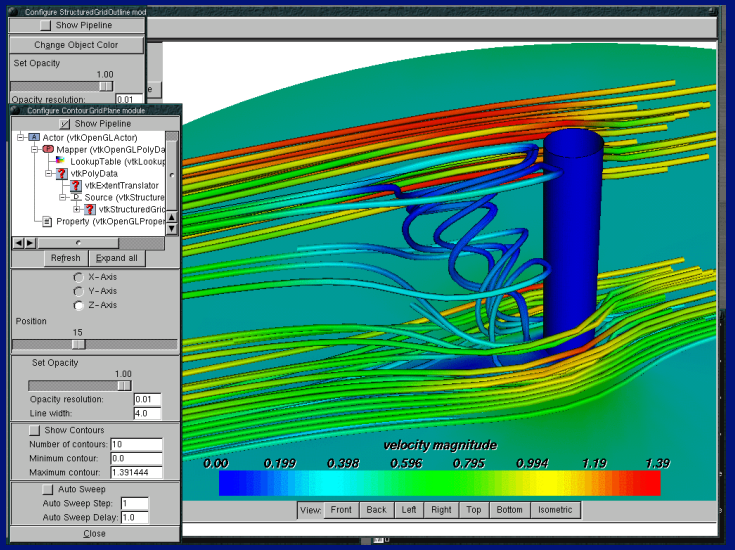
Main Lessons

- Computer fundamentals
- Computer programming
- Interfacing computers with real world
- Using computers to solve problems
- Explore career options

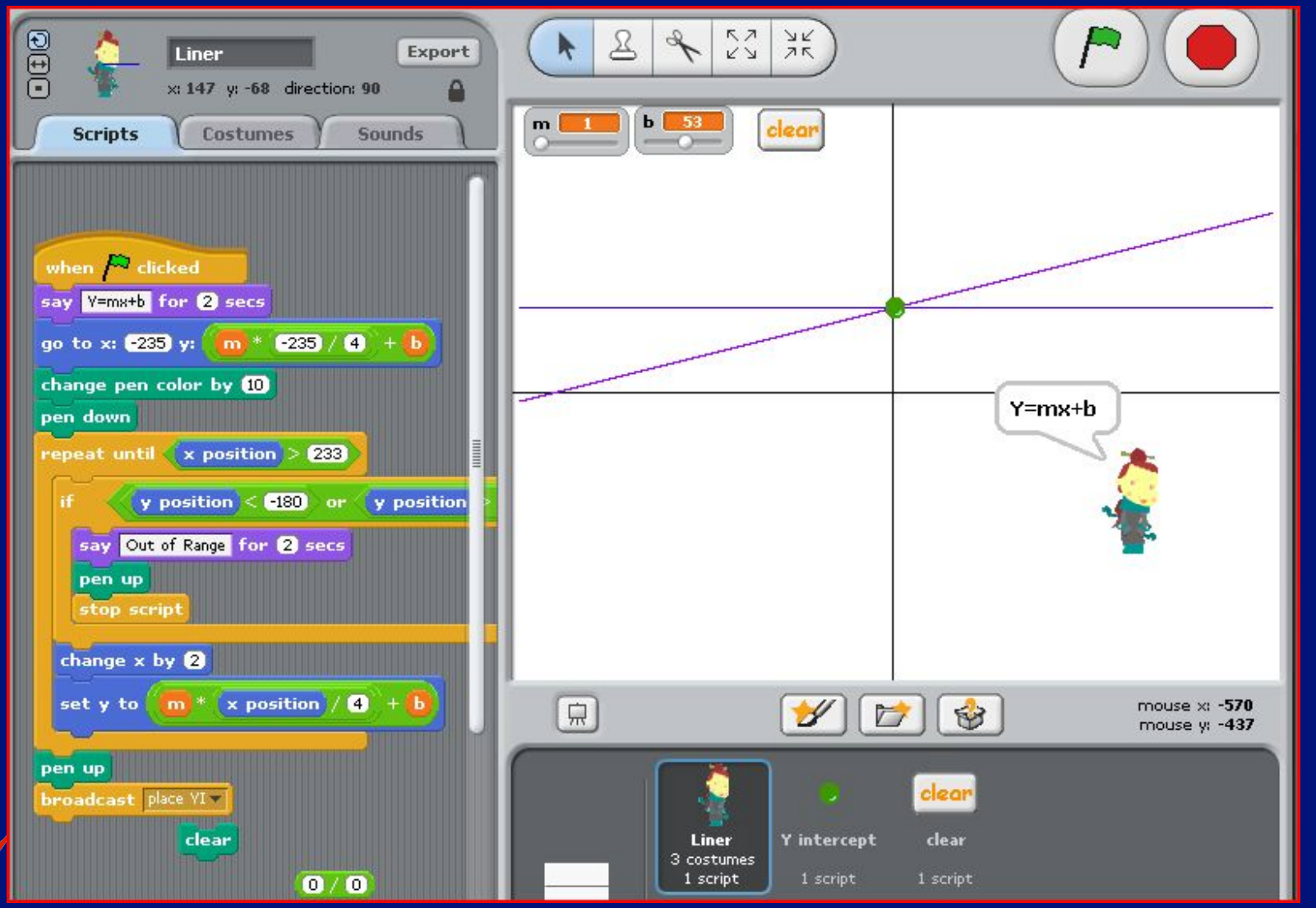
Using Computers to Create!



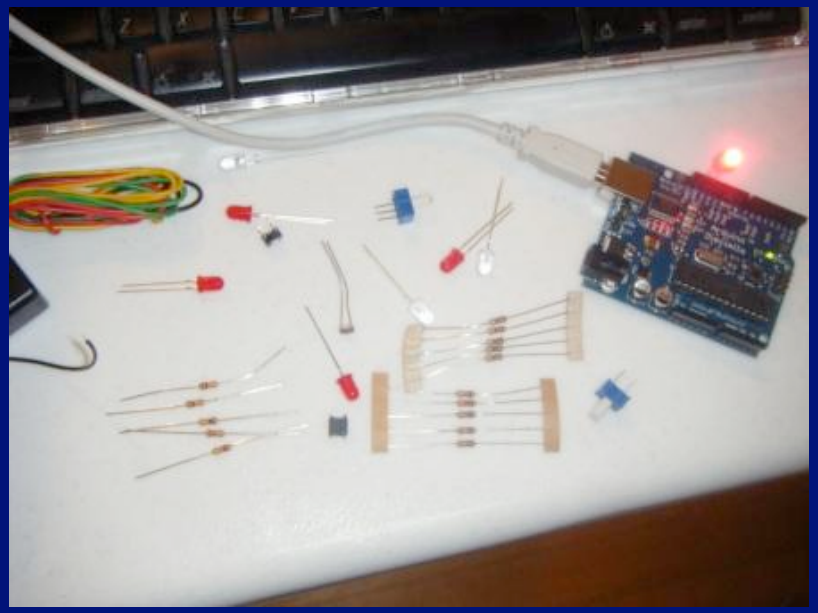


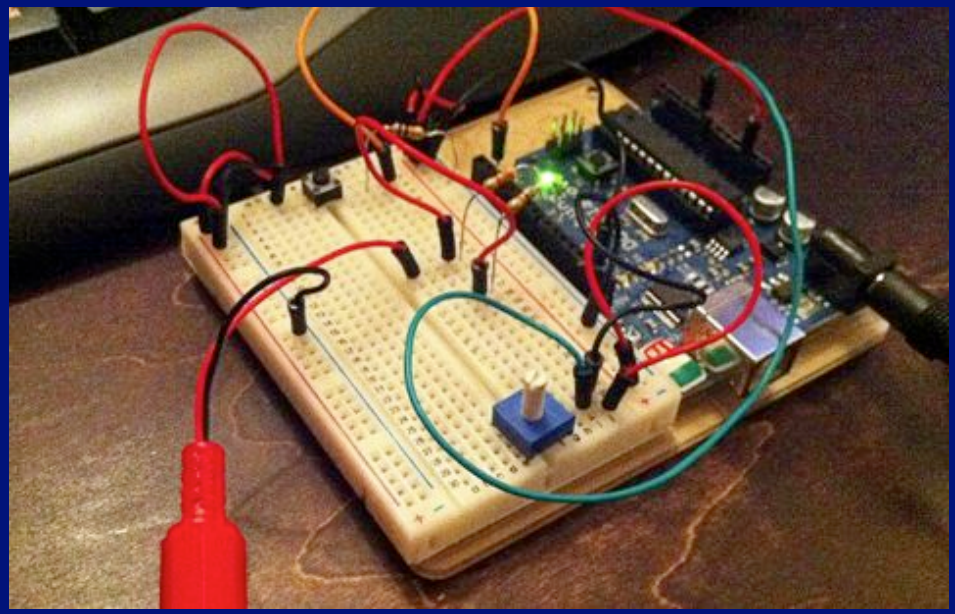


Programming - Scratch

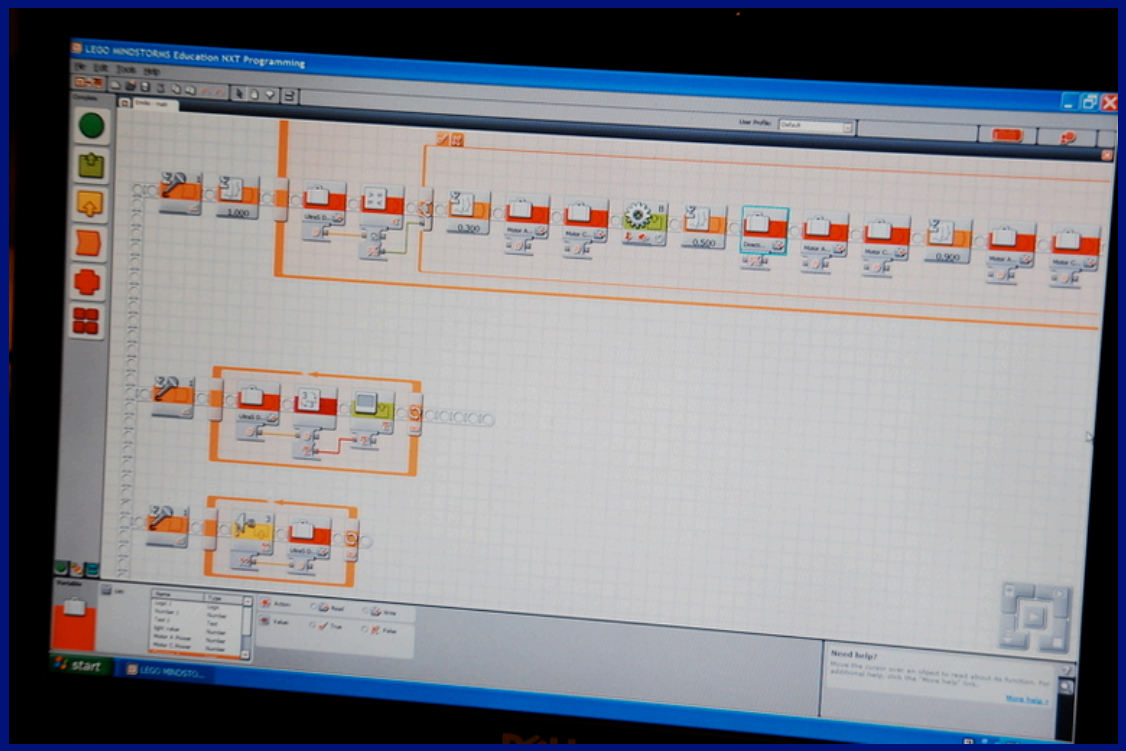


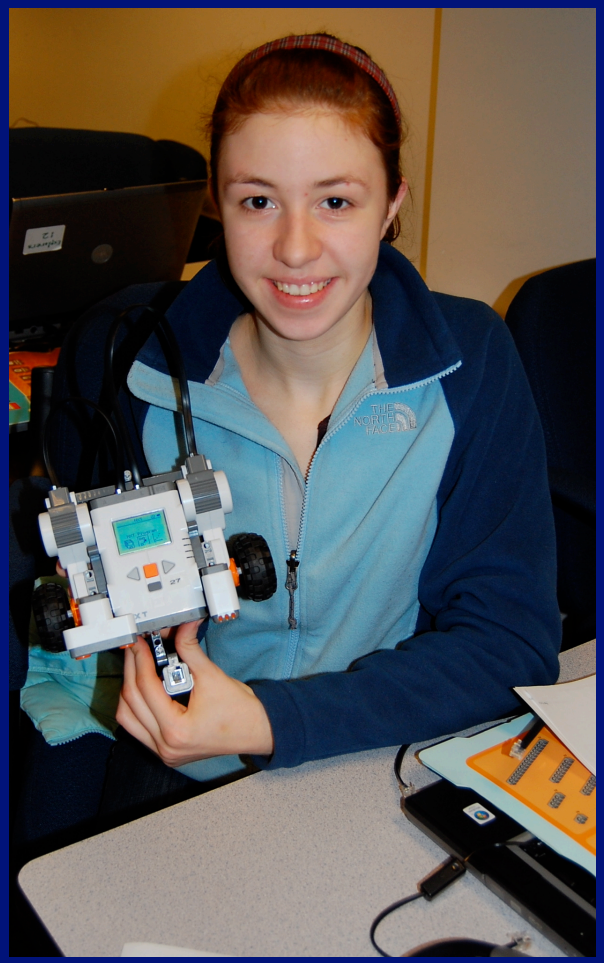
Computers and Electronics
Arduino Kits





Robotics
Lego Mindstorms NXT

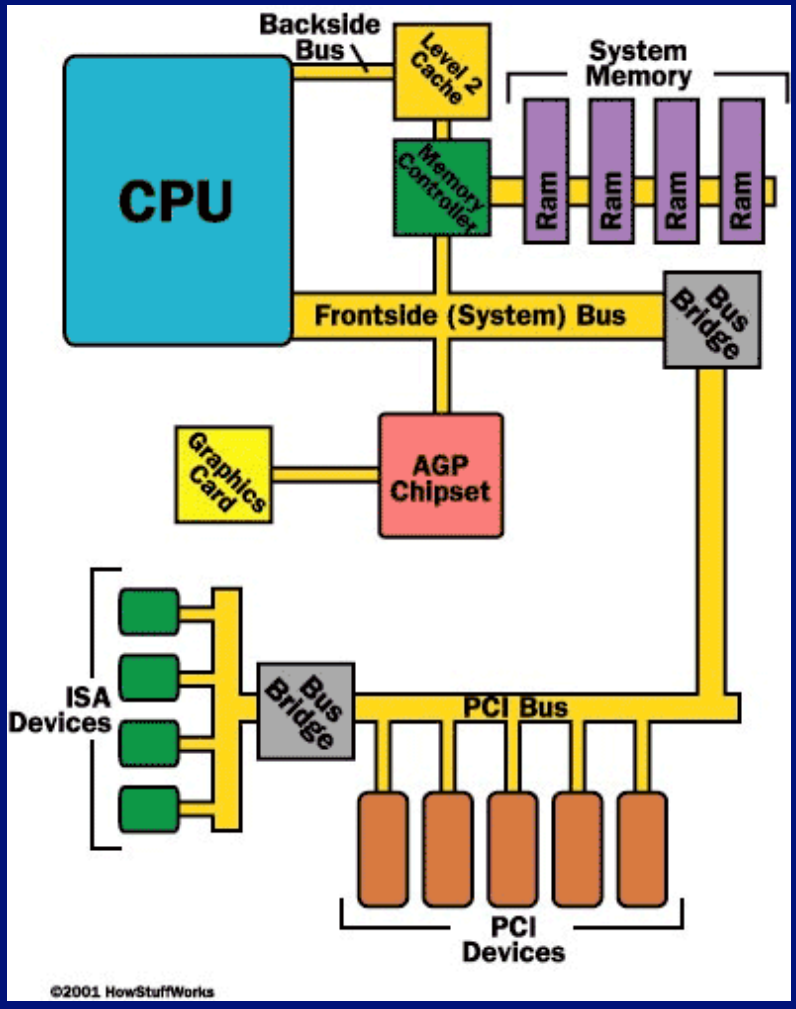




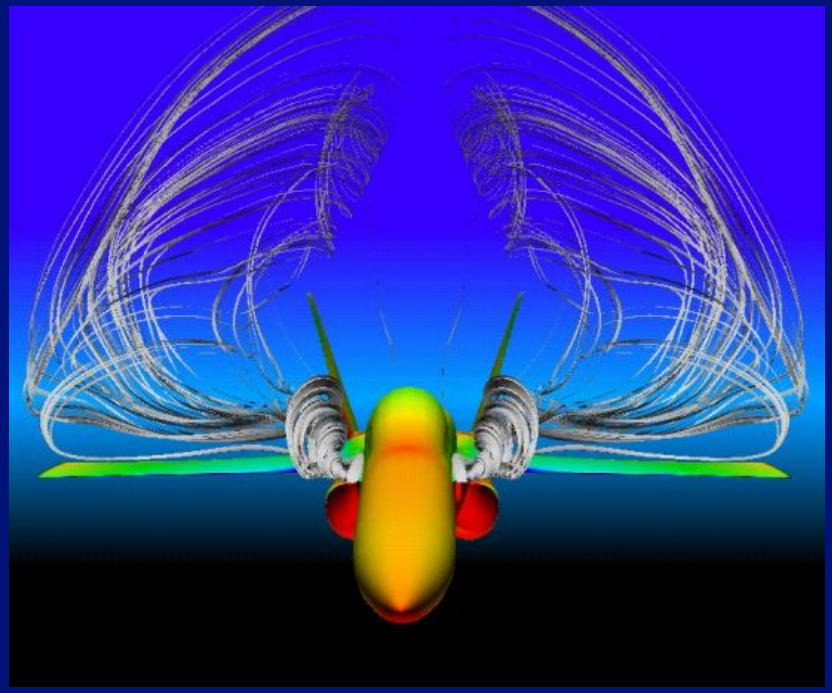
Computer Fundamentals

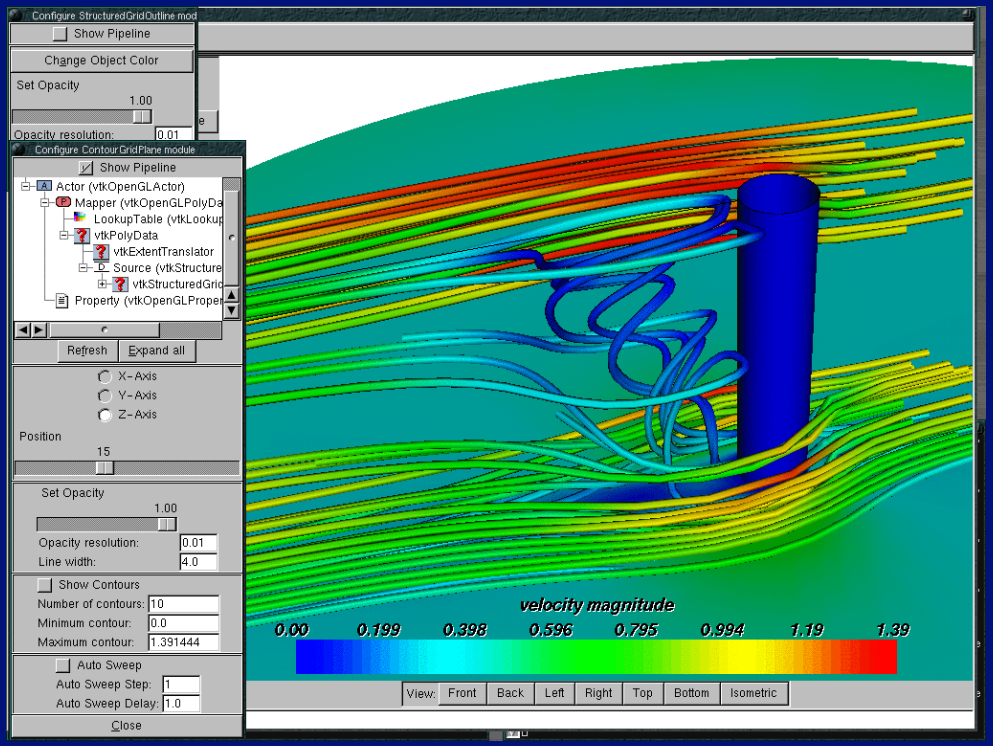
Binary:	0	1	1	0	0	1	0	1
Decimal:	128	64	32	16	8	4	2	1
	No	Yes	Yes	No	No	Yes	No	Yes
		64 + 32		+		4	+	1

Decimal Equivalent: 101



Data Visualization

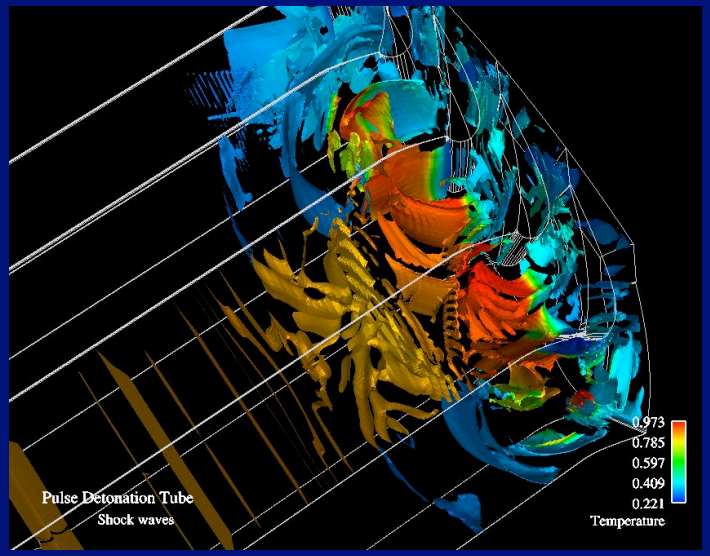


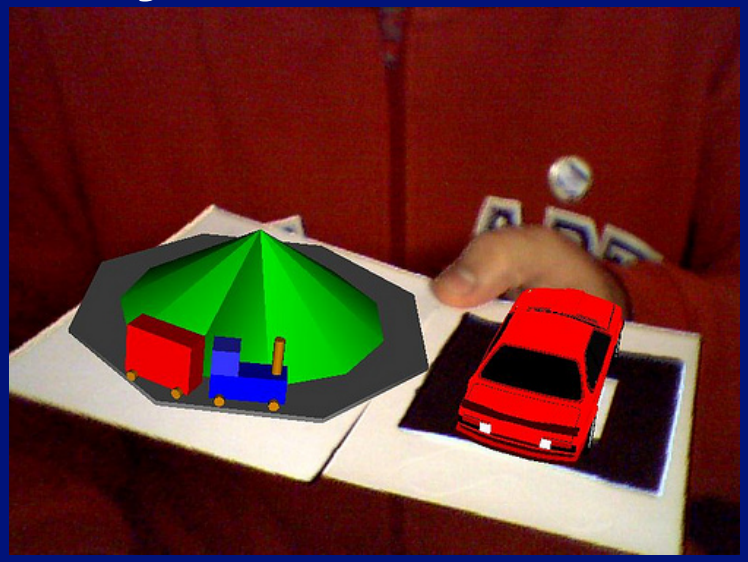


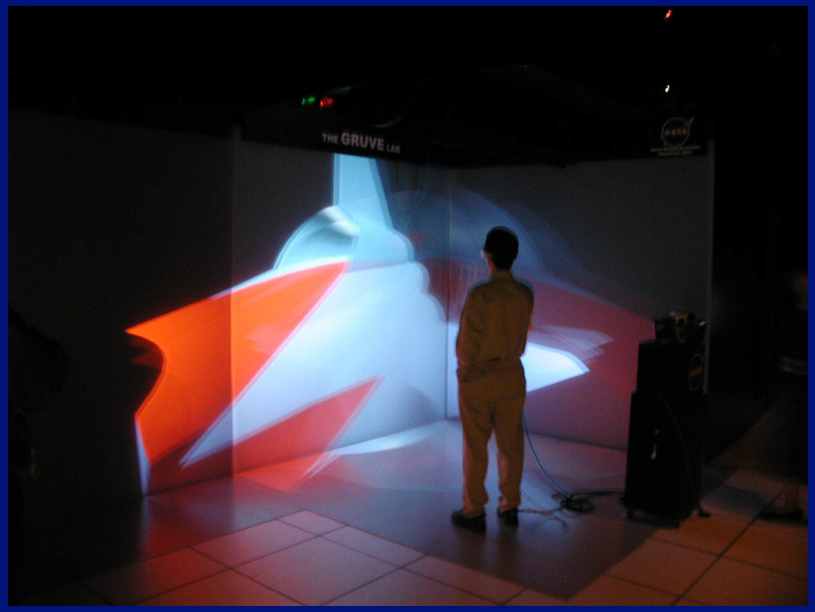
GameMaker

Game Maker: 1945.gmd
File Edit Add Scripts Run Window Help
Sprites
Sounds
Backgrounds
Paths
Scripts
Data Files
Time Lines
Objects
obj_myplane
controller_life
obj_island1
obj_island2
obj_island3
obj_enemy1
obj_enemy2
obj_enemy3
obj_enemy4
controller_enemy
obj_bullet
obj_explosion1
obj_explosion2
obj_enemybullet1
obj_enemybullet2
Rooms
rm_main
Game Information
Game Options
Room Properties
backgrounds
views
objects
settings
tiles
Name: rm_main
Caption for the room:
1945
Width: 640
Height: 480
Speed: 30
Persistent
Creation code
Snap X: 16
Snap Y: 16
Show
OK
x: 480
y: 368
Object Properties
Name: obj_myplane
Sprite: spr_myplane
Solid
Visible
Depth: -100
Persistent
Parent: <no parent>
Mask: <same as sprite>
Show Information
OK
Events:
Create
Alarm 0
<Space>
<Left>
<Up>
<Right>
<Down>
Actions:
Set variable can_shoot to 1
Add Event
Delete
Change
Move
Jump
React
Score: 30

Virtual Reality



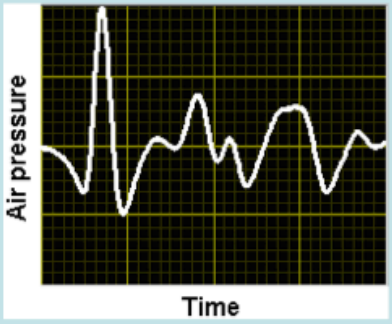




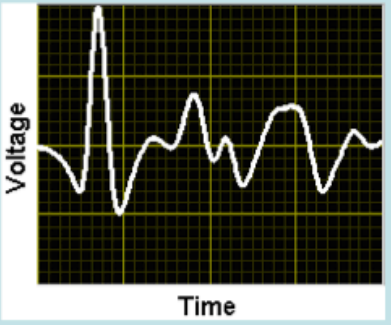
Signal Processing

How do computers record and play back sound?

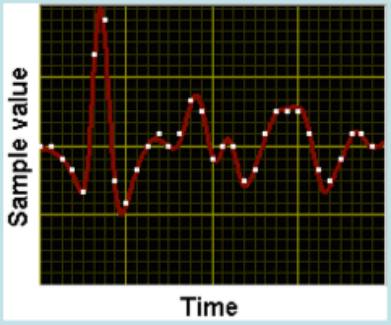
Sound source (e.g., music or speech)



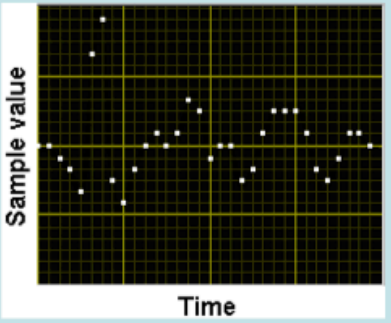
Microphone



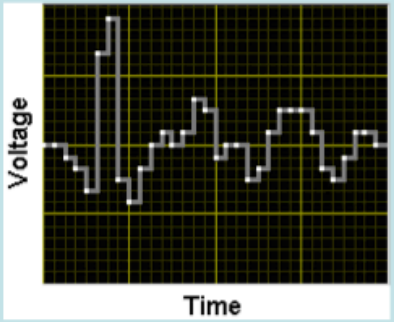
Analog to Digital Converter (ADC)



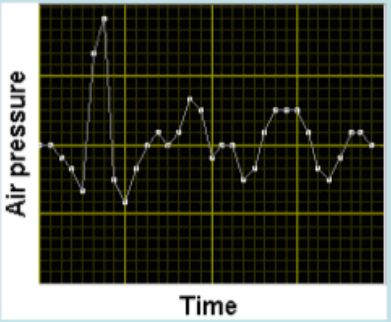
Store digitized numbers on a computer disk



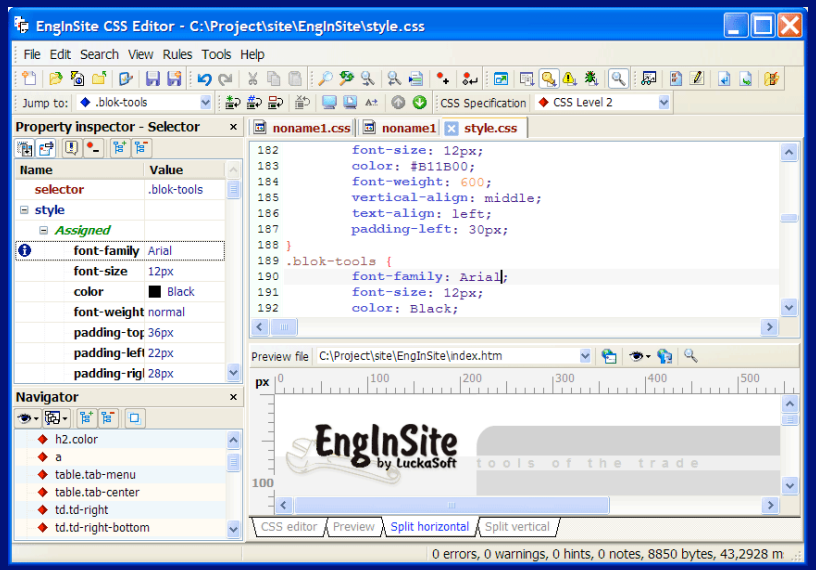
Digital to Analog Converter (DAC)



Speaker or earphone



Web Page Design



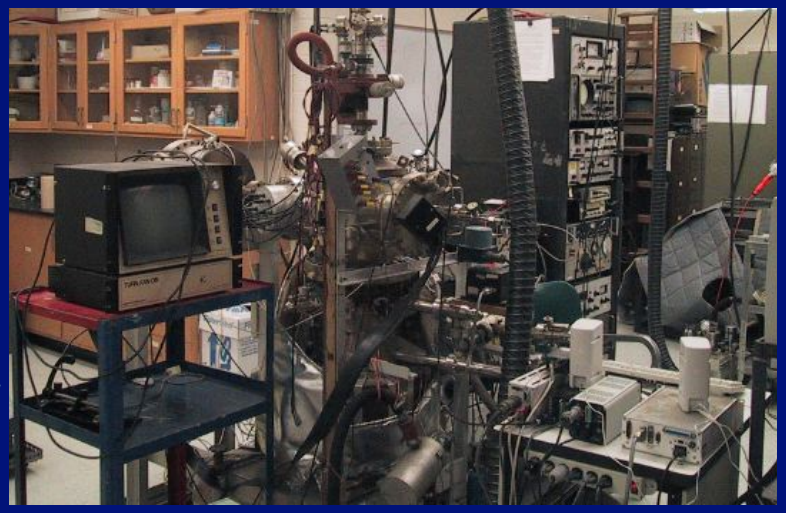
Mini-Lessons

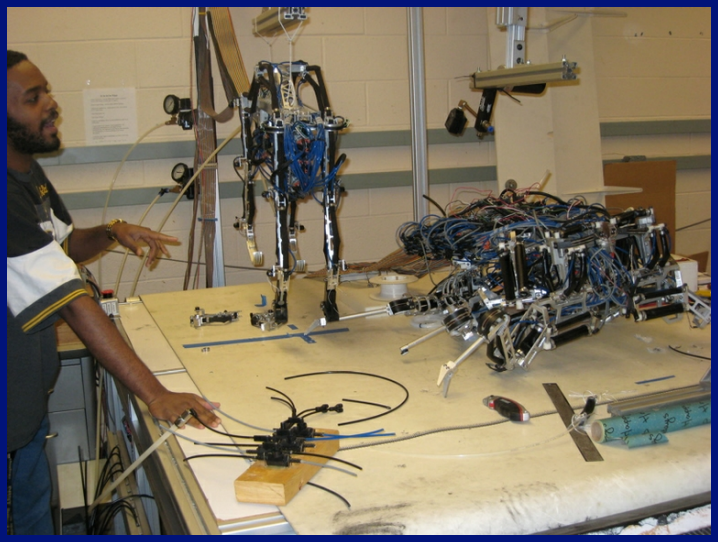
- What the Advisors do at work
- Computer security
- Web 2.0
- Careers
- Intro to NASA

- Searching the Web
- Space exploration
- Algorithms
- Talks by former Explorers
- Computers and math
- Explorers share computer-related outside projects

Guest Speakers

Tour of Case Western Reserve University Labs





NASA Glenn Research Center

Exploring Post 631
October 11, 2011

Tours of NASA

Social Events

Community Activities

When

Every Thursday, except holidays

5:15 to 7:15 PM

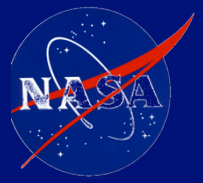
Oct 20 through April

Where

Building 142 on main NASA campus

What Explorers Say About Post 631

- This program was well put together and well organized. I wish more people could get into a program like this.
- It was fantastic…I enjoyed everything.
- This program was fun and enjoyable and I learned a lot.
- I learned new things, how to interact better with other people…This program made me feel more confident.
- I learned a lot about how technology is used in all kinds of different careers.



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Questions?