# EECS 10: Computational Methods in Electrical and Computer Engineering Lecture 2

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#### Lecture 2: Overview

- Introduction to Computers
  - What is a computer?
  - What is programming?
- Getting started
  - Obtain your UCInetID
  - Obtain an account on the EECS servers
  - Log into the server
- Unix system environment
  - System commands
  - Text editing

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## Introduction to Computers

- What is a computer?
  - Digital device capable of executing programs
    - · performing computations
    - · making logical decisions
- What is a program?
  - Set of instructions which process data
    - input data (e.g. from keyboard, mouse, disk)
    - output data (e.g. to monitor, printer, disk)
- What is programming?
  - Creation of computer programs by use of a programming language

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#### Introduction to Programming

- Categories of programming languages
  - Machine languages (stream of 1's and 0's)
  - Assembly languages (low-level CPU instructions)
  - High-level languages (high-level instructions)
- · Translation of high-level languages
  - Interpreter (translation for each instruction)
     Compiler (translation once for all code)
     Hybrid (combination of the above)
- Types of programming languages
  - Functional (e.g. Lisp)
  - Structured (e.g. Pascal, C, Ada)Object-oriented (e.g. C++, Java, Python)

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#### **Getting Started**

- Obtain your UCInetID
  - Your unique ID at UCI
  - Activation online at NACS web pages:

http://activate.uci.edu/activate/menu.html

- Obtain an account on the EECS servers
  - Your working account in EECS
  - Activation online at EECS web pages:

https://newport.eecs.uci.edu/account.py

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#### **Getting Started**

- Log into the server
  - Use a terminal with SSH protocol (secure shell)
  - Connect to an EECS server
    - malibu.eecs.uci.edu
    - vivian.eecs.uci.edu
    - newport.eecs.uci.edu
  - Authorize yourself with user name and password
- Work in the Unix system environment
  - Unix shell prints command prompt awaiting input
  - Type in system commands
     echo, date, ls, cat, man, more,
     pwd, mkdir, cd, cp, mv, rm, rmdir
  - Refer to manual pages for help on commands

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### **Unix System Environment**

Unix system commands

- echo print a message

date print the current date and time

1s list the contents of the current directory

- cat list the contents of files

more list the contents of files page by page

pwd print the path to the current working directory

- mkdir create a new directory

- cd change the current directory

ср сору a file

mv rename and/or move a file
rm remove (delete) a file
rmdir remove (delete) a directory

man view manual pages for system commands

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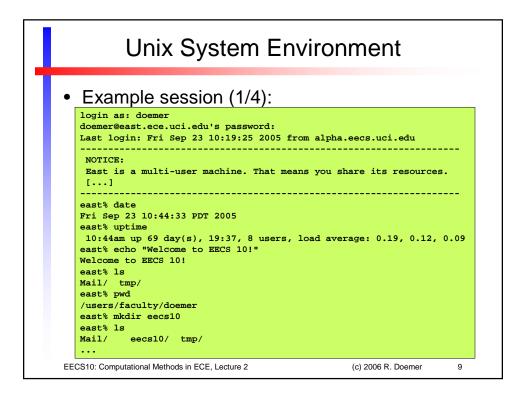
### **Unix System Environment**

- · Text editing
  - vi standard Unix editor
  - vim vi-improved (supports syntax highlighting)
  - pico easy-to-use text editor
  - emacs very powerful editor
  - many others...
- Pick one editor and make yourself comfortable with it!

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Unix System Environment
• Example session (2/4):
  east% cd eecs10
  east% pwd
   /users/faculty/doemer/eecs10
  east% ls
  east% mkdir hwl
   east% cd hwl
  east% ls
  east% vi program.c
  [...program file is being edited here...]
  east% ls
  program.c
  east% ls -l
  total 2
   -rw-r--r-- 1 doemer faculty
                                     50 Sep 23 11:08 program.c
  east% more program.c
   /* program.c */
   /* ...program code goes here... */
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Unix System Environment
• Example session (3/4):
  east% cp program.c my_backup.c
  east% ls
  my_backup.c
               program.c
  east% ls -1
  total 4
  -rw-r---- 1 doemer faculty 50 Sep 23 11:08 my_backup.c
-rw-r---- 1 doemer faculty 50 Sep 23 11:10 program.c
  east% pwd
  /users/faculty/doemer/eecs10
  east% ls
  hw1/
  east% /ecelib/bin/turnin
  EECS 10 Fall 2005:
  Assignment "hwl" submission for doemer
  Due date: Mon Oct 3 12:00:00 2005
  _____
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Unix System Environment
• Example session (4/4):
  Submit program.c [yes, no]? y
   File program.c has been submitted
  Submit backup.c [yes, no]? n
  -----
  You just submitted file(s):
    program.c
  You have not submitted file(s):
  east% ~eecs10/bin/listfiles.py
  EECS 10 FALL 2005: "hw1" listing for doemer
  _____
  Files submitted for assignment "hw1":
  program.c
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