

# ECE 220

# Honors Lab Section

Lab 1: Tools

# Overview

- Topics
  - Algorithms
  - Optimization
  - Data structures
- Other languages
  - x86 Assembly
  - Python
- Assignments
  - Weekly/Biweekly
    - Due dates: 1 – 6 on March 18 and 7 – 11 on May 4
  - Complete 8 / 11 of exercises

# Remote Access

- Pure SSH
  - Linux/OS X:
    - `ssh <netid>@remlnx.ews.illinois.edu` or  
`ssh <netid>@linux.ews.illinois.edu`
  - Windows:
    - Download an SSH client (PuTTY)
    - Create a new host: `remlnx.ews.illinois.edu` or `linux.ews.illinois.edu`
    - Open the session

# Remote Access

- X11 Forwarding SSH
  - Linux:
    - Open `/etc/ssh/sshd_config`
    - Uncomment/add: `X11Forwarding yes; X11UseForwarding yes`
    - Open session with `ssh -X ...`
  - OS X:
    - Download/install Quartz @ <http://www.xquartz.org/>
    - Open session with `ssh -X ...`
  - Windows:
    - Follow instructions @ [http://www.geo.mtu.edu/geoschem/docs/putty\\_install.html](http://www.geo.mtu.edu/geoschem/docs/putty_install.html)

# Remote Access

- Graphical Client
  - Linux/OS X/Windows:
    - Google: uiuc remote connections fastx
    - Open the first link
    - Follow instructions

# Editors

- Basic
  - Gedit
- Pro
  - Vim (vimtutor)
  - Emacs

# SVN Tutorial

- Commands:
  - add, checkout(co), commit(ci), info, import, log, merge, status, update(up)
- Task:
  - Create a directory for ECE220 and cd into it
  - Checkout honors\_lab1 from SVN repository with *svn co https://subversion.ews.illinois.edu/svn/sp16-ece220/\_shared/honors\_lab1*
  - Import honors\_lab1 to your own repository with *svn import honors\_labX https://subversion.ews.illinois.edu/svn/sp16-ece220/<netid>/honors\_lab1 -m "Importing honors\_lab1"*
  - Delete the honors\_lab1 directory with *rm -rf honors\_lab1*
  - Visit *https://subversion.ews.illinois.edu./svn/sp16-ece220/<netid>* and you should see a honors\_lab1 directory in list
  - Checkout honors\_lab1 from **YOUR** repository with *svn co https://subversion.ews.illinois.edu/svn/sp16-ece220/<netid>/honors\_lab1*

# LC3 Tools

- lc3as
  - Assembler
- lc3sim
  - Command-line simulator
- lc3sim-tk
  - Graphical simulator



# C Tools

- gcc
  - Compiler
- gdb
  - GNU debugger
- valgrind
  - Memory checker/manager

# Miscellaneous Tools

- diff
  - Compare files and finds differences
- man
  - Manual pages.
  - Examples:
    - man cat
    - man 3 printf
- tmux
  - terminal multiplexer
- Slew of Linux commands

# Linux Customization

- Dotfiles
  - .profile – systemwide initialization file
  - .bash\_profile – personal initialization file
  - .bashrc – individual per-interactive shell startup file
  - .bash\_aliases – file for command aliases
  - .vimrc – vim configuration file
  - .tmux – tmux configuration file
- More info on the wiki under Resources/Personalizing the Workspace