ECE449 Lab 1

September 19th, 2019

People

- Carolina Quiroz (LI)
  - quirozju@ualberta.ca
- Jason Wong (TA)
  - jcwong2@ualberta.ca
- Peter Atrazhev (TA)
  - atrazhev@ualberta.ca
- No office hours
  - But can be scheduled by email

Organization

- 5 labs
- Thursdays
  - Dates in eClass
- Attendance not mandatory
  - But you can get help with the lab here!
- Prelab due before the start of each lab session (2pm)
  - Submit via eClass
- Lab report due two weeks after the lab session (except lab session 5)
  - Date is in eClass

The room

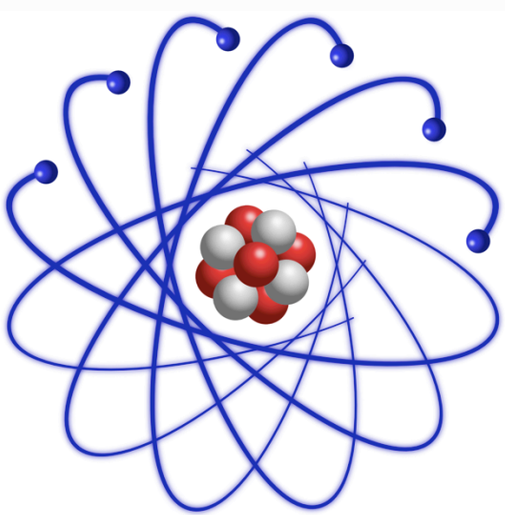
- ETLC E5-013
- Access not limited
  - Building hours
- Clean the desk after you leave
- No food or drinks allowed in the room
- Safety
  - Fire alarm – lock the workstation and leave the building (use the staircase)

Lab assignments

- Everything in eClass
  - Jupyter notebooks, resources
  - Posted 1 week before each lab session
- Pre lab question in each lab
  - Due at 2pm on the lab session date

The workstation

- Scientific Linux 6
- The station is dualboot
  - It is better to boot into Scientific Linux (CentOS)
  - If you cannot see this logo restart the machine



The workstation

- Login into the system
  - Your CCID/password
- Connect to the network
  - Open the terminal (command line)
  - Type: ssh 10.0.0.1
  - Use the CCID password again
  - Keep the terminal open

Jupyter (1/2)

- Python 3 is used in this course
  - Opportunity to learn it!
- Why?
  - Popular (http://githut.info/)
  - MATLAB is good but highly focused: try to write a web server in MATLAB
  - Also $$$, Python is free
  - Open Source

Jupyter (2/2)

- Jupyter: Notebook interface – word processing + programming
- Cloud installation at https://cybera.syzygy.ca
- Login with your CCID/password
- Local installation possible: follow the guide, Anaconda package recommended
  - http://jupyter.readthedocs.io/en/latest/install.html
  - Works without internet, faster (if you have a decent computer), but not supported by TAs

How to get help (1/2)

- Python Tutorial
- Brief tutorial https://docs.python.org/3/tutorial/
  - Or YouTube, search *Python tutorial*
- Reference
  - Official documentation
  - Modules
- E.g. skfuzzy: http://pythonhosted.org/scikit-fuzzy/

How to get help (2/2)

- Ask Google
  - Error messages: copy and paste to the search box
  - General questions
- Query: question + software name
- Example: “add legend to a plot matplotlib”
- Gives
  - Official docs
  - Stackoverflow links
- Ask TAs

Figures in your reports

- Title, labelled axes (with units), legend
- In a subplot figure each image needs a title

Lab 1

Fuzzy Logic Concepts

Objectives

- Learn how to implement a basic fuzzy controller
- Lab 1 (Basics)
- Universe of discourse and membership functions
- Operations of fuzzy sets
- Relations
- Compositional rule of inference
- Lab 2 (Fuzzy control)

How to start

1) Download the *Python supplement from eClass*
2) Download the notebook file from eClass
3) https://cybera.syzygy.ca/
4) Start your server
5) Optional: Create a folder for your Lab 1
6) Upload the notebook file
7) Open it and start working on the assignment