# Homework 0: Introductions

Monday, August 27, 2018

*CSE 597*

**Roman Istomin**

# 1 Syllabus Acknowledgement

By turning in this assignment, I, Roman Istomin, acknowledge that I have received and understand the course syllabus information available on `sites.psu.edu/psucse597fall2018`.

# 2 Introduction

My name is Roman Istomin. I am a 5th year PhD student in the Economics department. My programming experience includes C++, Matlab, Python and shared memory parallelization methods (mostly OpenMP). When I compute, I typically use ACI-B. My research is mostly computational in nature.

My area of interest is computational Industrial Organization and Education research. For my job market paper, I am implementing non-parametric estimator first envisioned in Agarwal and Somaini (2018). I use Gurobi linear solver to check feasibility of group system of linear inequalities.

I also work on numerical inversion of Pure Characteristics model of demand proposed by Berry and Pakes (2007). To do that I compute the jacobian of direct mapping from structural parameters to market shares and use it in conjunction with interior point optimizer by Knitro 10.3 to find inverse mapping.

## 2.1 Accounts

I have gotten an account on ACI using `https://ics.psu.edu/?page_id=57`. My ACI username is rji5040@psu.edu.

I have gotten an account on XSEDE using `https://portal.xsede.org/my-xsede?p_p_id=58&p_p_lifecycle=0&p_p_state=maximized&p_p_mode=view&saveLastPath=0&_58_struts_action`. My username is rom4ik (or rji5040@psu.edu, I use both to sign in).

I will be making my assignments available using Github (https://github.com/romanis/CS597HW).

## 2.2 My Course Project

I am currently thinking about choosing least squares problem or the eigen value decomposition as my $Ax = b$ problem for the semester project. I believe that this will be a good project because

- Least squares is widely used in Economics
- Eigen value decomposition is widely used in optimization

# 3 HW 0 Code and Writeup

You can get my assignment onto ACI using the command:

```
git clone git@github.com:romanis/CS597HW.git
```

## 3.1 Program overview

This is a serial hello world program, written in C. There is only one code file. The repository also contains the makefile for creating the executable, a readme, licensing information and the tex file for the write-up.

## 3.2 Instructions for running and verifying the code

**Creating the executable:**

```
module load gcc/7.3.1
make
```

**Running the program:**

```
./awl5173_helloWorld.out
```

**Expected output:**

```
awl5173 says "Hello, World!"
```

### 3.3 Instructions for compiling the write-up

I used ACI to compile the document. You can do this using the command:

```
./pdfmake.sh
```

## 4 Acknowledgements

I would like to acknowledge Chris Blanton and Chuck Pavloski for helping formulate the homework material, and Justin Petucci and Rahim Charania for helping to make sure the permissions were set correctly for the git information.

## References

Agarwal, N. and Somaini, P. (2018). Demand analysis using strategic reports: An application to a school choice mechanism. *Econometrica*, 86(2):391–444.

Berry, S. and Pakes, A. (2007). The pure characteristics demand model. *International Economic Review*, 48(4):1193–1225.