

Class 40: GuardRails, Big Data, and Secure Computation

Upcoming (Remaining!) Schedule

- **Today, 5:00pm:** Last chance to request time to present your PS8 in class. Send an email (cc:ing all your team members) that explains briefly what you would like to do and how much time you think you need. There will be an Internet-connected PC you can use, and I will provide paper plates and plastic forks; if there is anything else you need for your presentation, let me know.
- The last regularly scheduled office hours are this Sunday (1-6pm in Davis Commons). If you need to meet with me, I will be available briefly after class Monday, but traveling the rest of the week.
- **Monday's class will be your PS8 presentations.** You are **welcome and encouraged to invite friends** who are not in the class to come to this, and I've heard rumors that there may be cakes, games, gingerbread, songs, and brownies that they will enjoy.
- **Monday, 5 December (7:59pm):** PS8, Final Submission due
- **Monday, 12 December (1:00pm):** Final Exam due

Turning in Problem Set 8

For Option J, just create a zip file of your aazda/src directory that includes all the files you edited and your answers. Submit this using the Alonzo-bot server.

For Option C/W, submit your artifact by posting a comment to the "PS8 Submissions" post on the course site. Your post should include:

- (a) a full list of your team (normal names, not email IDs)
- (b) a description of your target audience
- (c) the actual artifact, or a link to it. If it is not possible to post your actual artifact (e.g., it uses a medium such as cake that cannot be easily transmitted over HTTP), you should instead post a description of your artifact (including pictures is usually a good idea).
- (d) if necessary, a *poetic license* statement. If there is anything in your artifact that you are aware is not completely correct technically, you may include a statement explaining where you took poetic license.

GuardRails: A Secure Web Application Framework

Jonathan Burket (BACS and Physics 2013)

<http://guardrails.cs.virginia.edu> jwb6mz@virginia.edu

Why are most web applications created using web application frameworks?

Why is it dangerous to allow untrusted users to inject scripts (code) into web pages delivered to other users?

How is a *source-to-source translator* (like GuardRails) similar to and different from an *interpreter*?
Would it have been possible to implement MemoCharme from PS7 as a Charme-to-Charme source-to-source translator instead of by modifying the Charme interpreter?

Modeling HVAC Systems

Virginia Smith (BACS and Math 2012)
vs2z@virginia.edu

Scientific Computing: A field that studies numerical computation techniques, algorithms, and mathematical models in order to analyze and solve scientific problems.

Data Mining: The process of analyzing/finding patterns among large quantities of data.

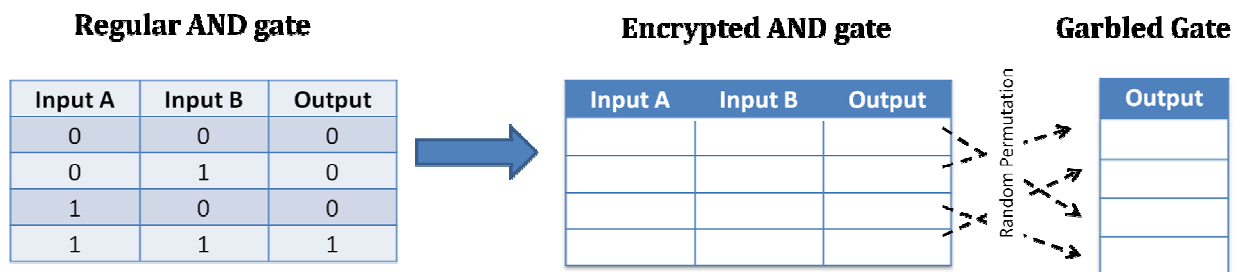
What is “big data”?

What does machine learning mean? Can machines really learn?

Secure Computation using Smartphones

Peter Chapman (BACS and Cognitive Science 2012)
<http://www.MightBeEvil.com>
<http://www.cs.virginia.edu/sca>

What is the goal of secure computation?



What are some interesting applications of secure computation on smartphones?

Do you want your genome on your smartphone?

Why is it hard to do secure computation on smartphones?