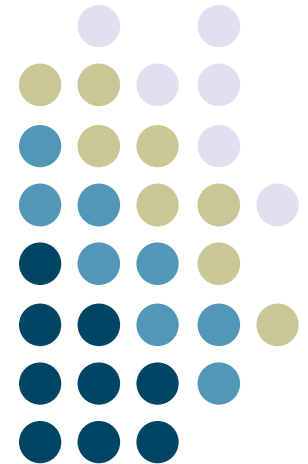


Welcome to CS 6452!

Prototyping Interactive Systems



John Stasko

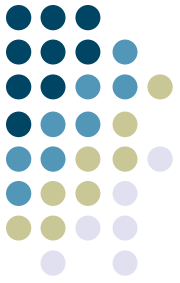
stasko@cc.gatech.edu

Amit Garg

agarg@gatech.edu

Agenda

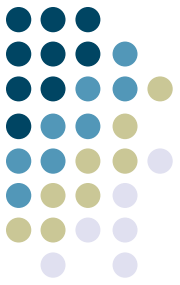
- Introductions: Stasko, Garg, and you
- Motivation for the class
- Structure of the class
- Class content
- Getting started with Python



Who am I?

John Stasko





Current Status

- Professor, School of Interactive Computing
- Research in Information Visualization, Visual Analytics, and HCI
 - New visualization techniques and systems
 - Interaction, including multi-touch
 - Models & theories, evaluation
- PhD supervision: 5 current, 14 graduated
- MS supervision: ~7 current, many graduated



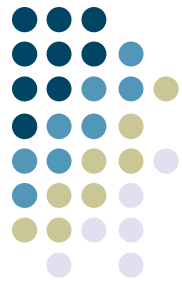
Dirty little secrets

- I would've been a great instructor for this class 15 years ago
 - X Windows and C/C++
 - Java and Swing
- This is my first time teaching this class
 - It's changing dramatically from the past
- I am in no way an expert in what I am teaching you, but that's OK
 - Just learning Python, Processing, web tools
 - Hardware?

Amit Garg

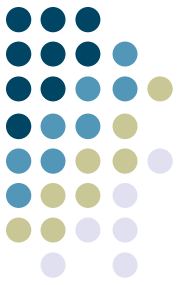


Georgia
Tech

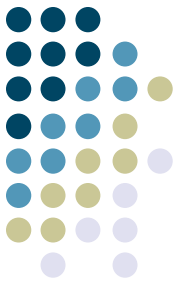


Survey

Georgia
Tech



- Please take a few minutes to fill it out and leave with me



Now it is your turn

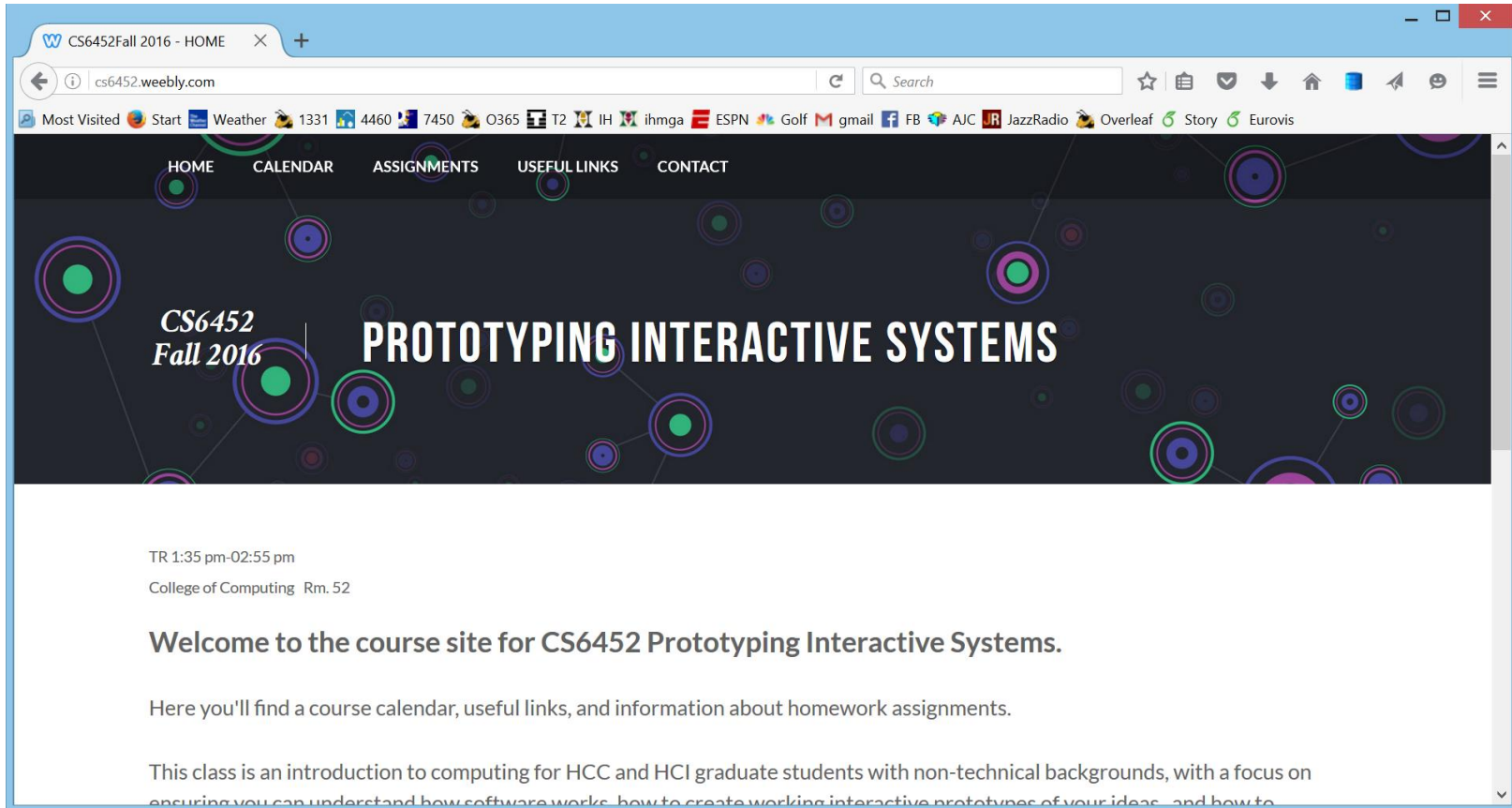
- Name
- Degree program
- Your experience programming
- Other relevant experience related to computing
- Why are you interested in this class?
- What one thing did you do this summer that you never did before?

Big Decision for today

- Do you **NEED** to be in this class?
- Do you **WANT** to be in this class?
- Ask questions in class **TODAY** to help you figure this out.

Class Website

Georgia
Tech



<http://cs6452.weebly.com>

T-square site

Georgia
Tech

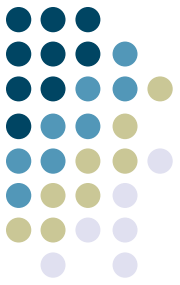


The screenshot shows a web browser window with the URL <https://t-square.gatech.edu/portal/site/gtc-1b1a-74ff-5b0d-9311-c879b64231d5/page/ea5358cd-9679-4af6-bc72-0d8b>. The browser's address bar and tabs are visible at the top. Below the browser window, the site's navigation bar includes tabs for 'My Workspace', 'CS-6452-A', 'CS-7450-A', 'CS-1331-A1,A2,A3,A4,A...', 'CS-8001-VDE SPR1e', 'CS-8001-VIS, LMC-8801 ...', 'CS-7450-A FALL15', and 'My Active Sites'. A 'View Site As:' dropdown menu is set to '- Select Role -' and a 'Logout' button is present.

The main content area is divided into two sections:

- COURSE TOOLS**: A vertical sidebar menu with the following items: Home, Syllabus, Announcements, Resources, Assignments, Gradebook, Email Archive, Roster, Site Info, Section Info, Statistics, Piazza, Wiki, and Help.
- SITE INFORMATION DISPLAY**: A section titled 'CS 6452 - Prototyping Interactive Systems'.
- RECENT ANNOUNCEMENTS**: A section with an 'Options' link. Below it, the text reads: 'Announcements (viewing announcements from the last 10 days)' and 'There are currently no announcements at this location.'

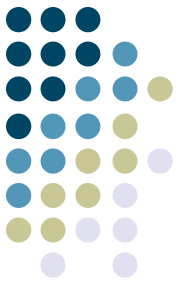
At the bottom of the page, a copyright notice states: 'Copyright 2003-2011 The Sakai Foundation. All rights reserved. Portions of Sakai are copyrighted by other parties as described in the Acknowledgments screen. T-Square - gatech-sakai-2-8-x-10 - Sakai 2.8.x (Kernel 1.2.5) - Server pinch9.lms.gatech.edu'.



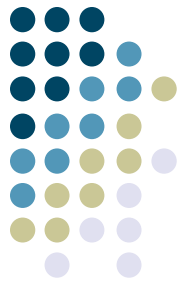
Preliminaries

- Laptops
 - Bring to each class
 - Will use in lab exercises, etc.
 - Please leave closed otherwise
- You are responsible for checking on t-square and course website regularly for assignments and class preparation

What does Prototyping Interactive Systems mean, anyway?



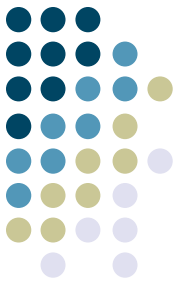
- Rapid creation of interactive systems through programming
- Exposure to a variety of modern programming activities
- Some theory, mostly pragmatic, with some exposure to developing skills to describe and defend design choices



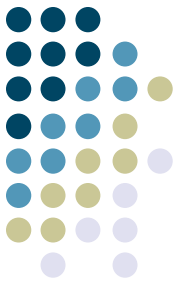
Original motivation for 6452

- Computing requirement for HCC Ph.D. programming
 - Basic level of competency in building programs yourself
 - Confidence in assessing and learning new programming paradigms, tools and languages
 - Learn about software architectural design considerations (e.g., how solutions are put together and assessing options)
 - Should help you satisfy the computation portfolio requirement
 - Technical reading/writing/doing/talking

Class is now popular beyond HCC



- Mostly masters students
- Exposure to programming if you haven't had any
- Lots of variability in experience/skill with programming
 - That's OK, but think about whether you will be "bored" by this class
 - There is a more advanced UI programming course offered



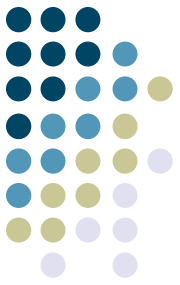
Class Content

1. Programming in Python
 - Coding, data structures, tools, etc.
 - Data access, manipulation, and visualization
 - Manipulations on the web
 - Processing (p5.js)
2. Object-oriented programming in Java
 - Coding, tools, etc.
 - Event-driven GUI programming in JavaFX/Swing
3. Physical prototyping and hardware
 - 3D printing and laser cutting
 - Arduino

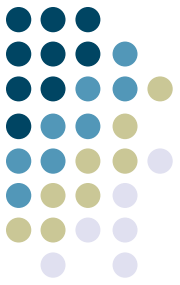
Extras:

iOS app development
JavaScript and the web

Grading Criteria



In-class participation	20%
Readings	10%
Programming assignments	70%



Style of class

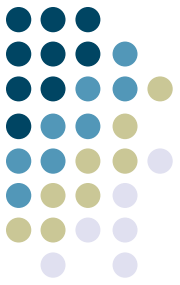
- Some/most of classes will have a studio model to them
 - Review of a reading or a quick idea
 - In-class, hands-on activity (individual or small group)
 - Reflection

Quick poll. Who has experience with ...



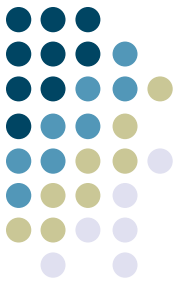
- Python
- Processing
- JavaScript
- Java
- Swing or JavaFX
- iOS app development (Swift)
- 3D printing, laser cutting
- Arduino

Python

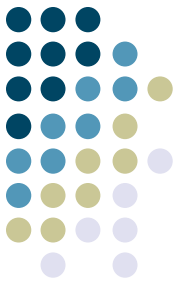


- Our first programming language to examine
- Interpreted, interactive
- Includes object-oriented capabilities, but not what many Python programs use (not what it's known for)
- Loads of libraries
- Useful for web tasks

Python



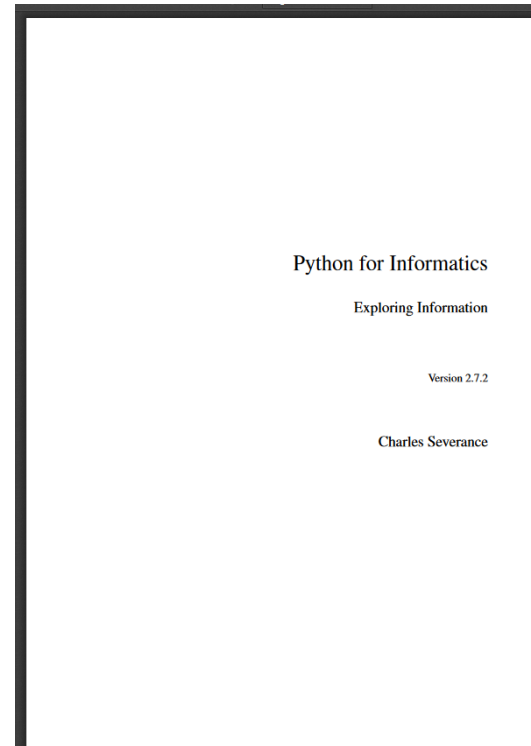
- “In-between” versions 2 and 3
 - Some subtle but important changes to the language



Resources

- Borrow or buy a book (any good one will do)
- Free online text

<http://do1.dr-chuck.net/py4inf/EN-us/book.pdf>



Python for Informatics

Exploring Information

Version 2.7.2

Charles Severance

Informal HW

Getting ready for next time

- Install Python on your laptop
 - Mac folks – Should already have version 2.7
 - Windows folks – Get version 3 from web