# CSC290 Communication Skills for Computer Scientists

Lisa Zhang

Lecture 1; Sep 10, 2018

Welcome to CSC290!

# Introduction

- **Instructor**: Lisa Zhang
- **Email**: lczhang@cs.toronto.edu
  - Please prefix email subject with 'CSC290'
- **Office hours**: Wednesdays 2pm-4pm DH3068

# About your instructor

Before I started teaching, I was. . .

- a masters student doing research in Machine Learning
- a senior data scientist at an advertising technology company
- a startup founder of a data visualization company
- a software developer intern in various Silicon Valley companies, e.g. Facebook, ContextLogic (Wish)

I studied. . .

- machine learning at UofT
- pure math at UWaterloo

Ask me about anything outside of class, or empty office hours!

# About you

- Pursuing CS major?
- What are your aspirations?
- Are you interested in research?
- What CS (or other) careers do you wish to pursue?
- What are your near term goals?

# About you – survey

- You are a very diverse group!
  - mostly second years
  - transfer students, exchange students, etc
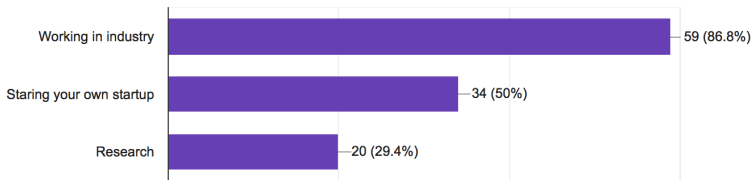- Mostly industry-focused

# About you – survey

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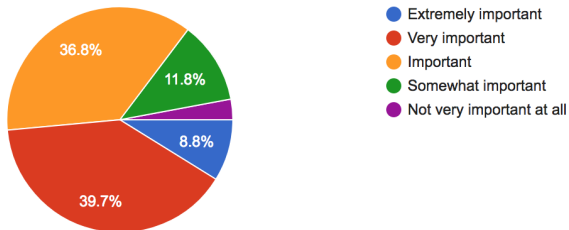
**What career paths are you interested in?**

68 responses

# Most respondents agree that writing is important

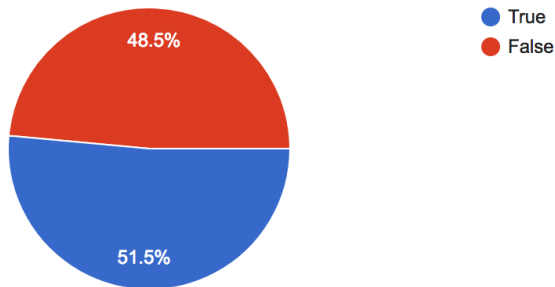## How important do you think writing is for someone studying Computer Science?

68 responses



- ● Extremely important
- ● Very important
- ● Important
- ● Somewhat important
- ● Not very important at all

36.8%
11.8%
8.8%
39.7%

# But. . .

## I would not be taking this course if it was not required.

68 responses

# Maybe because . . .

## How would you rate your academic writing skills?

68 responses



Legend:
- Excellent
- Strong
- Competent
- Weak
- Very Weak

Pie chart values: 50%, 32.4%, 11.8%
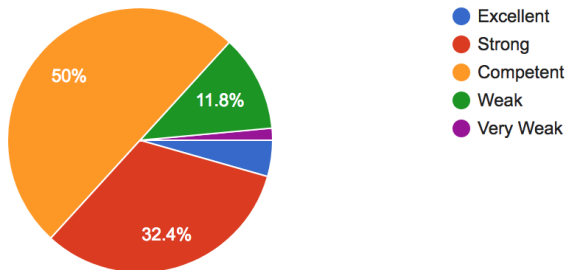
# Why is CSC290 mandatory?

> *College graduates are highly confident of their abilities in both traditional "hard" and "soft" skill areas. Employers, on the other hand, are increasingly frustrated at what they see as a growing problem with graduates' soft skills, or rather, lack thereof.*
>
> *– Carol et al. 2016. Mixed Signals: Do College Graduates Have the Soft Skills That Employers Want?*

# Survey

**TABLE I: TOP 10 SOFT SKILLS EMPLOYERS SEEK IN COLLEGE GRADUATES**

| Skill | Employer % | % Employers feel college grads well prepared | % College grads feel well prepared | % Students surveyed feel well prepared |
|---|---|---|---|---|
| **Hart Research Associates:** | | | | |
| Verbal communication | 85 | 28 | 62 | 72.4 |
| Teamwork | 83 | 37 | 64 | 83.6 |
| Written communication | 82 | 27 | 65 | 84.1 |
| Ethical judgment / decision making | 81 | 30 | 62 | 65.4 |
| Critical/analytical thinking | 81 | 26 | 66 | 86.9 |
| Applying knowledge & skills to real world | 80 | 23 | 59 | -- |
| Problem-solving | 70 | 24 | 59 | 87.9 |
| Locating, organizing, and evaluating info | 68 | 29 | 64 | -- |
| Innovation / creativity | 65 | 25 | 57 | -- |
| Staying current on changing technologies | 60 | 37 | 46 | -- |

# What are soft skills?

- How effective are you at working with others?
- How easy is it to work with you?
- Can you communicate succinctly and effectively?

# Coding vs writing

*Coding is unforgiving. Its structure is well-defined and enforced by whatever interpreter or compiler you might be using. You are punished swiftly for obvious errors. . . Writing appears more forgiving [but] there is a compiler and . . . It's your readers. Not only do they care about syntax, but they also want to learn something, and, perhaps, be entertained. . .*

*–*

*http://randsinrepose.com/archives/please-learn-to-write/*

What does a software developer write?

# What does a software developer write?

- Documentation for other programmers
- Users guides or error messages for users
- Email with co-workers
- Presentations for management
- Job applications, resumes, cover letters

# Course Goals

To develop skills in:

- ▶ Written communication
- ▶ Oral communication
- ▶ Interpersonal communication

In order to develop those skills, you will be:

- ▶ writing every week
- ▶ presenting during tutorials
- ▶ working in groups

# Course Components

- **Lectures**:
  - Monday afternoons, lead by me
  - Introduce new material, exercises
- **Tutorials**:
  - Fridays, lead by TA's
  - Attendance is mandatory starting this week
- **Readings**:
  - No textbooks
  - Readings are posted weekly.
- Any material covered in lectures / tutorials / readings is fair game for the assignments, midterm, and exam.

# Tutorial Section

- Make sure you have registered in a tutorial section in ACORN - by 11:59pm tonight.
- You must be able to attend the tutorial in which you are registered.
- You will be grouped with other students in your tutorial.
- **Tutorials start this week**

# Evaluations

There is something due every week, so that you write regularly.

- **Regular Weekly Blog Posts (10%)**:
- **Critical Review Articles (20%)**:
  - Article 1 + Revisions (10%)
  - Article 2 (10%)
- **Group Project & Presentation (25%)**:
- **Tutorial Participation (5%)**
- **Midterm (10%)**
- **Exam (30%)**

# Syllabus and Course Website Scavenger Hunt

- Which topic on the syllabus interest you the most? the least?
- How will blog posts be submitted?
- How will critical review articles be submitted?
- How will group projects be submitted?
- What is the late submission policy for this course?
- What is Turnitin.com what will the course staff use it for?
- What is plagarism and how can you avoid it?

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- You ask your friend to proofread your critical review article, and she points out issues that you could improve.

# Course Expectations

- Use and check your UofT email address
- Check the course website and announcements
- Provide feedback to the instructor or TAs if/when necessary
- Work cooperatively with your group. Group work is *not* optional in this course as part of your learning outcome is to learn to work as part of a team.

# The dreaded group work



- ▶ Group work can be frustrating, unpredictable, difficult
- ▶ But also important!

# Frustration

- Frustration is okay!
- As a professional, you will feel frustrated on a daily basis, even if you love your job.
- Reacting and communicating well while frustrated is an important soft skill.

# Challenge:

- Be introspective when frustrated.
- Treat frustration as a learning opportunity.
- Be the person that others find easy to work with.

# Resources

The Robert Gillespie Academic Skills Centre (RGASC)
http://www.utm.utoronto.ca/asc/

- 3rd floor of the Library
- Make an appointment or visit a drop-in
- 30 minute sessions tailored to you
- Help with
    - Time management
    - Study habits
    - Writing (creating a thesis, arguing, editing, etc)
    - English language learning

# Resources - Campus Happenings

Information & Instructional Technology Services (I&ITS) – aka.
Service Desk @ CCT Atrium http://www.utm.utoronto.ca/iits/

AccessAbility Resource Centre (AARC) @ DV 2037
http://www.utm.utoronto.ca/accessability/

Career Centre @ DV 3094 http://www.utm.utoronto.ca/careers/

# Questions?

- ▶ Can you explain how to stay anonymous when writing?
  - ▶ Avoid using your name, address, name of high school
  - ▶ Focus on your interests, goals, and accomplishments

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Other questions?

# Communication Theory

# Agree or Disagree?

"I am only responsible for what I say not for what you understand"

# The SMCR Model:

Communication involves two parties: *sender* and *receiver*

- **Sender**: Sender of message, with some *intention*
- **Message**: *Encoding* of the intention
- **Channel**: The medium in which the message is transmitted
- **Receiver**: *Decodes* the message

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Successful communication = message intended is the one perceived/received

# Parts of Communication

- **Sender** / Yourself: How well do you understand the message, audience, medium?
- **Message**: What are you trying to communicate?
- **Channel** / Medium : What does the medium communicate about the message?
- **Receiver** / Audience: Who are you trying to communicate to?

**Goal** What are you trying to accomplish?

# Work backwards

- **Goal** What are you trying to accomplish?
- **Receiver** / Audience: Who are you trying to communicate to?
- **Channel** / Medium : What does the medium communicate about the message?
- **Message**: What are you trying to communicate?
- **Sender** / Yourself: How well do you understand the message, audience, medium?

# Consider your medium!

# What does the Comic Sans font communicate?

# Structure is Part of Communication

- An essay has an introduction, a body, and a conclusion.
- The first sentence in a paragraph identifies its purpose.
- An email has a subject line.
- Easy to use web sites have a navigation bar.

# Structure is Part of Communication

- Structures evolved as a means of effectively achieving a particular goal.
- Structures simplify the creation of a message by outlining the basic set of questions to be answered.
- Known structures are familiar to people making it easier to decipher the message within.

Consider how these apply to the previous examples

# Parts of Communication for Assignments

When writing your blog posts, assignments, etc consider . . .

- ▶ What is your goal/purpose?
- ▶ What is your message?
- ▶ What is the medium?
- ▶ Who is your audience?

# Setting up your blog

- **Audience**: Your classmates, TAs, instructors, others who are interested in computer science.
- **Medium**: Web browser
  - How should you structure your blog?
  - How formal / informal should it be?
  - What does the title communicate?

# Font?



Serif Font      Sans Serif Font

- **Serif Fonts**: associated with respect, tradition, grandeur and authority
- **San Serif Fonts**: associated with modernity, straightforwardness and sensibility

# Font?



- **Proportional**: easier to read, used for most prose
- **Monospace**: used for code (why?)

# Contrast?



Brightness contrast increases legibility

Brightness contrast increases legibility

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Brightness contrast increases legibility

Complementary colors are most effective

Complementary colors are most effective

Adjacent colors are less effective

Adjacent colors are less effective

# Line Length?

*The optimal line length for your body text is considered to be 50-60 characters per line, including spaces ("Typographie", E. Ruder). Other sources suggest that up to 75 characters is acceptable. – https://baymard.com/blog/line-length-readability*

# Paragraphs?



NEWS

## Nation Shudders At Large Block Of Uninterrupted Text

3/09/10 5:00pm • SEE MORE: SCIENCE & TECHNOLOGY ⌄
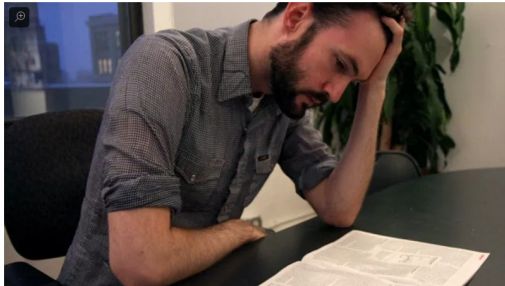
The giant mass of prose was devoid of so much as a large pulled quote for readers to glance at before moving on.

WASHINGTON—Unable to rest their eyes on a colorful photograph or boldface heading that could be easily skimmed and forgotten about, Americans collectively recoiled Monday when confronted with a solid block of uninterrupted text.

▶ Most readers "skim"; they scan for important information
▶ Break your content into parts to help your readers

# Other concerns?

- Tone? (Formal/informal?)
- Mobile readers?
- Links?
- Images?
- Structure?

# Summary

- What is the SMCR model of communication?
- Why is it important to tailor your communication to your audience?
- How can the medium affect the message?
- How is structure a part of communication?
- What are aspects of your blog (medium) that you should be mindful of?

This weeks tutorial: (Mini) Networking

# Why Network?

- Knowing people can help you succeed!
- Only 30% of new jobs are advertised.
- Referrals are taken more seriously than "cold" applications.
- Effective networking is one way to meet people.

# Why are we talking about networking now?

Informal networking takes place any time

- ▶ Lectures, tutorials, lunchtime, computer labs
- ▶ Standing in line at the movies, riding the bus
- ▶ Right now!

# Be deliberate

- Think about how you introduced yourself to others today
  - What worked?
  - What do you want to change?
- How will you introduce yourself on your blog?

# Things to do this week

- Make sure you are enrolled in a tutorial section
- Bookmark the course website
- Reading the required + optional readings
- Write your first blog post
- Post your blog on Quercus
- Get to know your classmates