INTRODUCTION

CSC300: Computers and Society

Jan 6 / Jan 9 2025

TODAY'S AGENDA

- Meet the team

  (hi!)

- About this course

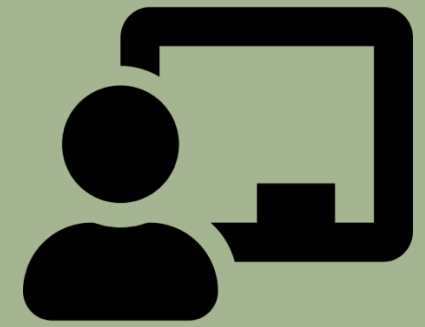
  (a glimpse of what's to come)

- What to expect

  (how to fit this course into your busy lives)

- Housekeeping

  (things you need to know)



MEET THE TEAM

CO-INSTRUCTORS

✓ Design and deliver weekly lectures and teaching material

RACHEL LEVINE, PHD

- Postdoctoral Fellow (DCS, U of T)
- What this means: Rachel has a PhD in Anthropology. Now she is doing a new research project at DCS. 💪
- Research areas in CS: human-robot interaction; ethics; animals and new technologies.

YASAMAN ROHANIFAR, MSC

- PhD Candidate (DCS, U of T)
- What this means: Yasaman is in the process of completing the requirements of her PhD. When she is done, she will have a PhD in Computer Science. 💪
- Research areas in CS: Human-Computer Interaction (HCI); financial technologies; Information & Communication Technologies for Development (ICTD)

LEAD TEACHING ASSISTANT

✓ Your main admin contact

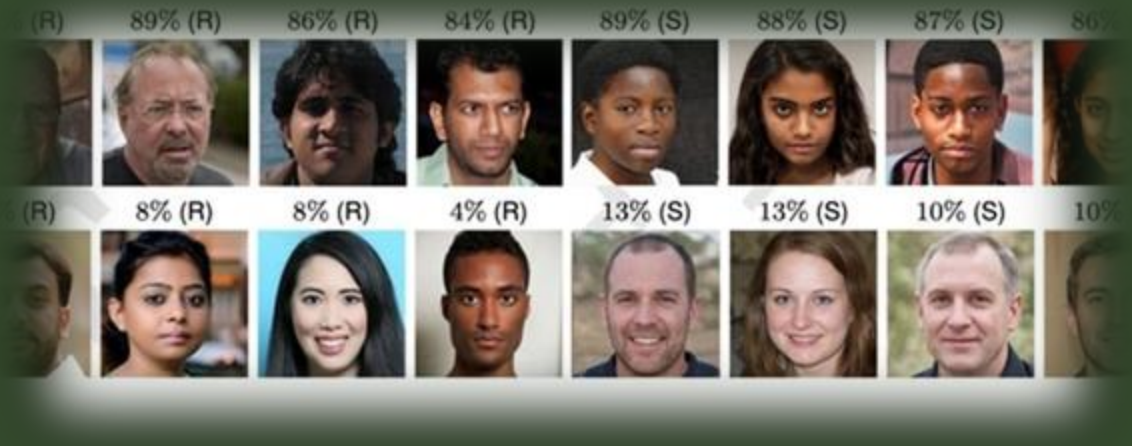
MOHAMMAD RASHIDUJJAMAN RIFAT (RIFAT)

- PhD Candidate (DCS U of T)
- What this means: Same as for Yasaman.
- Research areas in CS: Human-Computer Interaction (HCI); computing for marginalized communities; computing and multiculturalism; ICTD

"YOUR" TEACHING ASSISTANT

- ✓ The person who will lead your weekly tutorial and assign your tutorial grades

- Some TA assignments are still pending
- (These people are not your TAs) →



AI Generated Faces Are More Trustworthy Than Real Faces Say Researchers Who Warn of "Deep Fakes"

NeuroScience News, February 14, 2022

EXPLORING COMPUTERS AND SOCIETY (GLIMPSE INTO THE COURSE)

A BRIEF HISTORY OF CSC300

- Not-so-Fun fact:
  - CSC300 is one of the oldest courses in Computer Science Department of U of T
  - First lectured by Prof. Kelly Gottlieb
- Motivation:
  - Computer scientists should:
    - Know about society
    - Know the impact of computing on society
    - Build technologies to improve society
- For most students, this is their first 'non-technical' course
  - Many CS students do not know how to 'read' and 'write' (unfortunately)

THE BRIEF PRESENT OF CSC300…

The Guardian

'Godfather of AI' shortens odds of the technology wiping out humanity over next 30 years | Artificial intelligence (AI) | The Guardian

Association for Computing Machinery

1. GENERAL ETHICAL PRINCIPLES.

A computing professional should...

1.1 Contribute to society and to human well-being, acknowledging that all people are stakeholders in computing.

This principle, which concerns the quality of life of all people, affirms an obligation of computing professionals, both individually and collectively, to use their skills for the benefit of society, its members, and the environment surrounding them. This obligation includes promoting fundamental human rights and protecting each individual's right to autonomy. An essential aim of computing professionals is to minimize negative consequences of computing, including threats to health, safety, personal security, and privacy. When the interests of multiple groups conflict, the needs of those less advantaged should be given increased attention and priority.

Computing professionals should consider whether the results of their efforts will respect diversity, will be used in socially responsible ways, will meet social needs, and will be broadly accessible. They are encouraged to actively contribute to society by engaging in pro bono or volunteer work that benefits the public good.

In addition to a safe social environment, human well-being requires a safe natural environment. Therefore, computing professionals should promote environmental sustainability both locally and globally.

BIOHACKING

MILLIONAIRE BIOHACKER SAYS ALGORITHM RUNS HIS LIFE: 'MY MIND NO LONGER DECIDES'

Bryan Johnson — who went viral for blood plasma donations and penis shockwave therapy — shares the philosophy behind

'Trump is a little guy, Musk is a big guy': historian predicts trouble for president-elect

Timothy Snyder says world's richest man is likely to exert uncomfortable influence over White House

Militarization of AI Has Severe Implications for Global Security and Warfare

As artificial intelligence continues to evolve, the need for effective governance mechanisms to manage its use, and mitigate potential

If AI Takes All The Jobs, This Is What Society Looks Like

Moon · 890K views · 4 months ago

How will AI change the world?

TED-Ed · 2M views · 2 years ago

AI and the future of humanity | Yuval Noah Harari at the Frontiers Forum

Yuval Noah Harari · 2.3M views · 1 year ago

Will AI Decide Humanity's Future? OpenAI's $1M Moral Gamble

Machine Mind · 5 views · 7 hours ago

What Is an AI Anyway? | Mustafa Suleyman | TED

TED · 1.9M views · 8 months ago

AI Is Dangerous, but Not for the Reasons You Think | Sasha Luccioni...

TED · 1.2M views · 1 year ago

THE FUTURE OF WORK

WHAT IS A "COMPUTER"?

Any system that's capable of computation.

Therefore: a system that manipulates, transforms, and analyses information using logical and mathematical processes.

1. Personal Computing Systems
- Desktop Computers
- Laptop Computers
- Tablets
- Smartphones
- Wearable Devices (e.g., smartwatches, fitness trackers)

2. Embedded Systems
- Microcontrollers
- Systems in Appliances (e.g., washing machines, microwaves)
- Automotive Systems (e.g., engine control units)
- IoT Devices (e.g., smart thermostats, security cameras)

3. Server Systems
- Web Servers
- Database Servers
- Application Servers
- File Servers
- Cloud Servers

4. Supercomputers
- High-Performance Computing (HPC) Systems
- Scientific Research Systems
- Weather Prediction Systems

5. Mainframe Systems
- Transaction Processing Systems
- Enterprise Resource Planning (ERP) Systems
- Legacy Corporate Systems

6. Distributed Systems
- Cluster Computing
- Grid Computing
- Peer-to-Peer Networks
- Blockchain Systems

7. Cloud Computing Systems
- Infrastructure as a Service (IaaS)
- Platform as a Service (PaaS)
- Software as a Service (SaaS)
- Hybrid Cloud Systems

8. Edge Computing Systems
- IoT Gateways
- Fog Computing Systems
- Real-Time Data Processing Systems

9. Quantum Computing Systems
- Quantum Annealers
- Gate-Based Quantum Computers

10. Virtualized and Containerized Systems
- Virtual Machines (VMs)
- Containers (e.g., Docker, Kubernetes)

11. Specialized Computing Systems
- Gaming Consoles
- Graphics Processing Units (GPUs)
- Field-Programmable Gate Arrays (FPGAs)
- Artificial Intelligence Accelerators (e.g., TPUs, neural processors)

12. Networking Systems
- Routers and Switches
- Firewall Appliances
- Network Attached Storage (NAS)

13. Cyber-Physical Systems
- Robotics Systems
- Autonomous Vehicles
- Industrial Control Systems (e.g., SCADA)

14. Analog Computing Systems
- Mechanical Computers
- Analog Signal Processors

15. Hybrid Computing Systems
- Analog-Digital Hybrid Systems
- Neuromorphic Computing Systems

HOW DO WE APPROACH (SOME OF) THESE TECHNOLOGIES IN CSC300?

Computers are essentially social technologies embedded in unique, complex, and historically specific social relations.

"Computing" shapes, and is shaped by, society.

- Processes of computing are neither ***natural*** nor are they ***neutral***!

Computing is social because it involves people, their interactions, and their cultural, political, and economic contexts.

In this course, we are interested in looking more closely at how human interactions and relations take place in specific places, in particular ways.

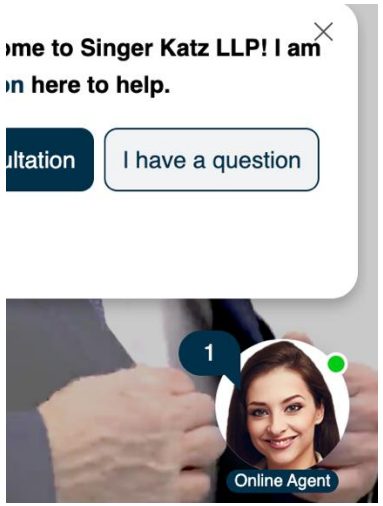
Computers and computing involve:

- Structures of power and systems of domination
- Hierarchies of knowledge
- Circulations of finance
- Relationships to the "natural"/non-human world

PAUSE! WHAT IS "SOCIAL"?

When we refer to "society" and the "social," this encompasses ….

- **People:** Individuals and groups.
- **Traditions, norms, values:** traditions that guide behavior and provide a sense of identity. Unwritten rules and moral principles that guide behavior and interactions within society.
- **Social Structures: o**rganized patterns of relationships and institutions that define roles and responsibilities, such as:
  - **Families**: A basic unit of social organization.
  - **Governments**: Structures of power and authority.
  - **Economic Systems**: Production, distribution, and consumption of goods and services.
  - **Education**: Systems for knowledge transmission and learning.
  - **Religion**: Organized systems of spiritual belief and practice.
- **Institutions:** entities that govern societal behavior, such as schools, courts, businesses, hospitals, and religious organizations.
- **Economies:** systems of production, exchange, and consumption of goods and services, including labor, capital, and markets.
- **Laws and Regulations:** Formal rules enforced by governing bodies to maintain order and resolve conflicts.
- **Environments:** physical space where society exists, including natural and built environments, and the society's relationship with it.



STRUCTURES OF POWER AND SYSTEMS OF DOMINATION

Computing involves organized and informal human *and* non-human labour at local and global scale

> … how do poor societies or vulnerable peoples resist oppressive labour conditions at Unnamed Tech Corp?

AI systems simulate social interactions, influencing how people relate to technology *and to each other.*

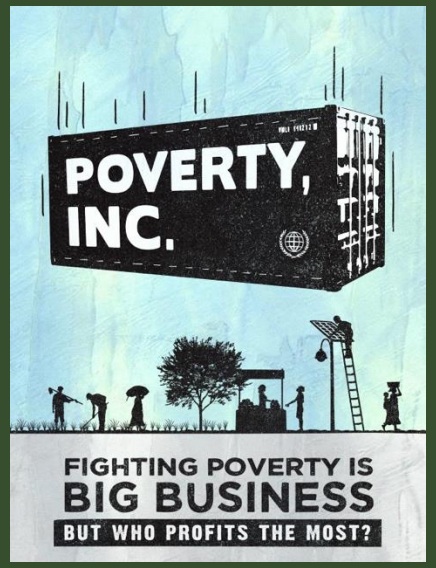
Cultural narratives about AI, often shaped by media, impact societal expectations and fears.

> "[when] will the robots take over?"

Gig economies: platforms like Uber and TaskRabbit mediate labor relationships, redefining "work."

> Employers have less and less responsibility to employees, e.g., to provide healthcare packages or other benefits

COMPUTING IS SOCIAL



It costs over $70,000 a year to go to Harvard—but here's how much students actually pay

"Harvard estimates total billed and unbilled costs of about $73,800-$78,200 per year to attend the prestigious school "

HIERARCHIES OF KNOWLEDGE

Much of computing is shaped by Western knowledge systems, marginalizing non-Western ways of thinking and creating unequal participation.

Computing takes place through layers of abstraction that require "specialists" with "expertise"

- …who has access to this expertise? Is it more accessible to some than to others?
- …how does gatekeeping function in computing? Proprietary software and corporate trade secrets restrict the free flow of knowledge…

Machine learning models are trained on curated datasets, requiring domain expertise to label and organize information hierarchically.

- … who decides how data is organized? How might changing concepts of "race" and "gender" change the politics of data organization?

COMPUTING IS SOCIAL

one laptop per child™

He's back!

FINANCIAL CIRCULATION AND ACCUMULATION

Large tech companies control critical computing infrastructures, concentrating expertise and decision-making to a select few.

The select few = power and money.

Consolidation of power and money in tech can shape international relations

implications for national security, education, healthcare…

Computing is so abstractive and layered that tech firms may dodge regulation; may operate as shell companies for money laundering, illegal trade deals…

Power held by tech <> power held by government → power over YOU!

Photo: Vivek Raj Maurya

Millions of mobile phones, laptops, tablets, toys, digital cameras and other electronic devices bought this Christmas are destined to create a flood of dangerous "e-waste" that is being dumped illegally in developing countries, the UN has warned.

RELATIONSHIPS TO THE "NATURAL"/ NON-HUMAN WORLD

Resource extraction

- The hardware behind computing—processors, chips, and batteries—relies on natural resources like rare earth metals, lithium, and silicon. E-Waste: made for the West, dumped in the "Global South"

Energy Use

- Data centers, cryptocurrency mining, and other computing operations consume vast amounts of energy, contributing to carbon emissions and impacting climate change.

AI and remote sensing technologies are changing what we know about animal populations: may help map species distribution, track migrations, and monitor deforestation.

Networked devices and data analytics optimize water use, crop management, and soil health.

- What happens to generations of human knowledge about animals and local environments?

WHAT TO EXPECT

Week	Class dates	Topic	Instructor
2	Jan 13 / 15	Ethical Questions in Contemporary Computing	RL
3	Jan 20 / 22	Computing, Development, and Globalization	YR
4	Jan 27 / 29	Technologies of Social Inequality	RL
5	Feb 3 / Feb 5	Financial Technologies	YR
6	Feb 10 / 13	MIDTERM TEST	NO LECTURE
7	Feb 17 / 20	READING WEEK	NO LECTURE
8	Feb 24 / Feb 27	Computing for Empathy	YR
9	Mar 3 / Mar 6	Human-Robot Relationships	RL
10	Mar 10 / Mar 13	Data Governance and Accessibility	TBA/GUEST
11	Mar 17 / 20	Ubiquitous Computing and Technologies of the Body	YR
12	Mar 24 / 27	Animals and New Technologies	RL
13	Mar 31 / Apr 2	Now What? Speculation and Computing Beyond Earth	RL, YR

WHAT YOU CAN EXPECT

Your weekly homework

- About 30 pages of academic reading a week (usually one article/chapter).
- Readings are selected to be very *readable:* they will have clear arguments and be grounded in real-world examples.
- You may also be required to watch some short YouTube clips or similar.

The weekly lecture will…

- contextualize the reading(s) within the literature, incl broader theoretical frameworks (e.g., the work of Marx).
- pull out important questions/themes.
  - "Important" = these are the things we will ask you about on tests.

Tutorials

- In-person. You must actively participate.
- (GPTs cannot participate on your behalf).

EVALUATION

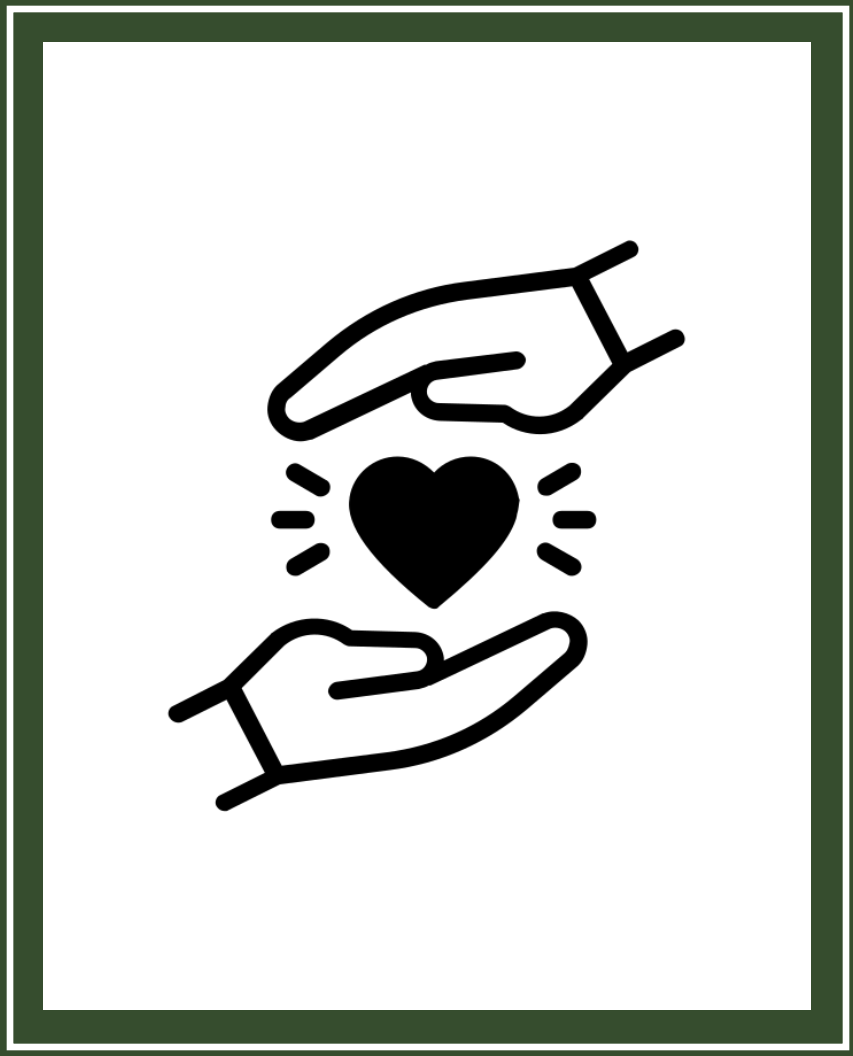
- **Midterm exam (30%): during class time, in-person.**
- **Final exam (35%): during formal exam period, in-person.**
- **Tutorial Participation (35%)**
  - More info TBA

WANT TO ACE THIS COURSE?

Do	Do the weekly readings. • Be critical. Make note of your questions or disagreements.
Show up	Attend the tutorials having critically done the readings • A significant portion of your final grade depends on active engagement during tutorials!
Show up	Attend the lecture! (Yes, we know that all your instructors say this!) • RECORDING IS NOT AUTHORIZED • Tests / tutorial activities will expect you to draw from lectures
Ask	Make use of the Quercus discussion board! • The Instructors will answer your questions there.
Reach out	Reach out for help if you need it. • See syllabus for resources & communication policies

WE COME IN PEACE!

- This course may ask you to discuss sensitive issues that may be relevant to your personal life experience.
- **Remember your task is to critically engage with *concepts*; not to debate lifestyle or morality.**
- **With this said:** please be sensitive toward others during discussions.
- Everyone is meant to voice their point of view.
- The goal is not to convince others you are right or they are wrong, but to explore some of the difficult problems related to computers and society using the tools and concepts this class offers.
- You will learn more and get a better grade if you take this approach!
  - Tests will ask you to engage with multiple points of view.



HOUSEKEEPING

HOW TO CONTACT US

If your issue is…	Then please address it to…
Personal	Course email (WILL BE POSTED)
Personal and highly sensitive e.g., *harassment, threats*	Both Instructors
Tutorial logistics & office hours	Your TA, who will let you know their preferred method of communication in tutorial
Lecture material	Instructor Office Hours (not email) AND/OR Quercus discussion board
Reading material and course concepts	TA's preferred method of communication, or Instructor Office Hours (not email) AND/OR Quercus discussion board
Accessibility-related	Head TA, Rifat

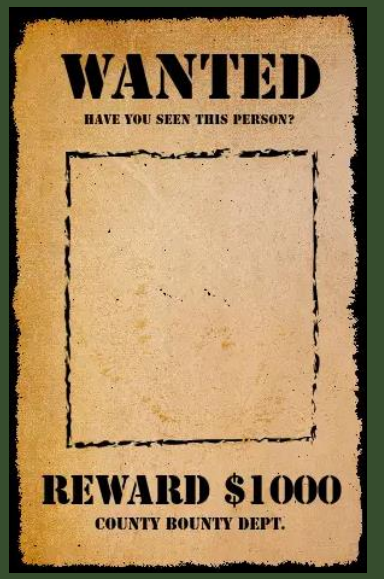
COMMUNICATION POLICY (WE'RE HERE FOR YOU!)

- DO NOT USE THE QUERCUS MESSAGING SYSTEM TO EMAIL THE INSTRUCTORS.
  - If your TA prefers this, they will let you know.
- Use your institutional/ U of T email account.
- Always use subject line CSC300 – Last Name, First Name – tutorial section – topic
  - E.g., CSC300 – Simpson, Homer – TUT0101 – donuts
- Last-minute emails will not receive first-minute replies. Expect 48 business hours for a response.
- Do not cc other parties unless you have discussed this with the recipient in advance.
- Remember that email is a form of professional communication. Organize your correspondence logically and coherently. Clearly state your question or concern. Be polite.
- Resist the urge to send reactive or frustrated email and consider what might better be addressed in person – e.g., save requests for a grade review for a private meeting.
- Don't panic: if we have made a mistake that affects your transcript, we will fix it.

ANSWER TO FAQS!

- When/where are the lecture slides posted?
  - All the lecture materials will be posted on Quercus.
- Are the lectures recorded?
  - **No**! If you miss class, you are responsible for getting notes from a classmate.
- Is it ok if I don't go to the tutorials? I have a conflict…
  - **Not unless you want to forfeit 35% of your final grade!** Both the lectures and the tutorials are essential to the course, and important for your final grade!

WANTED: VOLUNTEER NOTE-TAKER



- Accessibility Services is seeking volunteer note takers for students in this class who are registered in Accessibility Services. By volunteering to take notes, you are contributing to the academic success of students with disabilities who need help with notetaking due to disability-related reasons.
- **This service benefits you as well. You will be more mindful of attending class regularly, and you will improve your own note-taking skills.** Volunteering is an excellent way to give back to the University of Toronto community. At the end of term, you may also request a co-curricular credit and a certificate of appreciation. You also may qualify to enter a draw for a gift at the end of the year.
- Register Online at: https://clockwork.studentlife.utoronto.ca/custom/misc/home.aspx

RECOGNIZED STUDY GROUPS (RSG)

IN SUM: COMPUTERS AND COMPUTING ARE A SOCIAL LENSES

In this course, computers and computing act as a ***lens*** through which you will be asked to think ***critically*** about…

- Personal and group *identity* categories (race, class, gender, sexuality)
- Systems of *power*, authority, and domination
- *Relationships* and behaviour: personal and social

- You will be examining these issues in a range of places, each with their own norms and values.
- Thinking critically means interrogating the social processes through which norms and values are formed in the first place.

COMING UP NEXT: ETHICAL QUESTIONS IN CONTEMPORARY COMPUTING

- Make sure you are enrolled on Quercus!
- Do the assigned reading before lecture!
- Make sure you are registered for a tutorial and you attend the correct section (more information TBA)!
- If you have a question, check Quercus first, and feel free to contact us if you can't find the answer to your question!

SEE YOU NEXT WEEK!