

Engineering for Ethics, Privacy, and Fairness in Computer Systems

CMSC 25910 (“CS 259”)

Winter 2026

The University of Chicago



THE UNIVERSITY OF
CHICAGO

Course Overview

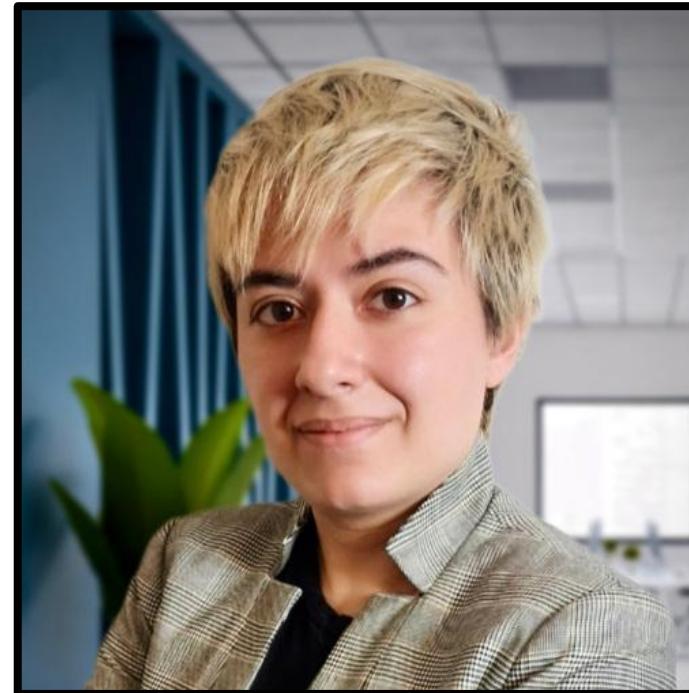
Course Description

This course takes a **technical approach** to understanding **ethical issues** in the design and implementation of computer systems. Technologies like machine learning systems, large language models, the web, ubiquitous sensing, algorithmic personalization/targeting, and surveillance systems all raise numerous ethical concerns. **Tensions** often arise between a computer system's utility and its privacy-invasiveness, between its robustness and its flexibility, and between its ability to leverage existing data and existing data's tendency to encode biases. The course will demonstrate how computer systems can violate individuals' privacy and agency, impact sub-populations in disparate ways, and harm both society and the environment. It will also introduce computational approaches to privacy, fairness, transparency, anonymity, internationalization, and auditing. Through hands-on programming assignments and a final project, students will design and implement computer systems that reflect both ethics and privacy by design. They will also wrestle with fundamental questions about who bears responsibility for a system's shortcomings, how to balance different stakeholders' goals, and **what societal values computer systems should embed**.

Course Staff



Blase Ur
(Instructor)



Madison Pickering
(TA)

Office Hours

- Mondays 4:30pm – 5:30pm (Blase, JCL 363)
- Tuesdays 10:30am – 12:00pm (Madison, JCL Common Area 3C)
- Thursdays 2:15pm – 3:45pm (Madison, JCL Common Area 3C)
- ...or by appointment

Coursework / Grades

- **Lectures:** interactive; attendance required
- **Assignments:** $7 \times 7\% = 49\%$
- **Reading responses:** $7 \times 1\% = 7\%$
- **Written, in-class midterm:** 16%
- **Final project:** 24%
- **Class participation:** 4%

Communication

- **Course website (linked from Canvas)**: Syllabus, schedule
- **Canvas**: Distribution of assignments and reading responses
- **Ed**: Questions, announcements, requests; **don't email us**
- **Gradescope**: Submission of prose (single PDF), code, and data for assignments
- **Gradescope**: Submission of reading responses
- **Gradescope**: Posting grades, regrade requests

Course Policies

- **P/F grading:** Post on Ed with “P/F request” by end of ninth week
- **Late submission:** Up to 24 hours late with -15 point penalty
 - Applies to both assignments and reading responses
 - Not permitted for project due to grading deadlines
- **Extensions:** Granted only for medical/personal emergencies
 - Not granted for other classes, interviews, travel, RSOs/sports
- **Wellness:** Reach out in a private Ed post to the course staff
 - Emails to Blase are also ok

Academic Integrity

- Detailed on syllabus
- All work submitted must be your own
- You may speak in general terms about approach, but not share code; **do not look at each other's code**
- Encouraged to talk to classmates and form study groups
- On each Gradescope assignment submission, you **must document everyone in the class with whom you discussed the assignment, as well as every major resource you consulted** other than what we provide

Academic Integrity

- Example for the top of your Gradescope submission:
 - “I discussed the whole assignment with Jane Smith. We also discussed Part 3 with John Doe. I consulted: <https://www.helpfuldomain.com/helpfulpage.html> to understand the `fetch()` API and I used two lines from <https://www.other.com/page.html> in Part 3.”
- Code reuse from websites, Stack Overflow, and other published resources only allowed if **all** of the following apply:
 - Around 4 lines of code or fewer
 - Doesn’t solve the **intellectual point** of that part of the assignment
 - Documented at top (see above) or as comments
 - Exception: If the assignment itself points you directly to a tutorial, it’s ok to reuse larger code fragments (with attribution)

Academic Integrity: LLMs

- LLMs may not be used to produce **any prose** in this class
- For **LLMs**, you must include the **LLM and prompt(s)** you used
- Code generated by LLMs only allowed if **all** of the following apply:
 - Around 4 lines of code or fewer
 - Doesn't solve the **intellectual point** of that part of the assignment
 - Documented at top or as comments
 - Exception: If the assignment specifically outlines a different LLM policy

Course Topics and Schedule

[https://www.classes.cs.uchicago.edu/
archive/2026/winter/25910-
1/schedule.html](https://www.classes.cs.uchicago.edu/archive/2026/winter/25910-1/schedule.html)

Class Introduction

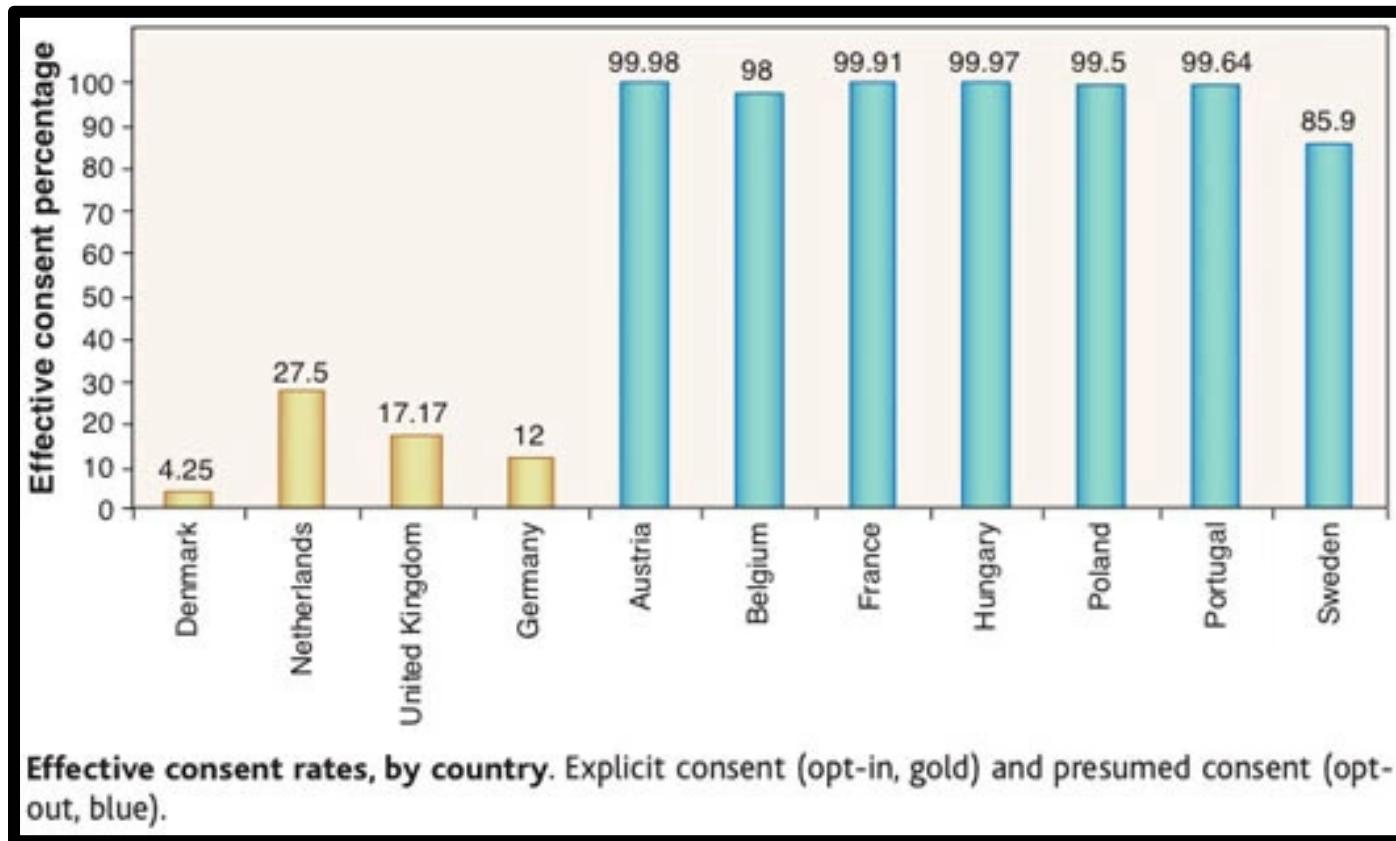
- 1) First name
- 2) Class year and major (e.g., third-year CS major)
- 3) Topic you are most interested in learning about

Responsible and Respectful User Interfaces

*Should a Technology
Product Express an
Opinion?*

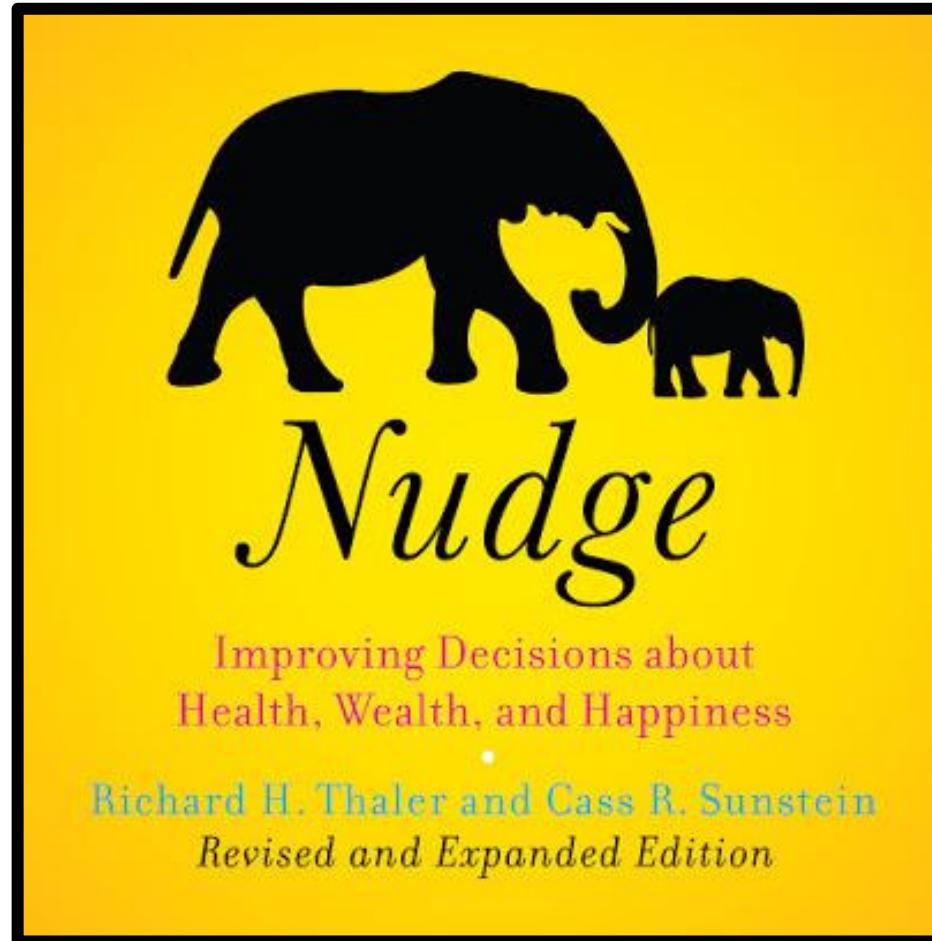
The Power of Defaults

The Power of Defaults (Organ Donation)



Interfaces That Influence

Behavioral Nudging



Deceptive Design (AKA Dark Patterns)

Examples from www.darkpatterns.org

The image shows a comparison of two subscription plans. On the left, a white box contains the 'Pro Monthly' plan at £11.99/mo, with an annual cost of £143.88. On the right, a green box highlights a 'Pro Monthly Plan + Discount' at £6.00/mo, with an annual cost of £101.92 per license. The green box also features a '50% OFF 3 Months' banner at the top. Below the green box, a green text box states 'Save £ 17.99 per license'.

Plan	Price	Annual Cost
Pro Monthly	£11.99/mo	£143.88
Pro Monthly Plan + Discount	£6.00/mo	£101.92

No, I don't like savings

Yes, Take Offer

Examples from www.darkpatterns.org



WELCOME ADDRESS ITEMS WRAP DISPATCH PAY CONFIRM

Benedict Evans, we're giving you immediate access to all Prime benefits with a 30-day FREE trial

Try 30 days of Prime for free. You can cancel anytime.

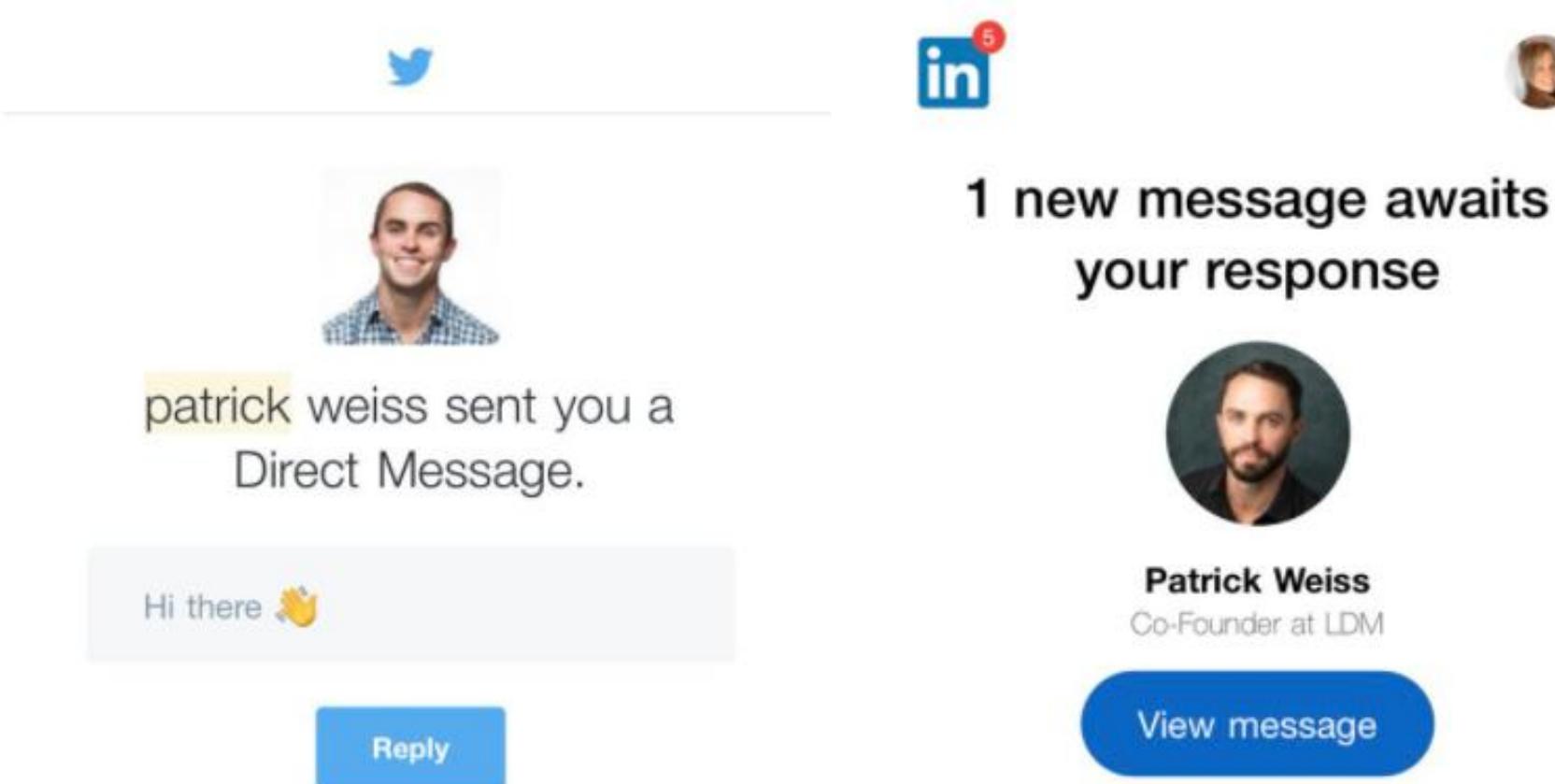


Order without Prime. Decline free trial

Order Now with Prime

Pay later

Examples from www.darkpatterns.org



The image displays two examples of dark patterns from www.darkpatterns.org.

Twitter Example: A screenshot of a Twitter message. At the top, there are icons for Twitter (blue bird), LinkedIn (blue 'in'), and a user profile. The message text reads: "patrick weiss sent you a Direct Message." Below the message is a reply box containing "Hi there 🌟" and a "Reply" button. A blue "View message" button is located at the bottom right.

LinkedIn Example: A screenshot of a LinkedIn message. At the top, there are icons for Twitter (blue bird), LinkedIn (blue 'in') with a red notification badge showing '5', and a user profile. The message text reads: "1 new message awaits your response." Below the message is a profile picture of a man with a beard, followed by the name "Patrick Weiss" and the title "Co-Founder at LDM". A blue "View message" button is located at the bottom right.

Examples from www.darkpatterns.org

CHRISTIE'S

Privacy preference centre

When you visit any website, it may store or retrieve information on your browser, mostly in the form of cookies. This information might be about you, your preferences or your device and is mostly used to make the site work as you expect it to. The information does not usually directly identify you, but it can give you a more personalised web experience.

Because we respect your right to privacy, you can choose not to allow some types of cookies. Click on the different category headings to find out more and change our default settings. However, blocking some types of cookies may impact your experience of the site and the services we are able to offer. [More information](#)

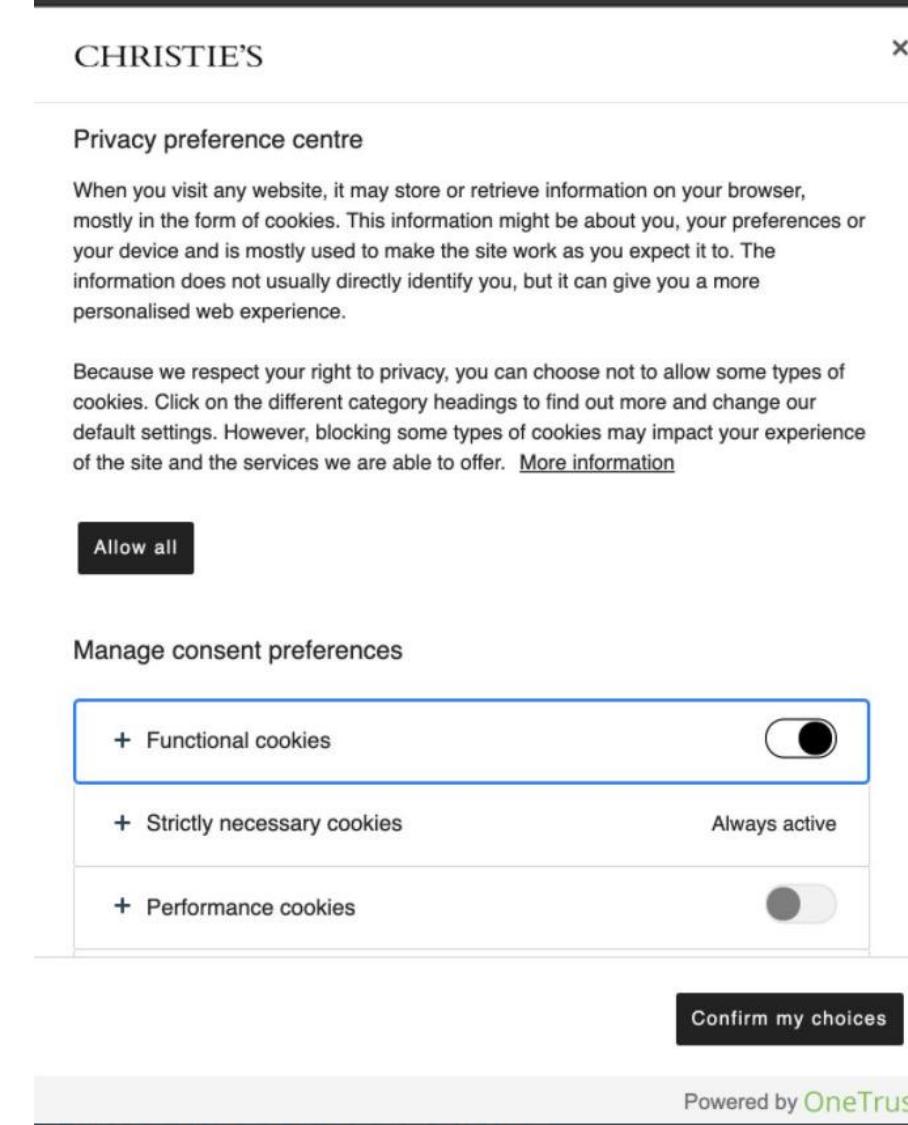
[Allow all](#)

Manage consent preferences

+ Functional cookies	<input checked="" type="checkbox"/>
+ Strictly necessary cookies	Always active
+ Performance cookies	<input type="checkbox"/>

[Confirm my choices](#)

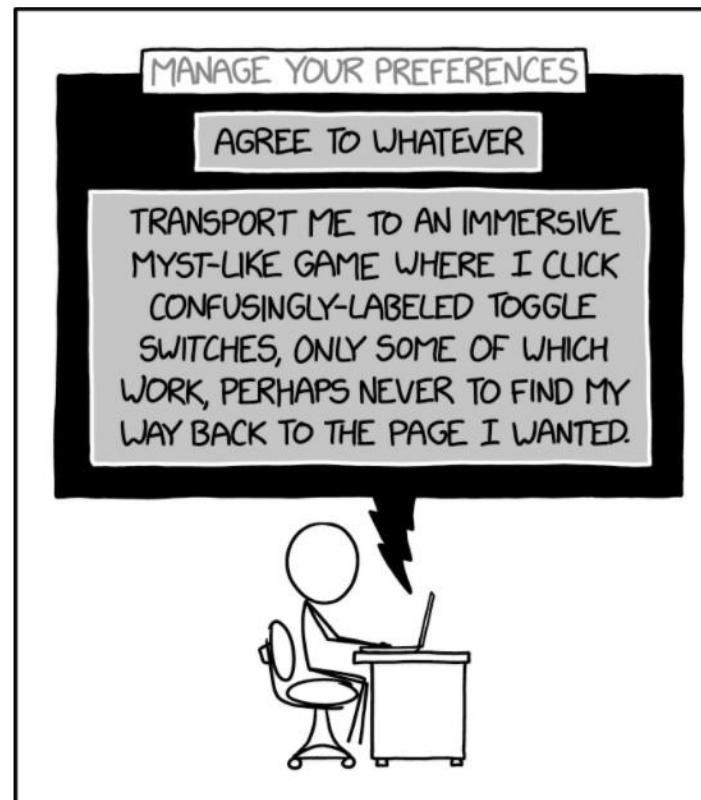
Powered by [OneTrust](#)



Meta-example from xkcd

MANAGE YOUR PREFERENCES

|< < PREV RANDOM NEXT > >|



|< < PREV RANDOM NEXT > >|

Is Deceptive Design Always Bad?

Security Dark Pattern



This Connection is Untrusted

You have asked Firefox to connect securely to **grey-dev.ece.cmu.edu**, but we can't confirm that your connection is secure.

Normally, when you try to connect securely, sites will present trusted identification to prove that you are going to the right place. However, this site's identity can't be verified.

What Should I Do?

If you usually connect to this site without problems, this error could mean that someone is trying to impersonate the site, and you shouldn't continue.

[Get me out of here!](#)

- ▶ **Technical Details**
- ▶ **I Understand the Risks**

Security Dark Pattern

Normally, when you try to connect securely, sites will present trusted identification to prove that you are going to the right place. However, this site's identity can't be verified.

What Should I Do?

If you usually connect to this site without problems, this error could mean that someone is trying to impersonate the site, and you shouldn't continue.

[Get me out of here!](#)

▼ Technical Details

grey-dev.ece.cmu.edu uses an invalid security certificate.

The certificate is not trusted because it is self-signed.

(Error code: sec_error_untrusted_issuer)

▼ I Understand the Risks

If you understand what's going on, you can tell Firefox to start trusting this site's identification. **Even if you trust the site, this error could mean that someone is tampering with your connection.**

Don't add an exception unless you know there's a good reason why this site doesn't use trusted identification.

[Add Exception...](#)

Interfaces That Incentivize Behaviors

Who Sets Policies?

- Slack organizational policies about names

Display Name Guidelines

[Expand](#)

Explain the guidelines you want members to follow when they set their display names.

Name Display

[Expand](#)

If you'd like, Slack can show your members' full names instead of their shorter display names.

Email Display

[Expand](#)

Choose whether to display members' email addresses in their Slack profiles.

Do Not Disturb

[Expand](#)

Set default [Do Not Disturb](#) hours for members of your workspace.

Respecting Time

Expectations About Notifications

- Email vs. text vs. in-app notification
- Are notifications *push* or *pull*?
- Does your device make a sound? Does it buzz?
- Is there an unread number on your screen?



Slack Pausing Notifications

Pause notifications with Do Not Disturb

If you need focus time or time away from work, you can pause your [notifications in Slack](#) with Do Not Disturb (DND). Use DND as needed to help you concentrate, and even set a DND schedule for routine times you'd prefer not to be notified.

How does DND work?

- All notifications and @mentions will be paused. Once you resume notifications, you can review everything you received while in DND.
- Members will see a  Do Not Disturb icon next to your name. When sending a direct message, they can override DND to notify you of urgent messages.

Pause notifications

[Desktop](#) [iOS](#) [Android](#)

Turn on DND

- 1 From your desktop, click your workspace name in the top left.

Acme Corp. ▾
Sharon Robinson

- 2 Hover over **Pause notifications**.

- 3 Choose a time frame from the menu or select **Custom** to set your own.

Slack Scheduling Notification Pauses

Set a DND schedule

For the times you're routinely offline, you can set a Do Not Disturb schedule. With a schedule in place, your notifications will pause every day between the hours you've specified. Keep in mind that Workspace Owners and Admins can [set a default Do Not Disturb schedule](#) for their members.

Desktop iOS Android

- 1 From your desktop, click your workspace name in the top left.

- 2 Hover over **Pause notifications**, then select **Do Not Disturb schedule** from the menu.
- 3 Under **Do Not Disturb**, check the box next to **Automatically disable notifications** and select a start and end time. Your settings will automatically save, so click the **X close icon** when you're done.

 **Tip:** To set yourself to DND over the weekend, pause your notifications until the time and date you'll be back at work. There isn't currently a way to automatically pause notifications every weekend.

Online Status Indicators (OSIs)

- Note that users and Slack organizations can disable OSIs



Visibility of Audit Logs

- Organizations might want to know who is clocking in/out
- Zoom lets meeting hosts know when it is backgrounded

Funding and Financing

Software Licensing

	Free and open (software must have source code provided)			Non-free		
	Public domain	Permissive license	Copyleft (protective license)	Noncommercial license	Proprietary license	Trade secret
Description	Grants all rights	Grants use rights, including right to relicense (allows proprietization, license compatibility)	Grants use rights, forbids proprietization	Grants rights for noncommercial use only. May be combined with copyleft.	Traditional use of copyright; no rights need be granted	No information made public
Software	PD, CC0	MIT, Apache, MPL	GPL, AGPL	JRL, AFPL	Proprietary software, no public license	Private, internal software
Other creative works	PD, CC0	CC-BY	CC-BY-SA	CC-BY-NC	Copyright, no public license	Unpublished

Table from https://en.wikipedia.org/wiki/Software_license

Funding Models for Technology

- Who is funding technology?
- What are their goals?
- Who will benefit?
- How will the workforce be affected?

Oversight of Technology

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AI • REGULATION

Actor Joseph Gordon-Levitt wonders why AI companies don't have to 'follow any laws'

By  Nick Lichtenberg
Business Editor

December 15, 2025, 2:06 PM ET

[Add us on Google](#)





Joseph Gordon-Levitt at Fortune's Brainstorm AI conference.
PHOTOGRAPH BY STUART ISETT/FORTUNE

What Will YOU Do?

- **Real-world scenarios rarely have a perfect decision. Instead, you'll make and participate in myriad decisions that, together, will have consequences, good and bad.**