

# Security, Privacy, and the Freedom of Speech

**CSCI3250+3251**

Computers and Society + Engineering Practicum

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This lecture is loosely adapted from Chapters 2–5 of “A Gift of Fire”



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# Computer Crimes

- Technology enhances our lives
- It also enriches the opportunity to cheat unsuspecting people
- Hacking
  - Intentional, unauthorized access to computer systems

# Hacking and other crimes

- The evolution of **Hacking**
  - The early days: *the joy of programming*
    - A creative programmer who wrote very elegant or clever programs
  - 1980s–1990s: *the rise of the dark side*
  - The millennium: *a destructive and criminal tool*

# Hacker Tools

... – Virus – Worm – Trojan horse –  
Social engineering – Phishing –  
Pharming – Ransomware – Spyware –  
Botnet – Denial of service – Backdoor  
– Eavesdropping – Privilege escalation  
– Spoofing – Tampering – Vulnerability  
scanner – Brute-force attack – Packet  
analyzer – Rootkit – Keystroke logging  
– Attack patterns – Identity theft – ...

# Beyond Hacking

- Hacktivism
  - Political hacking
- Hacking by governments
- Cyber warfare

# The Vulnerable Digital World

- Why is the cyberspace so vulnerable?
  - Complexity of operating systems
  - History of the Internet and Web
  - High-speed development of new technologies
  - Interconnected devices of systems
  - *Human nature*

# Security vs Privacy

- Protection measures for cyber security
  - Firewalls
  - ↳ Network monitoring
  - ↳ Surveillance → *whose security is protected?*
- Privacy
  - Freedom from intrusion
    - Being left alone
  - Control of information about oneself
  - Freedom from being followed, tracked, watched, and eavesdropped upon

# Privacy Theft

- Intentional, institutional uses of personal information
- Unauthorized use or release by “insiders”
- Theft of information
- Inadvertent leakage of information through negligence or carelessness
- Our own actions
  - Sometimes intentional, or unaware of risks!



# New Technology with New Risks

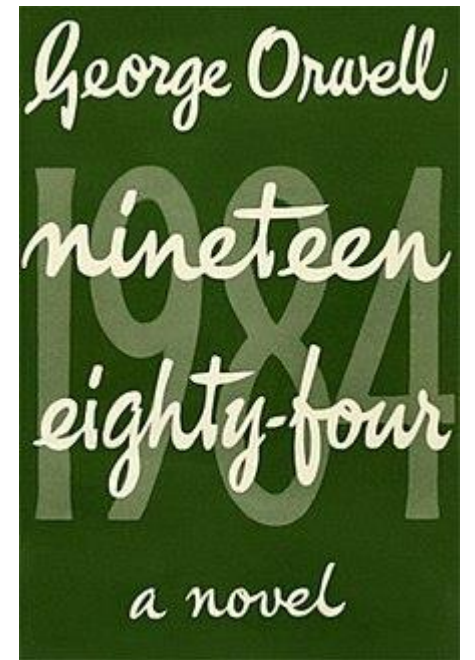
- The Big Data of ... You?  
... – smartphones – GPS devices – wearable devices – cameras – microphones – social networks – search engines – e-shopping – smart homes – drones – biometrics – ...
- What does Google think you are?  
<http://www.google.com/settings/ads>
  - A collection of many small items of information can give a fairly detailed picture of a person's life
- ***“Data is the new oil”***

# Know your Rights

- *Informed consent vs. invisible information gathering*
- “Pseudonymisation” / tokenisation
- The right to be **forgotten**
- Secondary use, and data mining/ matching/ profiling
- EU: General Data Protection Regulation (2016)
- HK: Personal Data (Privacy) Ordinance (2012)
  - Privacy Commissioner for Personal Data

# Freedom of Speech

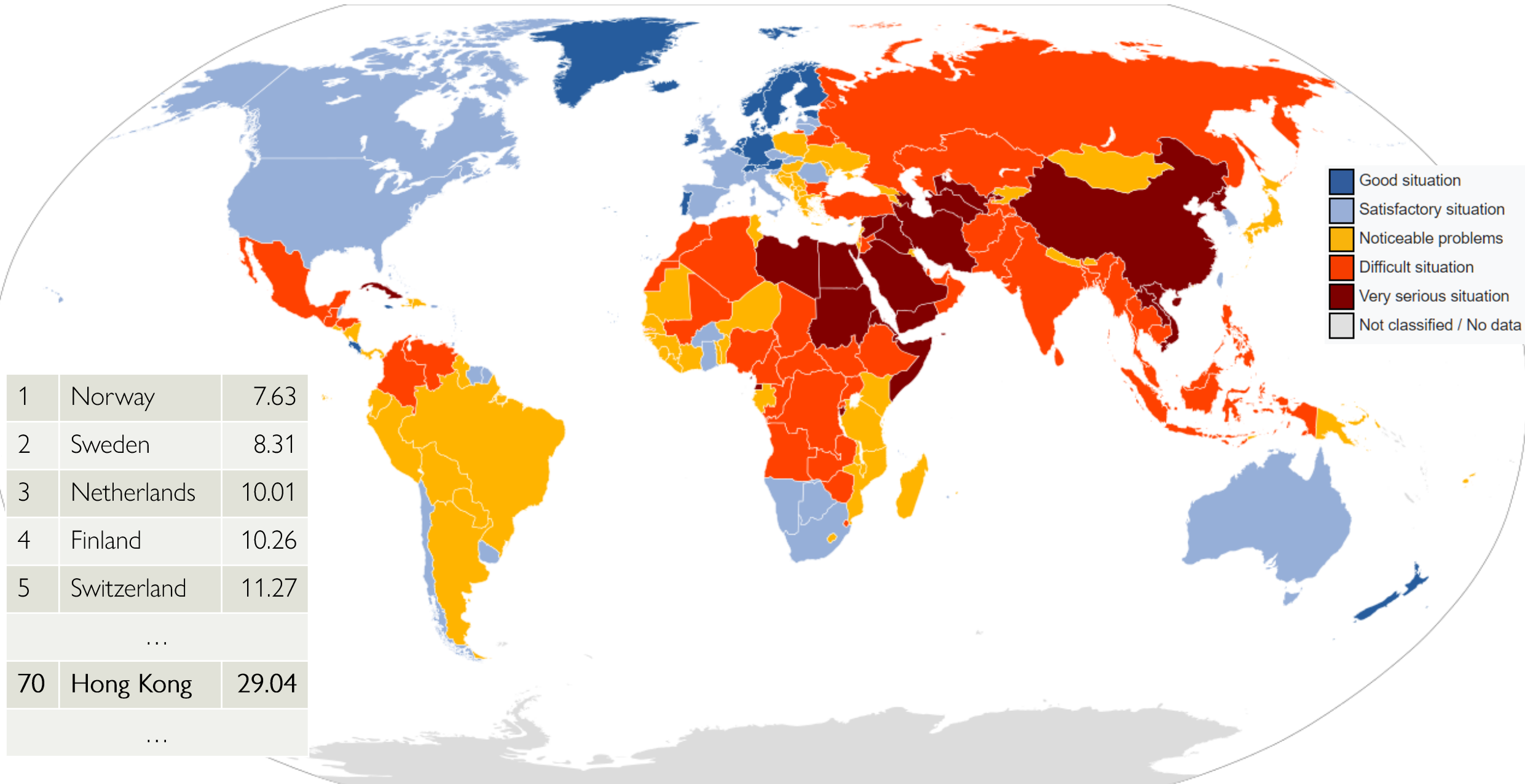
- “Big Brother is Watching You”
  - Surveillance and censorship
- Freedom of press/speech
  - Social order vs. controversial, dangerous, and offensive speech
  - “Legal” speech



First edition cover of “1984”  
by George Orwell

# Freedom of Speech in Hong Kong

- Hong Kong Basic Law — Article 27
  - Hong Kong residents shall have freedom of speech, of the press and of publication; freedom of association, of assembly, of procession and of demonstration; and the right and freedom to form and join trade unions, and to strike.
- Hong Kong Bill of Rights — Article 16
  - Freedom of opinion and expression
    - 1) Everyone shall have the right to hold opinions without interference.
    - 2) Everyone shall have the right to freedom of expression; this right shall include freedom to seek, receive and impart information and ideas of all kinds, regardless of frontiers, either orally, in writing or in print, in the form of art, or through any other media of his choice.
    - 3) The exercise of the rights provided for in paragraph (2) of this article carries with it special duties and responsibilities. It may therefore be subject to certain restrictions, but these shall only be such as are provided by law and are necessary -
      - a) for respect of the rights or reputations of others; or
      - b) for the protection of national security or of public order (ordre public), or of public health or morals.



## 2018 World Press Freedom Index (from *Reporters Without Borders*)

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# Censorship on the Internet

- Content bans as “social policies”
  - Google not taking ads for firearms, tobacco, high-interest loans
  - Facebook removing hate speech or violent images
- Larger scale of control
  - “The Great Firewall”
    - Legislations and technologies
  - Political Freedom and *Anonymity*?
- Net Neutrality
  - Internet providers treating communications equally and not discriminate or charge differently

# Intellectual Property




- Copyright
  - Protecting intangible creative work
  - Automatic right: within 50 years after creator dies (Hong Kong)
    - Hong Kong Copyright Ordinance (1997)
- Intellectual Property
  - HK Intellectual Property Department
  - Trade marks, patents, copyrights, designs, plant varieties, layout design of integrated circuits

# Permitted Acts in Copyright

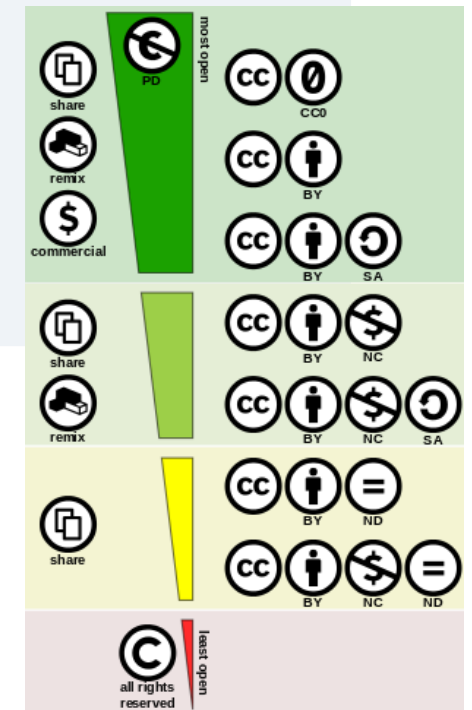
- There are exemptions from the infringement of copyright (HK)
  - Fair Dealing
    - Research, private study, criticism, review/comment, news reporting, education, or public administration
  - Education
    - Copies only made available to limited persons, and not stored for a period longer than necessary
- See more:  
[http://www.clic.org.hk/en/topics/intellectualProperty/infringement\\_of\\_copyright/B.shtml](http://www.clic.org.hk/en/topics/intellectualProperty/infringement_of_copyright/B.shtml)



# Other Possibilities

Copyright 	Copyleft 	Creative Commons 
<i>"All right reserved."</i>	<i>"All right <b>reversed!</b>"</i>	<i>"Some rights reserved."</i>
<ul style="list-style-type: none"> <li>- The right to determine and decide how the work may be marketed, displayed, reproduced, distributed, etc.</li> <li>- The right to produce copies</li> <li>- The right to create derivative works</li> </ul>	<ul style="list-style-type: none"> <li>- The freedom to use the work</li> <li>- The freedom to study the work</li> <li>- The freedom to copy and share the work with others</li> <li>- The freedom to modify the work, and to distribute modified and derivative works</li> </ul>	License with a mix of: <ul style="list-style-type: none"> <li>- Attribution</li> <li>- Share-alike</li> <li>- Non-commercial</li> <li>- No derivative works</li> </ul>

- There are also derived software licenses



# Checkpoint Question

This is more like a debate:

Basing on arguments of security, privacy, and freedom of speech, should the Internet and technologies be regulated  
**by the government** or **by the people**?