Dr. LEVENT ERTAUL

Web: borg.csueastbay.edu/~lertaul/
Teaching
Dork
HABITS
CAN YOU PROTECT YOURSELF IN CYBERSPACE?

REALLY????
WHO WANTS THE LIVE IN A GLASS HOUSE?
CYBER SPACE
CYBER SPACE: A Dangerous Place?
EVERYTHING is BECOMING A COMPUTER?

Cyber Space once a virtual abstraction, can now sense and touch the physical world.

Click the following link to kill everybody

WWW.KILL-EVERYBODY.COM
CYBER SECURITY IS NOW BIG BUSINESS?
CYBER SPACE: USA’s Infrastructure - Partial
CYBER SPACE: China’s Infrastructure
CYBER SPACE: Global Traffic
SCOPE OF CYBER SPACE

(U) TREASUREMAP as an Enabler

Person Layer
Cyber Persona Layer
Logical Network Layer
Physical Network Layer
Geographical Layer

We enable
Our mission
VULNERABILITES OF CYBER SPACE: Instantaneous Action at a Distance

Asymmetries of Cyber Space

Anonymity

Lack of Borders

Difficulty of Distinction
“Every time you pick up the phone, dial a number, write an email, make a purchase, travel on the bus carrying a cell phone, swipe a card somewhere, you leave a trace and the government has decided that it’s a good idea to collect it all, everything, even if you’ve never been suspected of any crime.”
PRIVACY: Who is after your private Data

CORPORATIONS

WE COOPERATE WITH CORPORATE SURVEILLANCE BECAUSE IT PROMISES US CONVENIENCE, AND WE SUBMIT TO GOVERNMENT SURVEILLANCE BECAUSE IT PROMISES US PROTECTION.
PRIVACY: Who is after your private Data

CYBER CRIMINALS

The Cyber criminal community is evolved from Morris Worm to the ransomware and other organized crime that have high payoff, many countries are working to stop such attacks, but these attacks are contiously changing and affecting brutally to our businesses and nation.

Cyber crime and viruses initiated, "Morris Worm" and others.

- 1997: Malicious code, Trojan, Advanced worms
- 2004: Identity theft, Phishing
- 2007: DNS attacks, Rise of Botnets, Sql attacks, Anti spam sites
- 2010: Social Engineering, DoS, Botnets, Malicious Email, Ransomware attack, PoS comprised
- 2013: Banking Malware, Keylogger, Bitcoin Wallet Stealer, Identity Theft, phone Hijacking, Ransomware, PoS attack, Cyber Warfare, Android hack etc.
PRIVACY: HOW CAN YOU PROTECT YOURSELF

HDD ENCRYPTION - Bit Locker, PGP
PRIVACY: HOW CAN YOU PROTECT YOURSELF

FILE ENCRYPTION - EFS, FILEVAULT (MAC)
PRIVACY: HOW CAN YOU PROTECT YOURSELF

SECURE E-MAIL: S-MIME, PGP, MAILVELOPE, GMAIL-CONFIDENTIAL MODE, PROTON MAIL from CERN

Disable auto load images for e-mail to avoid single pixel tracking.
“ThrowAwayMail.com”
Provides a randomly generated email

“10 Minute Mail”
Provides a randomly generated email that shuts down after 10 minutes
Allows you to see emails sent to the address (ex: account verification emails)

“SMS Receive Free”
Provides phone numbers that can be used for verification codes, etc.
Each number has its own page, where you can see all messages sent to that number
PRIVACY: HOW CAN YOU PROTECT YOURSELF

Secure Messaging

Which One Should You Choose?
PRIVACY: HOW CAN YOU PROTECT YOURSELF

ANTIVIRUS-MALWARE-SPYWARE-FIREWALLS

Norton by Symantec

Kaspersky

Intel Security

Lookout Security & Antivirus

∑ VirusTotal

Windows Defender
PRIVACY: HOW CAN YOU PROTECT YOURSELF

PASSWORD MANAGEMENT - LastPass - Keeper
PRIVACY: HOW CAN YOU PROTECT YOURSELF
DELETING DATA - ERASER
PRIVACY: HOW CAN YOU PROTECT YOURSELF
SECURE CLOUD STORAGE - SPIDEROAK
PRIVACY: HOW CAN YOU PROTECT YOURSELF
SECURE PRIVATE BROWSING - TOR
PRIVACY: HOW CAN YOU PROTECT YOURSELF
SECURE PRIVATE SEARCH ENGINE - DUCK DUCK GO

DuckDuckGo

Qwant
PRIVACY: HOW CAN YOU PROTECT YOURSELF

Browser Extensions

- Adblock Plus
- HTTPS Everywhere
- Privacy Badger
- Go Rando
- SHODAN
- Ghostery
- Facebook Demetricator
PRIVACY: HOW CAN YOU PROTECT YOURSELF

VPNs
PRIVACY: HOW CAN YOU PROTECT YOURSELF
MULTIFACTOR AUTHENTICATION (MFA)
Have I Been Pwned

Check if your email or phone is in a data breach

email address

Oh no — pwned!

Pwned in 5 data breaches and found no pastes (subscribe to search sensitive breaches)

Breaches you were pwned in

A "breach" is an incident where data has been unintentionally exposed to the public. Using the 1Password password manager helps you ensure all your passwords are strong and unique such that a breach of one service doesn't put your other services at risk.

Data Enrichment Exposure From PDL Customer: In October 2019, security researchers Vinny Troia and Ilov Diachenko identified an unprotected Elasticsearch server holding 1.2 billion records of personal data. The exposed data included an index indicating it was sourced from data enrichment company People Data Labs (PDL) and contained 622 million unique email addresses. The server was not owned by PDL and it's believed a customer failed to properly secure the database. Exposed information included email addresses, phone numbers, social media profiles and job history data.

Compromised data: Email addresses, Employers, Geographic locations, Job Titles, Names, Phone numbers, Social media profiles

Evite: In April 2019, the social planning website for managing online invitations Evite identified a data breach of their systems. Upon investigation, they found unauthorised access to a database archive dating back to 2013. The exposed data included a total of 101 million unique email addresses, most belonging to recipients of invitations. Members of the service also had names, phone numbers, physical addresses, dates of birth, genders and passwords stored in plain text exposed. The data was provided to HIBP by a source who requested it be attributed to "lltnScott-Sec@protonmail.com".

https://haveibeenpwned.com/
PRIVACY: HOW CAN YOU PROTECT YOURSELF
Anti Facial Recognition Dressing for Surveillances Age
PRIVACY: HOW CAN YOU PROTECT YOURSELF

Anti Facial Recognition

CAMERA ADVERSARIA
PRIVACY: HOW CAN YOU PROTECT YOURSELF

SECURE WIRELESS CONNECTION - WPA2
PRIVACY: HOW CAN YOU PROTECT YOURSELF

[Logos and links]

- Stop Think Connect
  https://www.stopthinkconnect.org/

- Lock Down Your Login
  https://www.lockdownyourlogin.com/

- Stay Safe Online
  https://staysafeonline.org/

- See Something Say Something
  https://www.dhs.gov/see-something-say-something
THE CONSTITUTION AND CYBERSPACE
FOURTH AMENDMENT

The Fourth Amendment of the U.S. Constitution provides, "[t]he right of the people to be secure in their persons, houses, papers, and effects, against unreasonable searches and seizures, shall not be violated, and no Warrants shall issue, but upon probable cause, supported by Oath or affirmation, and particularly describing the place to be searched, and the persons or things to be seized."

The ultimate goal of this provision is to protect people’s right to privacy and freedom from arbitrary governmental intrusions.

The protection under the Fourth Amendment can be waived if one voluntarily consents to or does not object to evidence collected during a warrantless search or seizure.

Private intrusions not acting in the color of governmental authority are exempted from the Fourth Amendment.
GOOGLE PRIVACY POLICY

https://myaccount.google.com/

https://safety.google/privacy/privacy-controls/
DATA COLLECTED BY APPS: EXAMPLE

- Take pictures and videos
- Record audio
- Location information (Approximate, Precise)
- Read your Web bookmarks and history
- Modify or delete contents of your SD card
- Control NFC
- Add or remove accounts
- Change your audio settings
- Read sync settings
- Install shortcuts
- Access Mobile Device Management (MDM) content providers
GDPR: Global Data Privacy Regulations

- Increased Territorial Scope
- Penalties up to 4% revenue or 20 Million Euro
- Consent must be intelligible and accessible
- Breach notification 72 hours
- Right of access – free copy
- Right to be forgotten
- Data Portability
- Privacy By Design
- Data Protection Officers requirements
CCPA: California Consumer Privacy Act

- Right to know all data collected by a business on you.
- Right to say NO to the sale of your information.
- Right to DELETE your data.
- Right to be informed of what categories of data will be collected about you prior to its collection, and to be informed of any changes to this collection.
- Mandated opt-in before sale of children’s information (under the age of 16).
- Right to know the categories of third parties with whom your data is shared.
- Right to know the categories of sources of information from whom your data was acquired.
- Right to know the business or commercial purpose of collecting your information.
- Enforcement by the Attorney General of the State of California.
- Private right of action when companies breach your data, to make sure these companies keep your information safe.
PRIVACY REGULATIONS APPEAR AROUND THE WORLD

- General Data Protection Regulation (GDPR)
- California Consumer Privacy Act (CCPA)
- California Privacy Rights Act (CPRA)
- Virginia Consumer Data Protection Act (VCDPA)
- Colorado Privacy Act (CPA)
- Utah Consumer Privacy Act (UCPA)
- Connecticut Data Privacy Act (CTDPA)
- Iowa Privacy Bill
- Brazil's General Data Privacy Law (LGPD)
- Upcoming: Australia
- Upcoming: India
- Upcoming: Canada
PRIVACY REGULATIONS IN USA

47% of Californian online adults have exercised their CCPA right to ask companies to stop selling their data

30% of Californian online adults have asked to be forgotten

Q: Which of the following best describes your use of these CCPA rights?
Base: 630 Online adults in California
Source: Forrester’s Media And Marketing Benchmark Recontact Survey, 2022
137 out of 194 countries have put in place legislation to secure the protection of data and privacy.

Should you "Opt-Out"

In certain circumstances, you can tell a company not to share the unique information it has on file for you. You do this by choosing to "opt out." Here are a few "opt outs" recommended by the World Privacy Forum. The World Privacy Forum's "Top Ten Opt Outs" are found at http://worldprivacyforum.org/2013/08/consumer-tips-top-ten-opt-outs.

Reduce Calls from Telemarketers

The National Do Not Call Registry

www.donotcall.gov
1-888-382-1222

The National Do Not Call Registry gives you a choice about whether to receive telemarketing calls at home or on your cell phone. Once your number has been on the registry for 31 days, telemarketers should not call, and you can file a complaint if they do. Registration of the number does not expire.

Reduce Pre-approved Credit and Insurance Offers

OptOutPrescreen.com

www.optoutprescreen.com
1-888-567-8688

Reduce pre-approved credit card offers and insurance solicitations delivered by postal mail by visiting this official site of the Consumer Credit Reporting Industry, which allows you to opt in or opt out of firm offers of credit or insurance.

Reduce Email Advertisements (CAN-SPAM)

The federal CAN-SPAM Act requires commercial organizations to provide recipients of email advertisements with a way to opt out of receiving emails in the future.

To opt out, the World Privacy Forum offers this direction:

- Check to make sure the email is CAN-SPAM-compliant, as some emails offer false opt outs. Here are three ways you can tell the difference.
  1. A CAN-SPAM-compliant email will be labeled as an advertisement.
  2. It will include a valid postal address for the sender.
  3. It will include a workable opt-out link of some type.
- Then use the link provided or send the request by postal mail. You will likely be asked to provide your email address but shouldn't be asked for sensitive personal information.

Reduce Marketing Mail and Catalogs

The Direct Marketing Association's opt-out services can be accessed by visiting www.dmachoice.org. This website enables you to manage the mail you receive from members of the Direct Marketing Association, whether it's delivered by postal mail or email.
NFC ON

Leaving NFC on may put your privacy at risk and increase your risk of payment fraud.
DEEP FAKE, AI, CHAT GPT, FUTURE

LensaAI
DeepFaceLab
Reface
Deep Art AI
FaceApp
DEEP FAKE, AI, CHAT GPT, FUTURE
DEEP FAKE, AI, CHAT GPT, FUTURE-2
AI TSUNAMI
Are Quantum Computers about to Break Online Privacy?
Are Quantum Computers about to Break Online Privacy?

IBM expects to build quantum computers of increasing complexity over the next few years, starting with those that use the Condor processor or multiple Heron processors in parallel. Carl De Torres/IBM

Berkeley Quantum Synthesis Toolkit (BQSKit)

BQSKit is a superoptimizing quantum compiler and research vehicle that combines ideas from several projects at Berkeley Lab into an easily accessible and quickly extensible software suite.

D-Wave's 500-Qubit Machine Hits the Cloud

Experimental prototype offers sneak peek of 7,000-qubit quantum computer

Fig. 1: The Sycamore processor.

a. Layout of processor, showing a rectangular array of 54 qubits (grey), each connected to its four nearest neighbors with couplers (blue). The inoperable qubit is outlined. b. Photograph of the Sycamore chip.
HACKING THE BRIAN ???

Photographing a Dream?

Placing the brain in an MRI machine can yield 30,000 points of blood flow.
Neuroscientists Re-create Pink Floyd Song from Listeners' Brain Activity

Artificial intelligence has turned the brain’s electrical signals into somewhat garbled classic rock
“I AM REGULARLY ASKED WHAT THE AVERAGE INTERNET USER CAN DO TO ENSURE HIS SECURITY. MY FIRST ANSWER IS USUALLY ‘NOTHING; YOU’RE SCREWED’.”

BRUCE SCHNEIER