Big Data, Artificial Intelligence and Privacy



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Big Data and Artificial Intelligence



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Big Data

 massive scale of collection, processing, combination and aggregation of data





Big Data Analytics

 transports us from past to future – make predictions and decisions





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Big Data Analytics





Big Data Analytics

 beneficially used in areas of scientific and medical research, product development, education, marketing and building smart cities, etc.





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Artificial Intelligence (AI)

- machine learning algorithms which can learn and evolve without the need for human intervention
- thrive with big data analytics discover patterns and correlations to make predictions and decisions







AI Robot

"Machines will be capable...of doing any work a man can do" ~ Herbert Simon, scientist

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Applications of Al

• Rubik's cube robot



• Deep Text





Voice-activated assistant



Al Judge



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Privacy Implications of Big Data and AI





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Personal Data (Privacy) Ordinance





際所需。

Unpredictability



- massive, ubiquitous and invisible data collection
- how do data subjects know when and what kinds of data is collected?
- how do data subjects know if the data collected is excessive or not?
- Principle 1 on data collection

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Challenge to Notice

- Principle 1 notification requirement
- how to provide meaningful notice to data subjects and prevent "notice fatigue"?





Challenge to Notice

Big data "thrives on surprising correlation and produces inferences and predictions that defy human understanding....how can you provide notice about the unpredictable and unexplainable?" ~ Paul Ohm, Professor of Law at the **Georgetown University Law Center**



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Algorithmic Transparency



- big data and AI use algorithms to find correlations and make predictions from data
- how to discover the logic or rationale behind the decisions made by big data or AI?
- **Principle 5 on transparency**



Bias



- can data subjects ascertain whether the data collected by Al is true, fair or accurate?
- can data subjects object to unfair or biased decisions made from inaccurate data?
- Principle 2 on data accuracy
- Principle 6 on data correction





Perpetuate Bias – Real Life Examples





- big data analytics because a number of customers of a shop had poor credit card repayment records, a credit card company rated another customer of that shop as higher credit risk
- in a beauty contest, AI was used to pick the winners, eventually no winners were ethnic minorities





Perpetuate Bias – Real Life Examples





- big data analytics predicts that those online job-seekers who use deliberately installed Internet browsers will outperform other job-seekers who use the factory-default browser of the computer
- a company used AI to identify terrorists, and claimed that the AI is also able to identify everything from great poker players, extroverts, geniuses to white collar-criminals

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Unexpected Data Use



- data may be combined, aggregated and used in unexpected ways
- Principle 3 on data use limitations

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Public Domain Data



- data may be collected from public domain for big data and AI analytics
- Principle 3 on data use limitations
- respect individuals' reasonable expectations





Risk of Re-identification



- Al report of UK Government Office for Science: growth in Al and big data analysis facilitate re-identification of de-identified personal data
- infer private information from public data
- manage risk of re-identification
- Principle 4 on data security

Regulation on Profiling



- EU General Data Protection Regulation:
 - Article 4: defines "profiling" as automated processing of personal data and using data to evaluate personal aspects
 - Article 13: transparency disclose to individuals the profiling, logic and envisaged consequences
 - Article 22: right to avoid being subject to a decision if based solely on profiling and produces legal effects



Accountability



- who should be responsible for the act or decision made by big data or Al analytics?
- to what extent should a human being be responsible?
- would privacy law apply if personal data is collected and processed by AI machines alone?

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Protect, Respect Personal Data



- respect the dignity and rights of human beings
- maintain high level of transparency
- Privacy by Design: adopt privacyfriendly approach in design phase
- Privacy Management Programme: from compliance to accountability





Protect, Respect Personal Data



Privacy Management
Programme: A Best
Practice Guide

https://www.pcpd.org.hk/pmp/files/PMP_guide_e.pdf



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Protect, Respect Personal Data



- Isaac Asimov's "The Three Laws of Robotics":
 - 1st law: not to injure humans
 - 2nd law: obey humans' orders except conflict with 1st law
 - 3rd law: protect own existence except conflict with 1st or 2nd law

What are your rules?



Other Topical Issues





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Know Your Customer (KYC)



- law firms may collect, use and retain lots of personal data for KYC
- Principle 1 on data collection (fair & not excessive)
- Principle 3 on data use limitation (NB: apply to data in public domain)
- Principle 2 on data retention (no longer than necessary)
 - any statutory or regulatory obligations? exceptional circumstances?





Know Your Customer



- Hong Kong Monetary Authority: banks should adopt a risk-based approach
 - transparency list information required and explain rationale
 - reasonableness only collect relevant information; not "zero failure" regime
 - information obtained should be retained for six years after the end of business relationship

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Keep Your Phone Number Safe



- phone number may be as important as your ID card number, and may reveal your identity
- "3 billion phone numbers and identities exposed by mobile apps, investigation finds"
 FactWire, 20 Nov 2016





Bring Your Own Device (BYOD)



- employees use their own mobile devices to access and work with their employers' organisational information
- protective measures should respect private information on BYOD equipment
- establish BYOD policy, provide staff guidelines and apply technical solutions



Bring Your Own Device



 "Bring Your Own Device (BYOD)" Information Leaflet

highlight privacy risks in developing BYOD policy

suggest BYOD best practices

https://www.pcpd.org.hk/english/resources_centre/publications/files/BYOD_e.pdf

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Wearables



- PCPD conducted "Privacy Sweep" to examine how fitness bands communicate privacy-related matters to users
 - observations:
 - lack of transparency in privacy policies
 - request access to data in smartphones which may be unnecessary
 - (e.g. location, social media accounts)
 - no clear guide to erase data
 - insufficient data security

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Advice to Users



- research on privacy impact before purchase
- use pseudonyms for account registration
- set up dedicated email accounts
- review default settings
- patch firmware and update app
- purge data before disposal/resale

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Advice to Manufacturers



- provide clear privacy policies to users in simple language
- adopt "Privacy by Design":
 - minimise data collection;
 - incorporate sufficient security safeguards;
 - adopt privacy-friendly settings
- offer opt-out option if access to data is unnecessary
- provide clear instructions for data erasure





International Conference

of Data Protection and Privacy Commissioners 25-29/9/2017 Hong Kong



Stay tuned for updates on www.privacyconference2017.org

Thank You!



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