Centre for Information Policy Leadership Annual Executive Retreat

Accountable AI

27 June 2018, San Francisco

Centre for Information Policy Leadership
Hunton Andrews Kurth LLP

Agenda

- 8:30 AM Registration
- 9:00 AM **Opening Remarks**
- 9:15 AM **Introductory Keynotes on AI's Current and Future Role in Society**
- 10:20 AM Break
- 10:45 AM **Session I: Panel Discussion with Introductory Keynote Speakers**
- 12:00 PM Lunch
- 1:15 PM **Session II: The Challenges and Data Protection Risks of AI**
- 2:45 PM Break
- 3:15 PM **Session III: Elements of Accountable AI**
- 4:45 PM **Closing Remarks**
- 5:00 PM **End of Retreat and Cocktail Reception (hosted by Google)**

Opening Remarks

Bojana Bellamy, President, CIPL

Ben Smith, VP and Google Fellow, Google

Centre for Information Policy Leadership
Hunton Andrews Kurth LLP

A GLOBAL PRIVACY AND SECURITY THINK TANK

BRIDGING REGIONS
BRIDGING INDUSTRY & REGULATORS
BRIDGING PRIVACY AND DATA DRIVEN INNOVATION

ACTIVE GLOBAL REACH

55+
Member Companies

We **INFORM** through publications and events

We **NETWORK** with global industry and government leaders

5+
Active Projects & Initiatives

We **SHAPE** privacy policy, law and practice

We **CREATE** and implement best practices

20+
Events annually

15+
Principals and Advisors

ABOUT US

- The Centre for Information Policy Leadership (CIPL) is a global privacy and security think tank
- Based in Washington, DC, Brussels and London
- Founded in 2001 by leading companies and Hunton Andrews Kurth LLP
- CIPL works with industry leaders, regulatory authorities and policy makers to develop global solutions and best practices for data privacy and responsible use of data to enable the modern information age

Twitter.com/the_cipl
https://www.linkedin.com/company/centre-for-information-policy-leadership
www.informationpolicycentre.com

2200 Pennsylvania Ave NW
Washington, DC 20037

Park Atrium, Rue des Colonies 11
1000 Brussels, Belgium

30 St Mary Axe
London EC3A 8EP

Centre for Information Policy Leadership
Hunton Andrews Kurth LLP

CIPL Work Streams 2017-2018

Mission – Developing global solutions for privacy and the responsible use of data to enable the fourth industrial revolution (4IR)

Corporate Digital Responsibility (Accountability Plus)

- Accountable AI/Machine Learning
- Applied Organisational Accountability workshops
- Incentivising Accountability
- Privacy and security

Responsible Global Data Flows

- Participation in APEC meetings and Implementing APEC CBPR and PRP
- Interoperability between CBPR & GDPR Transfer Mechanisms
- Data Transfers Post GDPR
- Privacy Shield

Vision – Global partner for business leaders, regulators and policymakers on privacy and information policy issues

Global Regulatory Engagement

- Socialise Regulating for Results paper
- Explore "Regulatory Sandbox"
- Regulator outreach
- Regional focus and working groups (Latin America, Asia, North America, India)

EU Privacy Law Reform

ePR papers and roundtables

GDPR implementation

- Cross-border transfer mechanisms
- Profiling and ADM
- Breach notification
- Individual rights, complaints & consistency
- Children's data

Centre for Information Policy Leadership
Hunton Andrews Kurth LLP

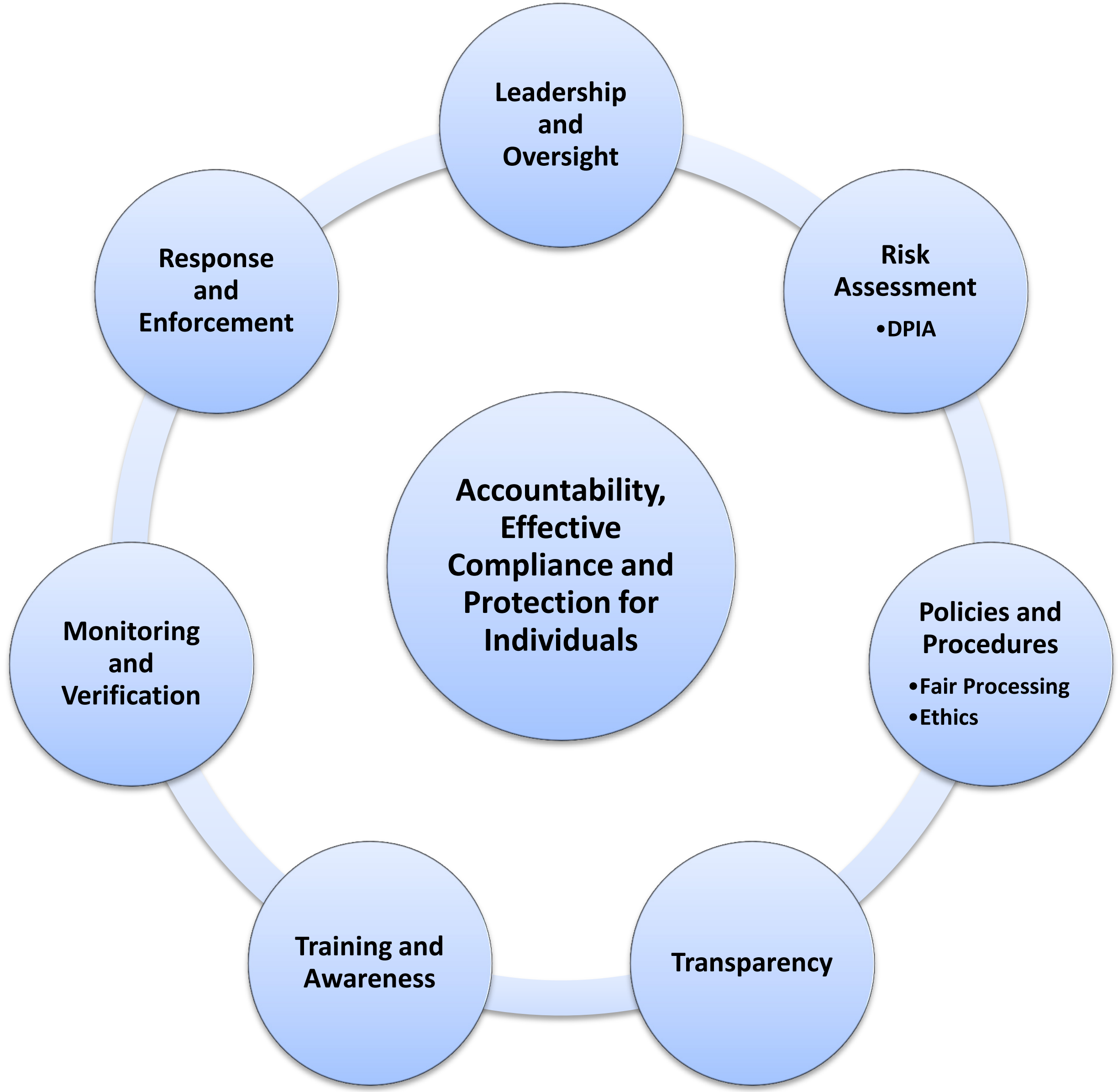
Challenges and Tensions Between AI Applications and Data Protection Principles

Challenges associated with AI

• Fairness • Ethical Issues • Public Trust • Legal Compliance • Tensions

Data Protection Requirements	Tensions To Resolve	Artificial Intelligence
Transparency		Operates in a black box and may produce unexplainable outcomes
Legal basis for processing		Insufficient/limited variety of legal bases may undermine full range of AI applications
Purpose specification & Use limitation		Uses data for new and unforeseen purposes beyond original scope
Retention limitation		Needs to retain data to function, find new purposes and for continuous improvement
Collection limitation / Data minimisation		Needs sufficient volumes of data for research, analysis, operation and training
Individual rights		Cannot always facilitate access, correction or explanation of the logic involved
Rules on ADM		Based on ADM & No human involvement

CIPL Accountability Wheel



Centre for Information Policy Leadership
Hunton Andrews Kurth LLP

Introductory Keynotes:

AI's Current and Future Role in Society

- **Casimir Wierzynski, Senior Director of AI Research, Intel**
- **Maya Gupta, Principal Scientist, Google**
- **Rumman Chowdhury, Senior Principal, Artificial Intelligence, Accenture**
- **Rich Caruana, Principal Researcher, Microsoft**

AI Systems: Applications, Trends and Futures

Casimir Wierzynski

Senior Director of AI Research, Intel

Centre for Information Policy Leadership
Hunton Andrews Kurth LLP

Google AI Overview

Maya Gupta

Principal Scientist, Google

Centre for Information Policy Leadership
Hunton Andrews Kurth LLP

Accenture Fairness Tool

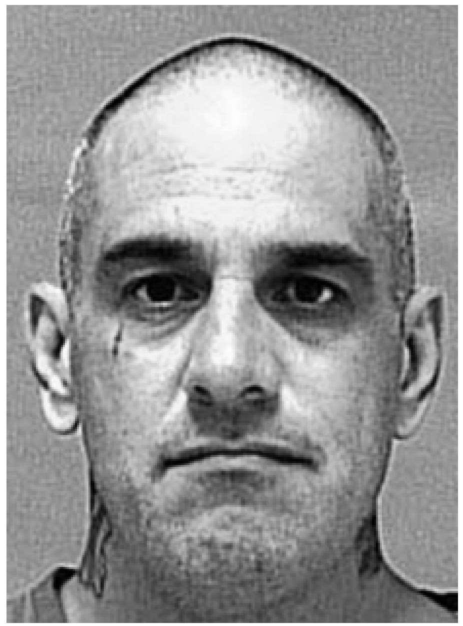
Rumman Chowdhury

Senior Principal, Artificial Intelligence, Accenture

FROM VIRTUE SIGNALING TO POSITIVE ACTION

Dr. Rumman Chowdhury, Responsible AI Lead, Accenture

WHY
IS THIS UNFAIR?



Vernon Prater
3 Low Risk

Brisha Borden
8 High Risk

Source: ProPublica

WHAT IS FAIRNESS?

> "Whenever individuals are treated unequally on the basis of characteristics that are arbitrary and irrelevant, their fundamental human dignity is violated. Justice, then, is a central part of ethics and should be given due consideration in our moral lives."
>
> *Velasquez, Manuel, et al. "Justice and fairness." Issues in Ethics (2015).*

SO HOW CAN WE FIX IT?

PROTOTYPING ALGORITHMIC FAIRNESS

The Alan Turing Institute and those involved in the prototyping of this tool who joined the Data Study Group:

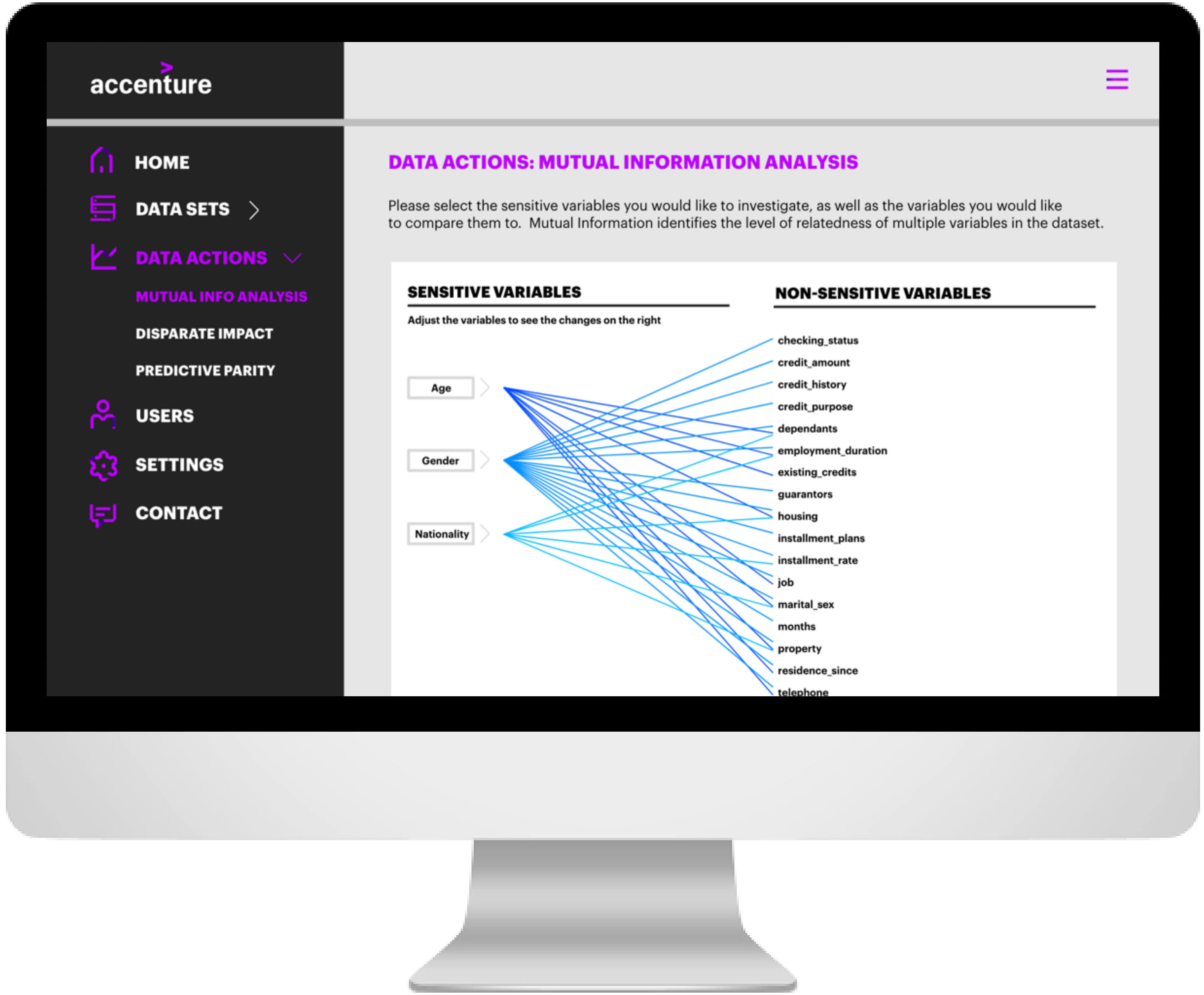
Peter Byfield, University of Warwick
Paul-Marie Carfantan, LSE
Omar Costilla-Reyes, University of Manchester
Quang Vinh Dang, INRIA, France
Delia Fuhrmann, University of Cambridge
Jonas Glesaaen, Swansea University
Qi He, UCL
Andreas Kirsch, Newspeak House
Julie Lee, UCL
Mohammad Malekzadeh, Queen Mary University of London
Esben Sorig, Goldsmiths University of London
Emily Turner, University of Manchester

THE DATA FAIRNESS TOOL

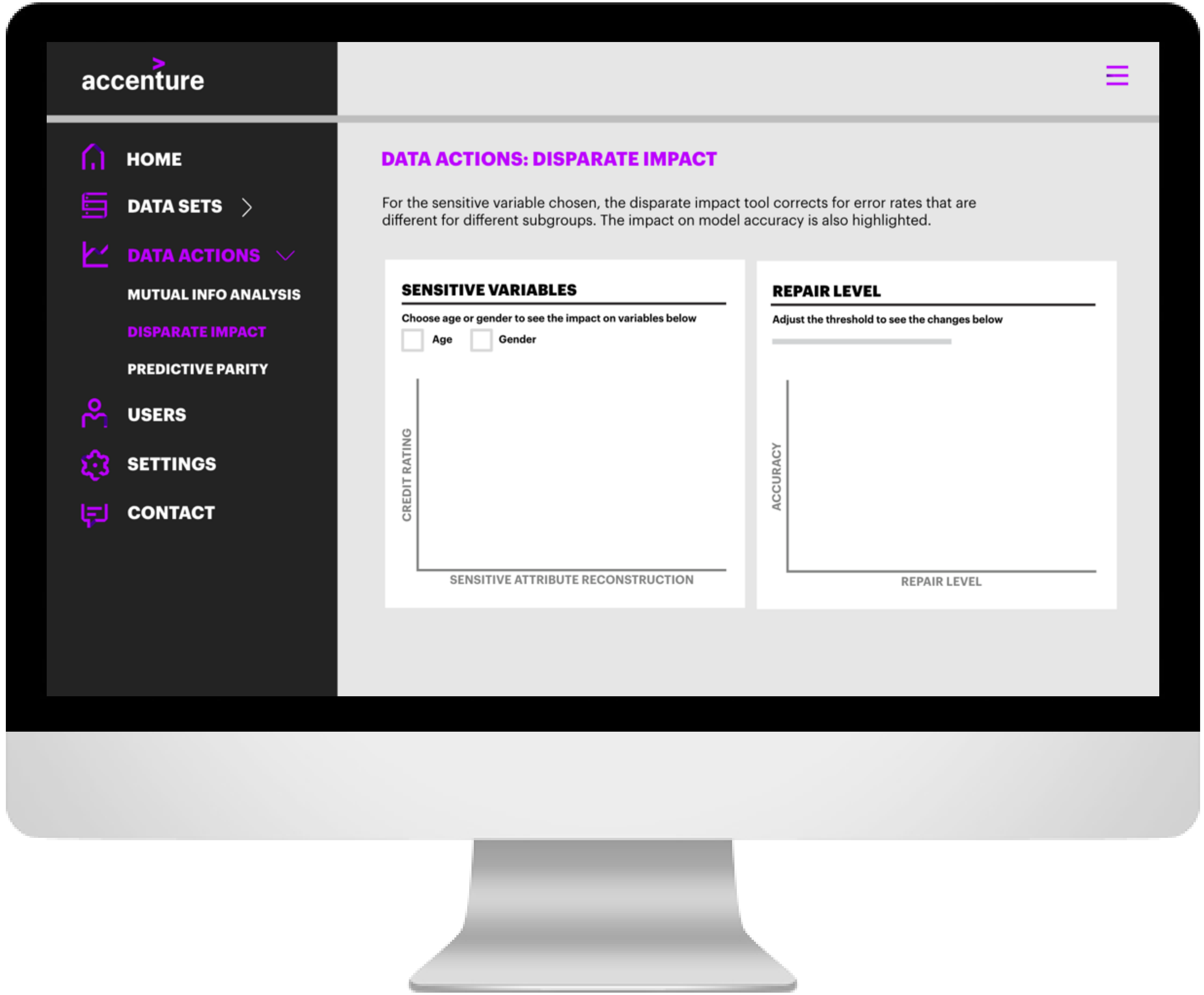
Based on the concept of PREDICTIVE PARITY

<Algorithmic> justice and equality

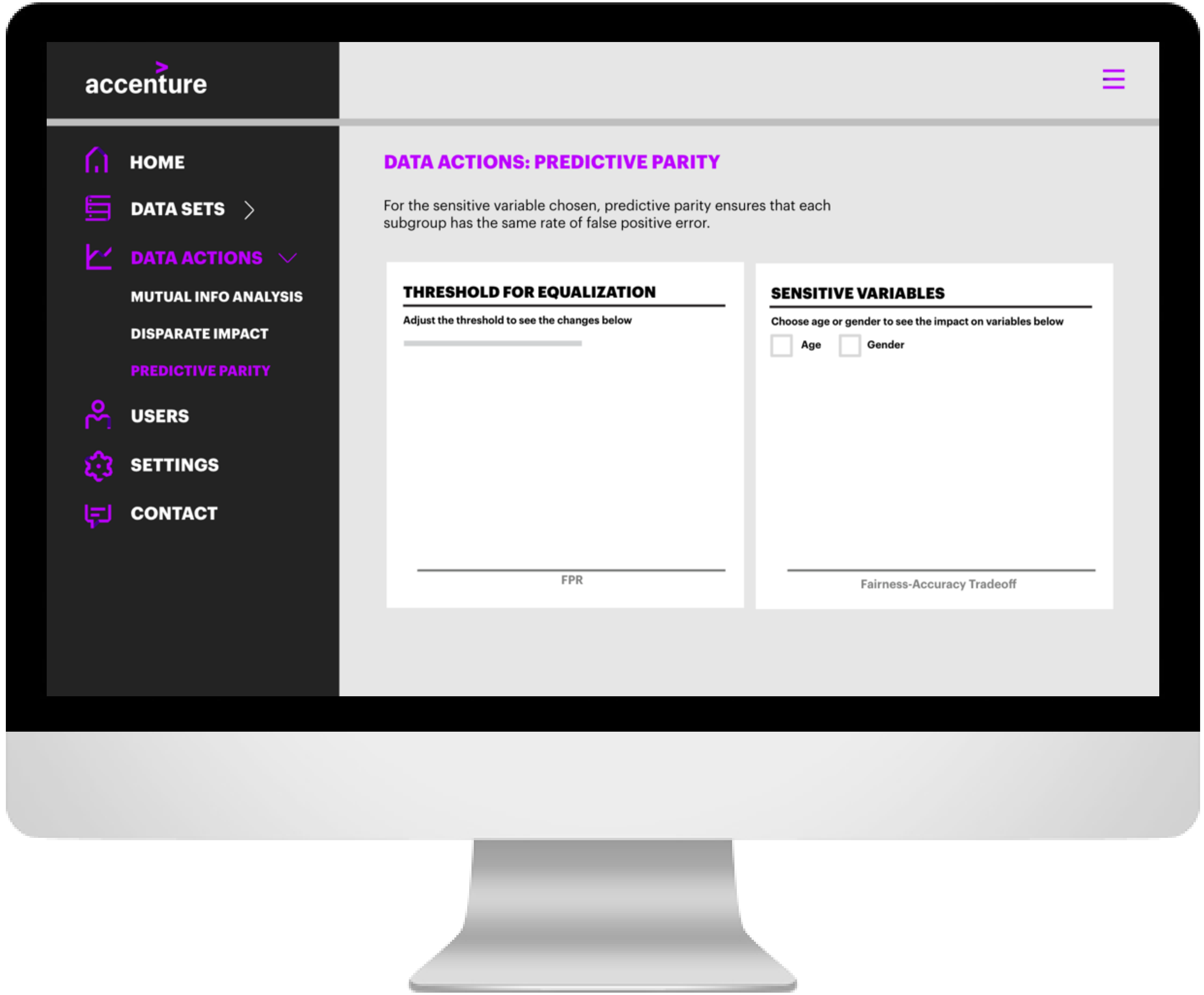
MUTUAL INFO ANALYSIS



DISPARATE IMPACT



PREDICTIVE PARITY



LIMITATIONS

<A VERY NON-TECH THING TO DO>

AI LAUNCHPAD

TECHNICAL

- Apply frameworks of explainable AI
- Design a user interface that is collaborative
- Provide a model maintenance plan

BRAND

- AI focus groups
- How to guide media coverage and public perception
- Explainability/transparency
- Enabling trust

GOVERNANCE

- Industry-specific ethics canvas
- Cross-cutting universal standards
- Internal ethics boards and how they can be relevant

ORGANIZATIONAL

- Recruit and retain the right talent for long-term AI impact
- Revisiting organizational structure with an AI mindset

THANK YOU

Friends Don't Let Friends Deploy Black-Box Models: The Importance of Transparency in Machine Learning

Rich Caruana

Principal Researcher, Microsoft

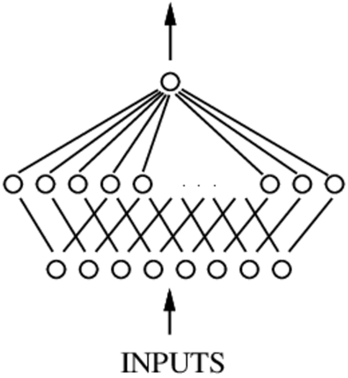
The Importance of Intelligibility and Transparency in Artificial Intelligence and Machine Learning

Rich Caruana
Microsoft

June 27, 2018

A surprising number of machine learning people believe that if you train a deep net on enough data and it looks accurate on the test set, it's safe to deploy.

Sometimes this is correct,
but sometimes it is very wrong.


INPUTS


AUC = 0.95
?

Friends Shouldn't Let Friends Deploy Black-Box Models!

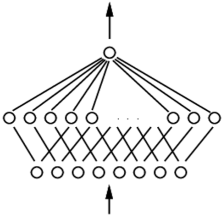
Motivation: Predicting Pneumonia Risk (Probability of Death)

- **LOW Risk:** outpatient: antibiotics, call if not feeling better
- **HIGH Risk:** admit to hospital ($\approx$10% of pneumonia patients die)

Motivation: Predicting Pneumonia Risk (Probability of Death)

- **LOW Risk:** outpatient: antibiotics, call if not feeling better
- **HIGH Risk:** admit to hospital ($\approx$10% of pneumonia patients die)

- Most accurate model: **neural net**



Despite High Accuracy, Afraid to Use Neural Net on Real Patients

- Rule Learned from Data: **HasAsthma(x)** => **LessRisk(x)** **(!)**
- True pattern in data:
  - asthmatics presenting with pneumonia considered very high risk
  - history of asthma means they notice symptoms and go to healthcare sooner
  - receive agressive treatment and sometimes admitted to ICU
  - rapid treatment lowers risk of death compared to general population
- If Rules learned asthma is good for you, NN probably did, too
  - if we use NN for treatment decisions, could hurt asthmatics
- Key to discovering **HasAsthma(x)...** was intelligibility of rules
  - even if we can remove asthma problem from neural net, what other "bad patterns" might be in the neural net that RBL missed?

Despite High Accuracy, Afraid to Use Neural Net on Real Patients

- Rule Learned from Data: **HasAsthma(x)** => **LessRisk(x)** **(!)**
- True pattern in data:
  - asthmatics presenting with pneumonia considered very high risk
  - history of asthma means they notice symptoms and go to healthcare sooner
  - receive agressive treatment and sometimes admitted to ICU
  - rapid treatment lowers risk of death compared to general population
- If Rules learned asthma is good for you, NN probably did, too
  - if we use NN for treatment decisions, could hurt asthmatics
- Key to discovering **HasAsthma(x)...** was intelligibility of rules
  - even if we can remove asthma problem from neural net, what other "bad patterns" might be in the neural net that RBL missed?

Despite High Accuracy, Afraid to Use Neural Net on Real Patients

- Rule Learned from Data: **HasAsthma(x)** => **LessRisk(x)** **(!)**
- True pattern in data:
  - asthmatics presenting with pneumonia considered very high risk
  - history of asthma means they notice symptoms and go to healthcare sooner
  - receive agressive treatment and sometimes admitted to ICU
  - rapid treatment lowers risk of death compared to general population
- If Rules learned asthma is good for you, NN probably did, too
  - if we use NN for treatment decisions, could hurt asthmatics
- Key to discovering **HasAsthma(x)...** was intelligibility of rules
  - even if we can remove asthma problem from neural net, what other "bad patterns" might be in the neural net that RBL missed?

Despite High Accuracy, Afraid to Use Neural Net on Real Patients

- Rule Learned from Data: **HasAsthma(x)** $=>$ **LessRisk(x)** **(!)**
- True pattern in data:
  - asthmatics presenting with pneumonia considered very high risk
  - history of asthma means they notice symptoms and go to healthcare sooner
  - receive agressive treatment and sometimes admitted to ICU
  - rapid treatment lowers risk of death compared to general population
- If Rules learned asthma is good for you, NN probably did, too
  - if we use NN for treatment decisions, could hurt asthmatics
- Key to discovering **HasAsthma(x)...** was intelligibility of rules
  - even if we can remove asthma problem from neural net, what other "bad patterns" might be in the neural net that RBL missed?

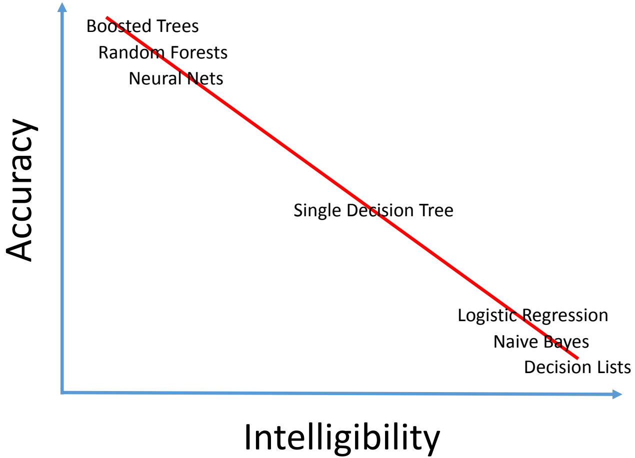
Despite High Accuracy, Afraid to Use Neural Net on Real Patients

- Rule Learned from Data: **HasAsthma(x)** => **LessRisk(x)** **(!)**
- True pattern in data:
  - asthmatics presenting with pneumonia considered very high risk
  - history of asthma means they notice symptoms and go to healthcare sooner
  - receive agressive treatment and sometimes admitted to ICU
  - rapid treatment lowers risk of death compared to general population
- If Rules learned asthma is good for you, NN probably did, too
  - if we use NN for treatment decisions, could hurt asthmatics
- Key to discovering **HasAsthma(x)...** was intelligibility of rules
  - even if we can remove asthma problem from neural net, what other "bad patterns" might be in the neural net that RBL missed?

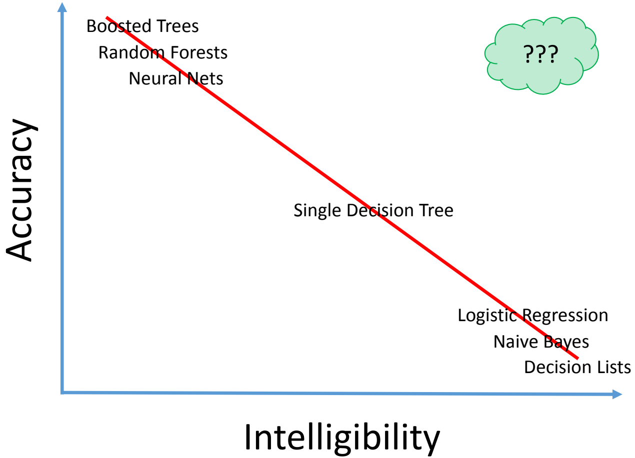
All we need is a model as accurate as a neural net,

but as intelligible as linear regression

Problem: The Accuracy vs. Intelligibility Tradeoff



Problem: The Accuracy vs. Intelligibility Tradeoff



What New Intelligible/Transparent Models Learn About Pneumonia

- Has_Asthma => lower risk
- Patients > 85 not treated as well as patients < 85
- Patients > 100 treated better than Patients < 100
- History of chest pain => lower risk
- History of heart disease => lower risk

- Good we didn't deploy the black-box neural net
- Can understand, edit and safely deploy new intelligible/transparent models

- **Important:** Must keep potentially offending features in model!

What New Intelligible/Transparent Models Learn About Pneumonia

- Has_Asthma => lower risk
- Patients > 85 not treated as well as patients < 85
- Patients > 100 treated better than Patients < 100
- History of chest pain => lower risk
- History of heart disease => lower risk

- Good we didn't deploy the black-box neural net
- Can understand, edit and safely deploy new intelligible/transparent models

- **Important:** Must keep potentially offending features in model!

What New Intelligible/Transparent Models Learn About Pneumonia

- Has_Asthma => lower risk
- Patients > 85 not treated as well as patients < 85
- Patients > 100 treated better than Patients < 100
- History of chest pain => lower risk
- History of heart disease => lower risk

- Good we didn't deploy the black-box neural net
- Can understand, edit and safely deploy new intelligible/transparent models

- **Important:** Must keep potentially offending features in model!

What New Intelligible/Transparent Models Learn About Pneumonia

- Has_Asthma => lower risk
- Patients > 85 not treated as well as patients < 85
- Patients > 100 treated better than Patients < 100
- History of chest pain => lower risk
- History of heart disease => lower risk

- Good we didn't deploy the black-box neural net
- Can understand, edit and safely deploy new intelligible/transparent models

- **Important:** Must keep potentially offending features in model!

What New Intelligible/Transparent Models Learn About Pneumonia

- Has_Asthma => lower risk
- Patients > 85 not treated as well as patients < 85
- Patients > 100 treated better than Patients < 100
- History of chest pain => lower risk
- History of heart disease => lower risk

- Good we didn't deploy the black-box neural net
- Can understand, edit and safely deploy new intelligible/transparent models

- **Important:** Must keep potentially offending features in model!

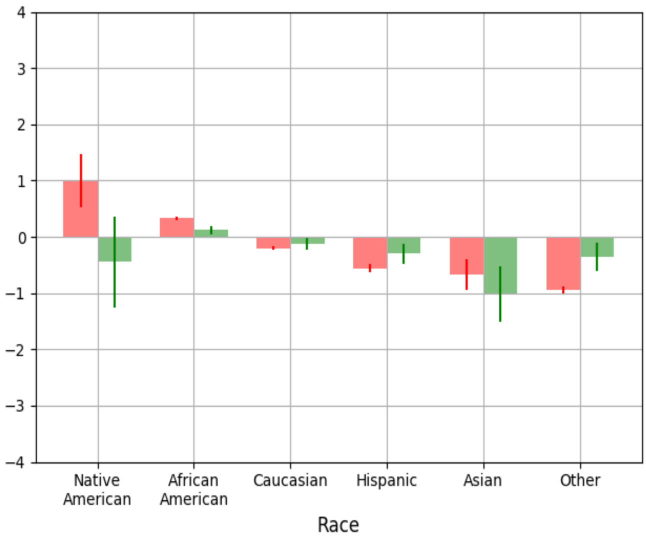
FAT/ML: ProPublica COMPAS Recidivism Data

- COMPAS is a black-box model used to predict future criminal behavior
  - model is black-box because IP is protected, not complexity
  - criminal justice officials use risk prediction to inform bail, sentencing and parole decisions
- Is COMPAS model biased?

Using Intelligible Models to "Open Up" COMPAS Black-Box

- As reported by others, COMPAS appears to be racially biased
  - appears to be more racially biased than the training data
- Most important variable to COMPAS appears to be number of prior convictions
- COMPAS appears to not model age and gender as well as it could
- COMPAS appears to be a very simple model (too simple?)
  - NorthPointe revelaed recently that the COMPAS only uses 6/150+ variables
- We now have techniques for "opening" black-box models like deep nets and COMPAS

Using Intelligible Models to "Open Up" COMPAS Black-Box



Summary

- All datasets are biased
- Must be able to understand AI and ML models trained on data
- Now have methods for training intelligible/transparent models
- Methods can be used to understand and correct what is in black-box models
- Discover problems you did not anticipate in advance
- Important to keep protected variables in model so bias is localized

Thank You

Centre for Information Policy Leadership
Hunton Andrews Kurth LLP

Session I

Panel Discussion with Introductory Keynote Speakers

- **Moderator: Fred Cate, Global Policy Advisor, CIPL**
- **Casimir Wierzynski, Senior Director of AI Research, Intel**
- **Maya Gupta, Principal Scientist, Google**
- **Rumman Chowdhury, Senior Principal, Artificial Intelligence, Accenture**
- **Rich Caruana, Principal Researcher, Microsoft**

Centre for Information Policy Leadership
Hunton Andrews Kurth LLP

Session II

The Challenges and Data Protection Risks of AI

- Moderator: Fred Cate, Global Policy Advisor, CIPL
- Elizabeth Denham, Information Commissioner, UK Information Commissioner’s Office
- Shuhei Ohshima, Specialist Commissioner, Japan Personal Information Protection Commission
- Zee Kin Yeong, Deputy Commissioner, Singapore Personal Data Protection Commission
- Raina Yeung, Assistant Commissioner, Office of the Privacy Commissioner for Personal Data, Hong Kong
- Norberto Andrade, Privacy and Public Policy Manager, Facebook
- Julie Brill, Corporate Vice President and Deputy General Counsel, Microsoft
- Michelle Dennedy, Vice President and Chief Privacy Officer, Cisco
- Riccardo Masucci, Global Director of Privacy Policy, Intel

AI Governance Initiatives

Presentation by Yeong Zee Kin, Deputy Commissioner
Centre for Information Policy Leadership – Accountable AI Workshop
27 June 2018

AGENDA

1. Overview of AI Governance Structure
2. Discussion Paper on Fostering Responsible AI
3. Proposed Reference AI Governance Framework
4. Advisory Council on the Ethical Use of AI and Data
5. Research Programme on Governance of AI and Data Use

1. OVERVIEW OF AI GOVERNANCE STRUCTURE

Advisory Council on the Ethical Use of AI and Data

Composition

- Industry-led
- Private sector thought leaders
- Consumer advocates

Roles: Advise and support Government, including:

- Identifying **regulatory, legal, policy, ethical and governance issues** relating to the commercial deployment of data-driven technologies e.g., AI in the private sector
- Providing **insights and recommendations** to Government on issues that may require policy consideration and/or regulatory/legislative intervention
- Developing ethics standards and reference governance frameworks and publish advisory guidelines, practical guidance, and/or codes of practice for the voluntary adoption by the industry
- Providing insight and guidance to the Research Programme

Provide industry & consumer perspectives

Provide regulators' perspectives

Research Programme on Governance of AI and Data Use

Executive Committee
(National Research Foundation, AI SG, IMDA, Singapore Management University - SMU)

Management Team
(SMU)

Public Sector AI Governance Roundtable

Composition

- Sector regulators and public agencies (e.g. legal services, health, monetary authority, competition, manpower, info-comm, national development)

Roles

- **Community of Practice** for public agencies
- Establish **common AI governance principles and framework** across sectors
- **Co-ordinated, principled and outcome-focused sectoral regulations** where necessary

[RESTRICTED]

2. DISCUSSION PAPER ON FOSTERING RESPONSIBLE AI

Personal Data Protection Commission (PDPC) published a discussion paper on 5th June 2018 intended to trigger public discussion on responsible AI and data governance. The paper arose from input provided by the *Public Sector AI Governance Roundtable* and closed consultations with private sector companies. It consists of two main parts:

1. Broad articulation of the principles for responsible AI; and
2. A proposed governance framework that sets out practical ways that organisations using AI can translate the principles into processes.

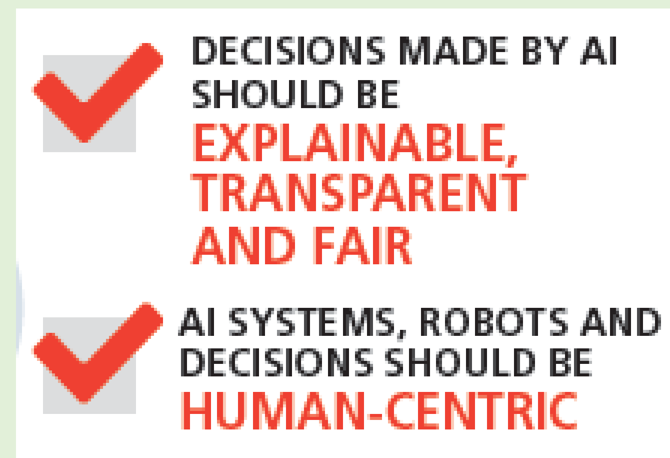
The two parts aim to promote **Public Understanding** and **Trust** in AI technologies.

Strategic Considerations

Promote

- Development & adoption of AI
- Innovation, competition & consumer choice
- Consistency in decisions affecting consumers

Principles for Responsible AI



3. PROPOSED REFERENCE AI GOVERNANCE FRAMEWORK

OBJECTIVES

- Explaining how AI systems work and verifying that they work consistently
- Building in good data accountability practices
- Creating open and transparent communication between stakeholders

ORGANISATIONAL GOVERNANCE MEASURES

GOVERNANCE

- Putting in place internal corporate governance and oversight processes
- Taking measures to identify and mitigate risks or harm
- Reviewing how and where AI is deployed within the company periodically

OPERATIONS MANAGEMENT AND SYSTEMS DESIGN

- Having good practices in managing data
- Ensuring AI performs consistently
- Understanding what data was used to make algorithmic decisions
- Training and maintenance of AI models

CONSUMER RELATIONSHIP MANAGEMENT

TRANSPARENCY

- Policy for disclosure
- Policy for explanation

COMMUNICATION

- Establishing a feedback channel
- Reviewing decisions made by AI

INTERACTION

- Reviewing human-machine interactions for user friendliness
- Providing an option to opt-out

DECISION MAKING AND RISK ASSESSMENT

- Determining the appropriate decision-making approach to maximise benefits and minimise risk of harm.
- **"Human-in-the-loop"** involves a human who relies on intelligent systems but ultimately makes the final decision
- **"Human-over-the-loop"** involves a human who has made a choice but relies on intelligent systems to suggest options to perform an action
- **"Human-out-of-the-loop"** involves automated decisions by intelligent systems based only on a pre-determined set of scenarios

4. ADVISORY COUNCIL ON THE ETHICAL USE OF AI & DATA

- Need to address **ethical, regulatory and governance issues** arising from commercial deployment of AI and other data-driven technologies.

- June 5th 2018, the Advisory Council was established to:

  - Provide private sector insights and recommendations to the Government relating to commercial deployment of data-driven technologies, and issues that may require policy consideration and/or legislative intervention; and

  - Support Government in developing voluntary ethics standards and governance frameworks for businesses in Singapore and publishing discussion papers, voluntary advisory guidelines, practical guidance, and/or codes of practice

- Advisory Council is chaired by former Attorney General V.K. Rajah and comprises private sector thought leaders in AI and Big Data from local and international companies; academia; and consumer advocates

5. RESEARCH PROGRAMME ON GOVERNANCE OF AI & DATA USE

- IMDA-National Research Foundation (NRF) have set-up a ***Research Programme on Governance of AI & Data Use*** through a grant call for proposal.
- The Singapore Management University School of Law was awarded a S$4.5 million dollar grant to run the programme for 5 years.
- The Research Programme aims to:
  - Promote cutting edge thinking and practices in AI and data policies/regulations;
  - Inform AI and data policy and regulation formulation in Singapore through research publications and stakeholder engagement; and
  - Position Singapore as a global thought leader in AI and data policies/regulations

Thank You

CIPL Workshop
“Accountable AI”
27 June 2018 | San Francisco

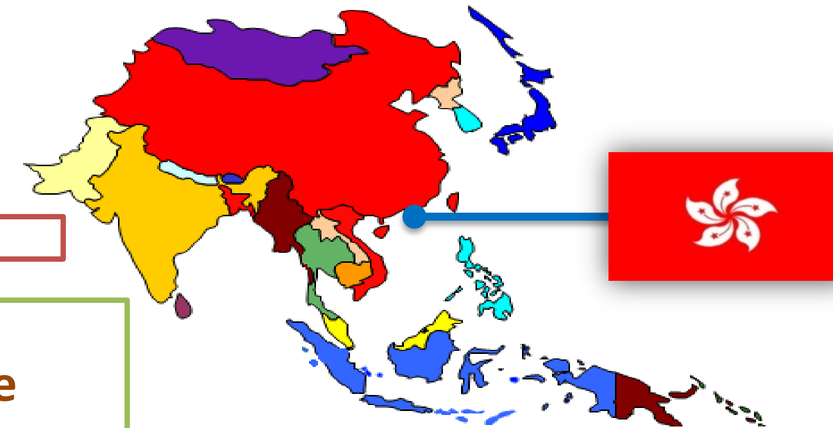
The Challenges and Data Protection Risks of AI

Raina YEUNG

Assistant Privacy Commissioner for Personal Data (Legal, Policy & Research)

Office of the Privacy Commissioner for Personal Data, Hong Kong, China

The Personal Data (Privacy) Ordinance

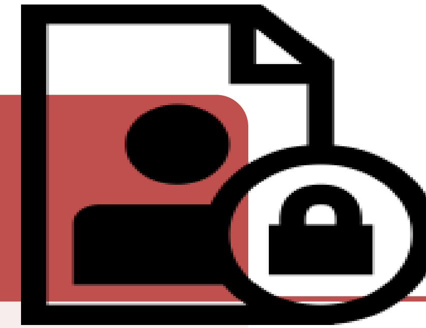


Referenced to OECD Privacy Guidelines 1980 & Data Protection Directive 95/46/EC

Principle based & technology neutral

- **Data collection**: Informed, necessary, adequate but not excessive
- **Retention**: Not longer than necessary
- **Accuracy**: Shall not use if believed to be inaccurate
- **Use**: Express and voluntary consent for change of use
- **Security**: Safeguard data from unauthorised or accidental access, processing, erasure, loss or use
- **Transparency**: Clear policies and practices made known to individuals

Challenges of AI



Data Privacy Issues

- Massive and ubiquitous data collection from multiple sources
- Low transparency
- No meaningful notice and consent
- Unexpected and unpredictable data use
- Doubtful inferences: Coincidence, correlation, or causal relation?
- Re-identification and revelation of sensitive information

Challenges of AI

Ethical Issues

- **Unfair or discriminatory predictions**
- **Incomprehensible and “black box” algorithms: Difficult for individuals to dispute automated decisions**

Hong Kong PCPD
Way Forward and Strategic Focus

Data Ethics

Cultural norms
Communal values
Guiding beliefs
Moral principles


ngiyabonga
danke
謝謝
teşekkür ederim
спасибо
dank je
tapadh leat
thank you
gracias
bedankt
hvala
mauruuru
mochchakkeram
dziękuję
go raibh maith agat
sagolun
sukriya
kop khun krap
arigatō
takk
dakujem
obrigado
grazie
мерси
terima kasih
ευχαριστώ
감사합니다
merci

Contact Us

- Hotline 2827 2827
- Fax 2877 7026
- Website www.pcpd.org.hk
- E-mail enquiry@pcpd.org.hk
- Address 12/F, Sunlight Tower, 248 Queen's Road East, Wanchai, HK

Centre for Information Policy Leadership
Hunton Andrews Kurth LLP

Session III

Elements of Accountable AI

- Moderator: Bojana Bellamy, President, CIPL
- Caroline Louveaux, EVP/Chief Privacy Officer, Mastercard
- Alison Howard, Assistant General Counsel, Microsoft
- Charina Chou, Public Policy Manager, Google
- Deborah Santiago, Managing Director of Legal Services, Digital & Strategic Offerings, Accenture
- Scott Goss, Vice President & Privacy Counsel, Qualcomm

QUALCOMM®

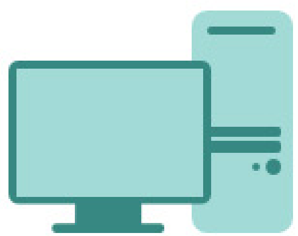
Privacy Challenges in Machine Learning

Scott Goss
VP, Privacy Counsel
Qualcomm Incorporated
June 2018
sgoss@qualcomm.com

Qualcomm invents core mobile technologies

We are engineers, scientists and researchers

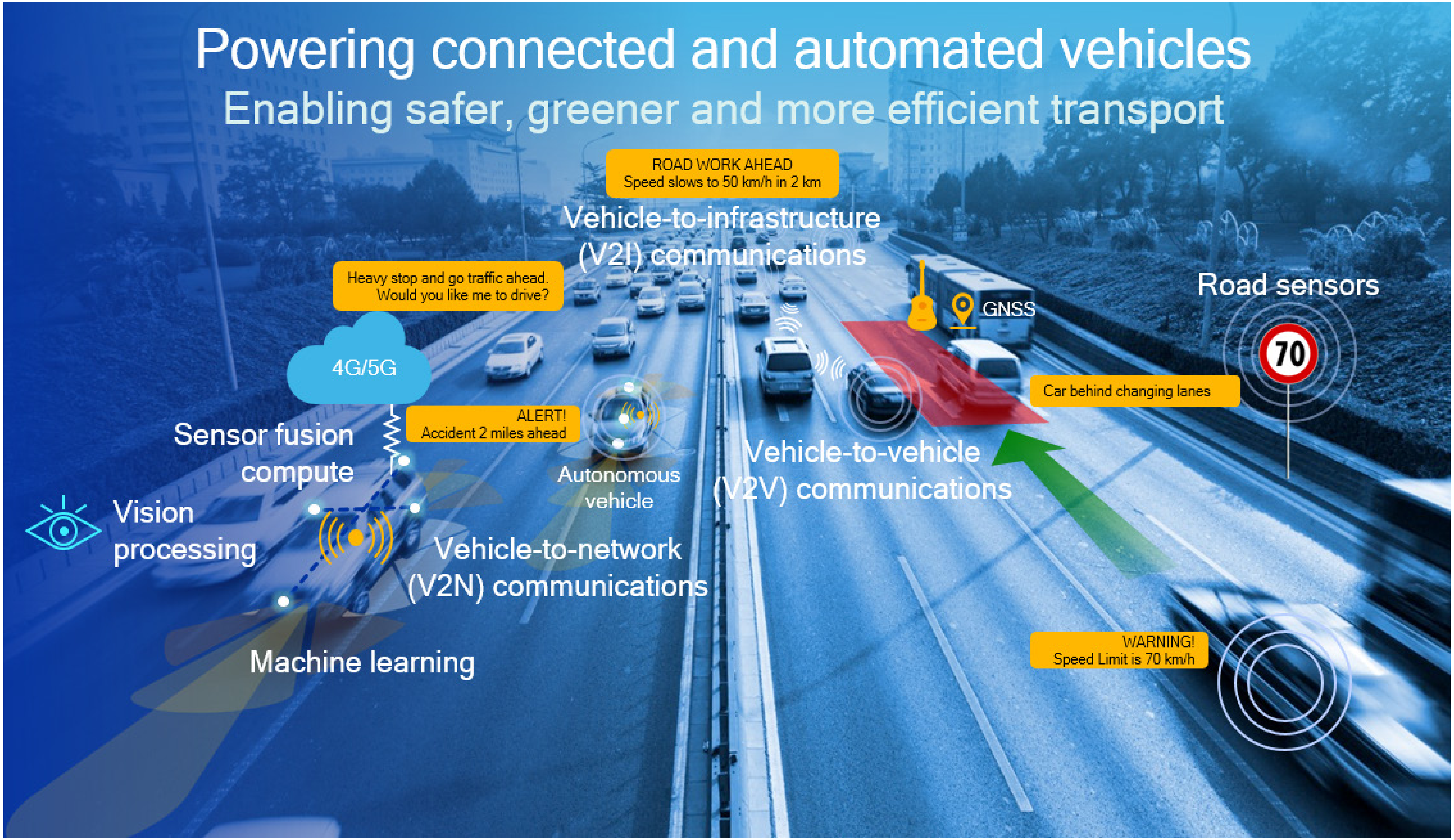
Evolution of connected devices



Yesterday

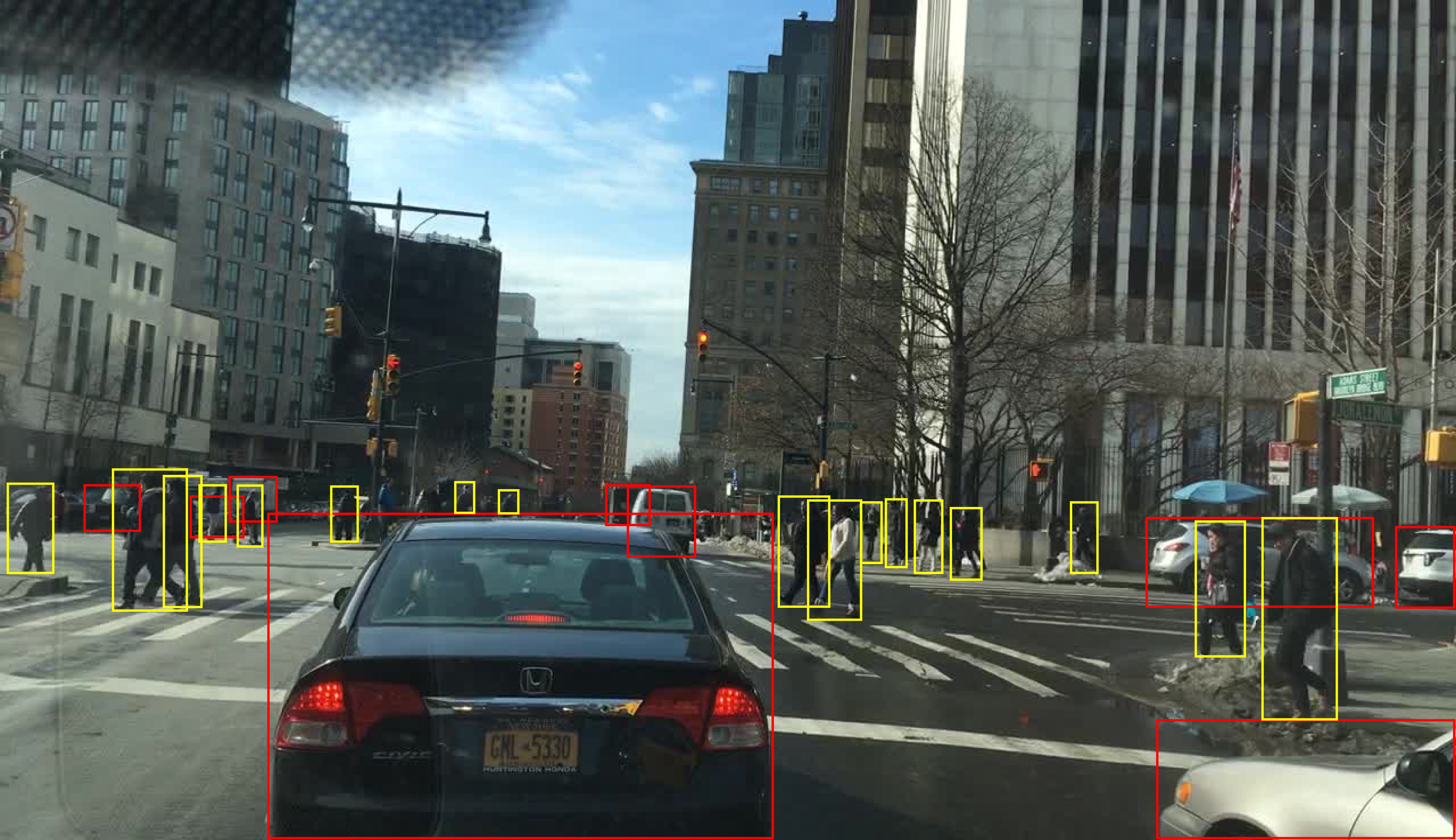
Today

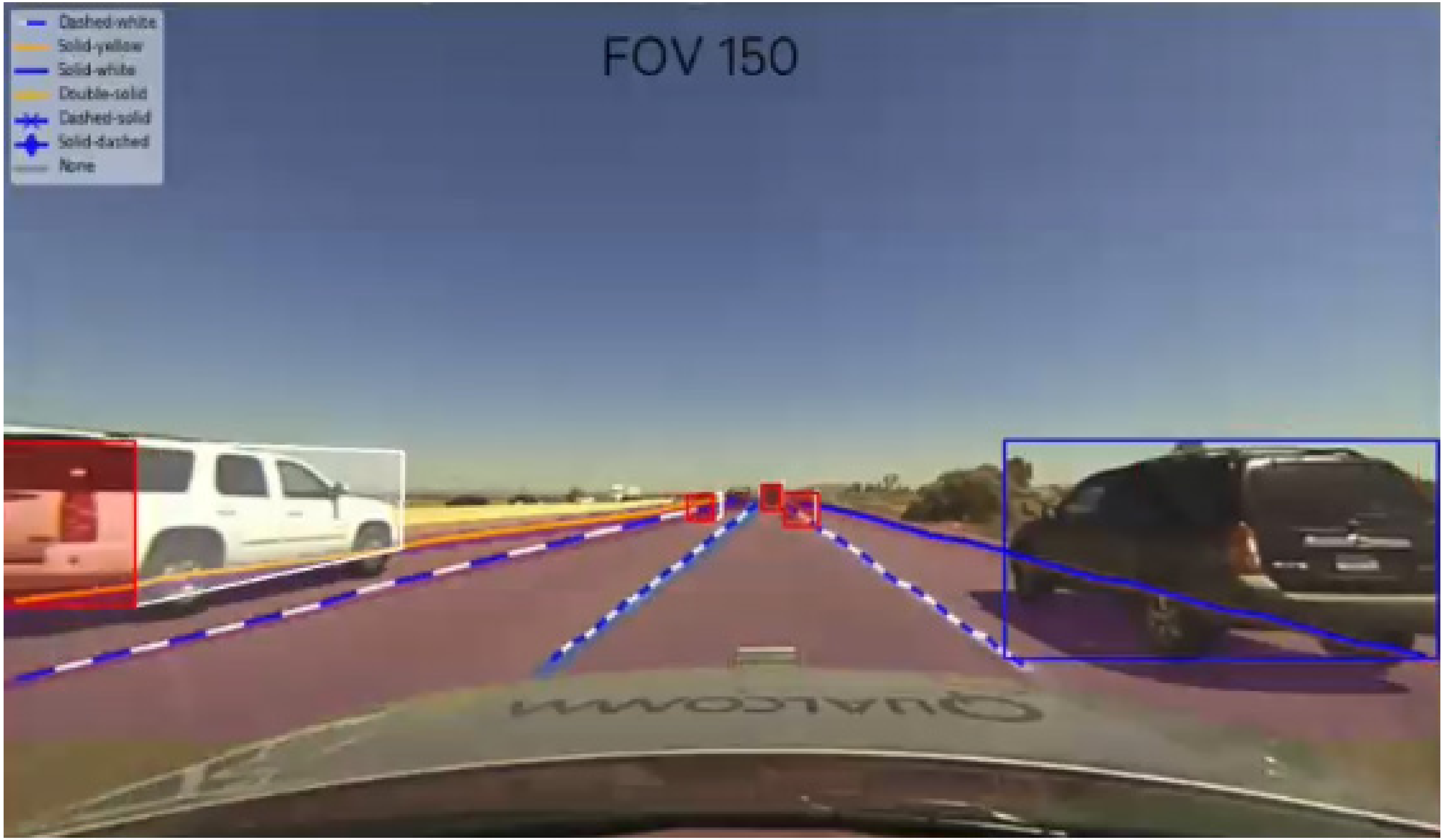
Tomorrow



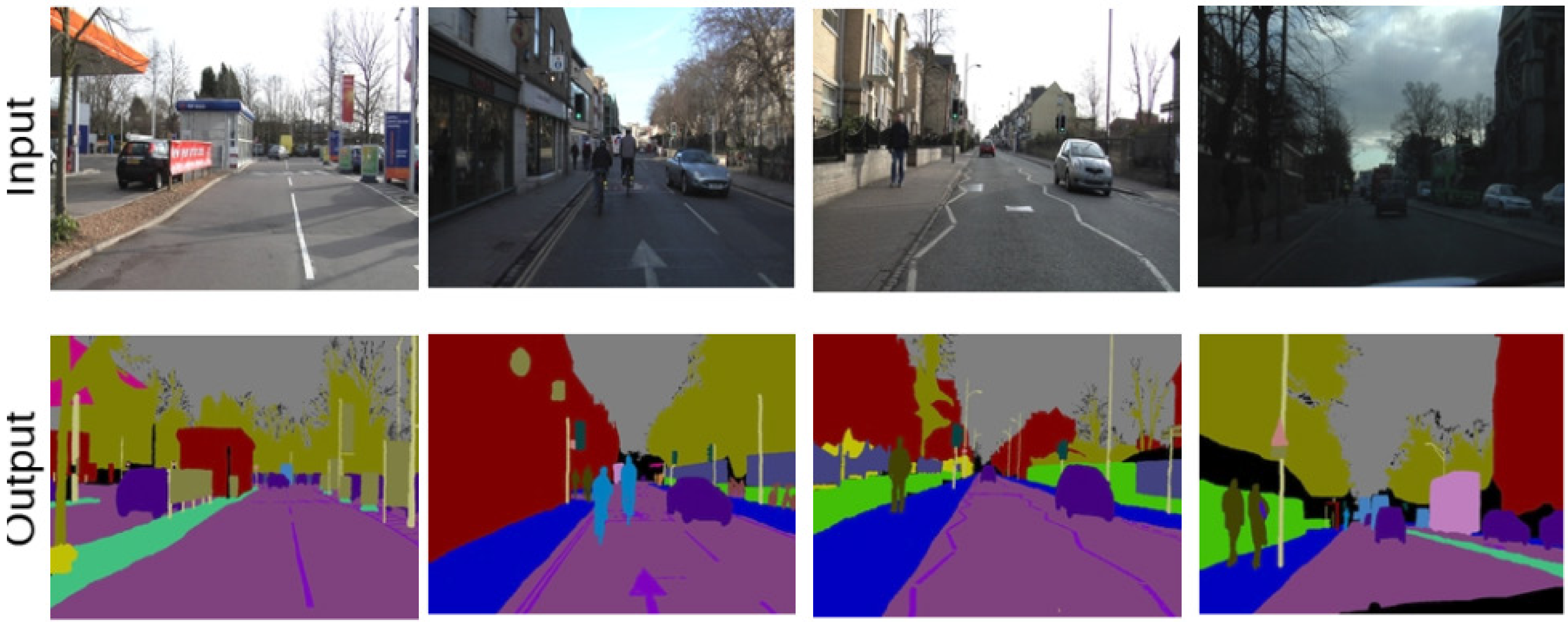
Powering connected and automated vehicles
Enabling safer, greener and more efficient transport
ROAD WORK AHEAD
Speed slows to 50 km/h in 2 km
Vehicle-to-infrastructure (V2I) communications
Heavy stop and go traffic ahead. Would you like me to drive?
4G/5G
GNSS
Road sensors
70
Car behind changing lanes
ALERT! Accident 2 miles ahead
Sensor fusion compute
Autonomous vehicle
Vehicle-to-vehicle (V2V) communications
Vision processing
Vehicle-to-network (V2N) communications
Machine learning
WARNING! Speed Limit is 70 km/h


GML 5330
HUNTINGTON HONDA


GML-5330
HUNTINGTON HONDA



Dashed-white
Solid-yellow
Solid-white
Double-solid
Dashed-solid
Solid-dashed
None
FOV 150


Input
Output

Privacy Challenges in Machine Learning

- Identifiable faces and license plates
- US law: public places; no expectation of privacy
- ROW data protection law challenges:
  - Transparency
  - Legal basis
  - Data subject rights
  - Transfer restrictions
- Solutions?
  - Only US data? No.
  - Collect all the data ourselves? No.
  - Controls for self-collected; Legal review of all 3rd party licensed

Thank you

Follow us on:

For more information, visit us at:

www.qualcomm.com & www.qualcomm.com/blog

Closing Remarks

Bojana Bellamy, President, CIPL

Contacts

Bojana Bellamy
President
Centre for Information Policy Leadership
BBellamy@huntonak.com

Markus Heyder
Vice President & Senior Policy Advisor
Centre for Information Policy Leadership
MHeyder@huntonak.com

Nathalie Laneret
Director of Privacy Policy
Centre for Information Policy Leadership
NLaneret@huntonak.com

Sam Grogan
Global Privacy Policy Analyst
Centre for Information Policy Leadership
SGrogan@huntonak.com

Centre for Information Policy Leadership
www.informationpolicycentre.com

Hunton Andrews Kurth Privacy and Information Security Law Blog
www.huntonprivacyblog.com

FOLLOW US ON LINKEDIN
linkedin.com/company/centre-for-information-policy-leadership

FOLLOW US ON TWITTER
@THE_CIPL