WORLD **PRIVACY** FORUM

IEEE Winter Conference on Applications of Computer Vision (WACV 2025)

28 February 2025

World Privacy Forum Half Day Tutorial

Data Protection and Privacy in Biomedical, Healthcare and Medicine

This half-day tutorial seeks to examine advanced areas of Computer Vision in relation to data governance and privacy, with a focus on issues in the spheres of biomedical, health, and medicine.

This tutorial is the second WACV Computer Vision tutorial that WPF has held, the first was held in 2024.

Tutorial Logistics:

When: 28 February 2025, 1-5 pm

Where: Arizona Ballroom Salon 3
Located in the JW Marriott Starpass Hotel, Tucson, Arizona

Agenda

Room: Salon C

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1 pm

Welcome and Highlights from WACV 2024 World Privacy Forum-led Tutorial on AI Governance and Data Protection in Computer Vision and AI (10 minutes)

Presenters:

- Pam Dixon, World Privacy Forum Executive Director
- Kate Kaye, World Privacy Forum Deputy Director

This brief introductory morning session will include a welcome message and brief overview of the half-day's session topics from tutorial leaders Pam Dixon, World Privacy Forum Executive Director and Kate Kaye, World Privacy Forum Deputy Director. They will also provide an overview of important takeaways from the World Privacy Forum-led Tutorial on AI Governance and Data Protection in Computer Vision and AI held at WACV 2024, including issues related to Privacy Hurdles in Computer Vision Age Classification, Caveats to Facial Recognition Accuracy in Law Enforcement, Implementation Gaps in Differential Privacy and AI Fairness, Synthetic Data Uses in the Health Sector, Problems with Privacy Enhancing Technologies (PETs), Indigenous Data Rights and Sovereignty Concepts, and Social Impacts in AI Research.

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1:15 pm

Data Use and Privacy Protection for Medical Digital Twins (50 minutes)

Presenters:

- Dr. Sandeep Gupta, Professor, School of Computing and Augmented Intelligence at Arizona State University and advisor to ASU's Intelligent Mobile & Pervasive Applications & Communication Technologies (iMPACT) Lab

- Dr. Ayan Banerjee, Associate Research Professor, School of Computing and Augmented Intelligence at Arizona State University and Faculty Researcher in ASU's Intelligent Mobile & Pervasive Applications & Communication Technologies (iMPACT) Lab

Dr. Sandeep Gupta and Dr. Ayan Banerjee will present recent research regarding a technique for using medical images in conjunction with Large Language Models in a manner that preserves image privacy. They will also discuss data privacy in relation to the use of medical digital twin systems in conjunction with "guardian angel" AI agents for medical decision making.

Discussion Participants:

- Pam Dixon, World Privacy Forum Executive Director
- Emmi Bane, Senior Ethics and AI Fellow, World Privacy Forum and privacy sociologist and medical ethicist, MPH, CIPP
- Kate Kaye, World Privacy Forum Deputy Director

In a discussion period during this session, World Privacy Forum Executive Director Pam Dixon, WPF Senior Ethics and AI Fellow Emmi Bane and WPF Deputy Director Kate Kaye will connect topics discussed to broader data privacy and research ethics concepts and policies, as well as practical secondary data use considerations. Attendees will be invited to ask questions and join the discussion.

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2:10 pm

Machine Unlearning for Neural Networks and The Right to Be Forgotten (50 minutes)

Presenter:

- Dr. Anastasia Koloskova, Postdoctoral Scholar, Computer Science, Stanford University

Discussion Participants:

- Sanmi (Oluwasanmi) Koyejo, Assistant Professor, Computer Science, Stanford University, Principal Investigator, Stanford Trustworthy AI Research (STAIR), and President, Black in AI (virtual)

- Thomas Strohmer, Professor, Department of Mathematics, University of California, Davis, Director, Center for Data Science and Artificial Intelligence Research (virtual)

- Pam Dixon, World Privacy Forum Executive Director

In this session, Dr. Koloskova will present her recent research regarding a novel method for machine unlearning. Her work advances machine unlearning related research involving removal of the influence of specific training data from a model upon request, motivated by privacy concerns and regulatory requirements such as the "right to be forgotten" in the EU's General Data Protection Regulation.

In a discussion period during this session, Dr. Sanmi Koyejo, Assistant Professor, Computer Science, Stanford University will join Dr. Koloskova, World Privacy Forum Executive Director Pam Dixon to connect machine unlearning to broader data protection concepts and policies. Attendees will be invited to ask questions.

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3:05 pm

Genetic Data Use and Bioethical Considerations for Indigenous and Under-represented Populations in Computer Vision and Beyond (50 minutes)

Presenter:

- Karina Hernandez-Hernandez, Grad Research Assistant, The College of Liberal Arts and Sciences, School of Life Sciences, Arizona State University

Discussion Participants:

- Pam Dixon, World Privacy Forum Executive Director
- Emmi Bane, Senior Ethics and AI Fellow, World Privacy Forum and privacy sociologist and medical ethicist, MPH, CIPP

Indigenous genetic epidemiologist in training, Karina Hernandez-Hernandez (Purepecha), Graduate Research Assistant in the Tsosie Lab at The College of Liberal Arts and Sciences, School of Life Sciences at Arizona State University, will discuss Indigenous data sovereignty principles, frameworks and considerations, in the context of health and genomic research. She will also address use of federated learning and blockchain techniques in relation to protection and use of Indigenous biospecimens and genomic data, and describe real-world applications including at the Native BioData Consortium. Hernandez-Hernandez will also address Indigenous considerations regarding open data, and overall impacts of exploitive research practices on Indigenous communities.

In a discussion period during this session, World Privacy Forum Executive Director Pam Dixon and WPF Senior Ethics and AI Fellow Emmi Bane will connect topics discussed to broader data protection and research ethics concepts and policies.

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4 pm

Collective Privacy in Computer Vision Systems (40 minutes)

Presenter:

- Pam Dixon, World Privacy Forum Executive Director

Discussion Participants:

- Emmi Bane, Senior Ethics and AI Fellow, World Privacy Forum and privacy sociologist and medical ethicist, MPH, CIPP
- Dr. Sandeep Gupta, Professor, School of Computing and Augmented Intelligence at Arizona State University and advisor to ASU's Intelligent Mobile & Pervasive Applications & Communication Technologies (iMPACT) Lab
- Dr. Ayan Banerjee, Associate Research Professor, School of Computing and Augmented Intelligence at Arizona State University and Faculty Researcher in ASU's Intelligent Mobile & Pervasive Applications & Communication Technologies (iMPACT) Lab

Collective privacy is a concept with limited exploration and understanding in many parts of the world today, however, it is a known "hard problem" in CV systems. Collective privacy as a matter of policy is being utilized today in limited US, Canadian, New Zealand, Rwandan and other settings. This presentation presents two collective privacy use cases, one in CV systems, one in genetic biodatabases, and explores the technology as well as the existing policies and frameworks, and the reasons collective privacy is an important issue to begin to measure and assess. This discussion is based on research and analysis in a draft paper by Dixon that was accepted and workshopped at the Privacy Law Scholars Conference in Washington D.C.

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4:40 pm

Review and Interactive Discussion (20 Minutes**)**

Presenters:

- Pam Dixon, World Privacy Forum Executive Director
- Kate Kaye, World Privacy Forum Deputy Director
- Emmi Bane, Senior Ethics and AI Fellow, World Privacy Forum and privacy sociologist and medical ethicist, MPH, CIPP

In this concluding session, Kate Kaye and Emmi Bane will review key highlights from the half-day's presentations and discussions. Then, they will open the floor for thoughts

from attendees. Pam Dixon will close the tutorial with a few concluding thoughts.

5:00 pm

Conclusion of Tutorial