Facial Recognition: Current Capabilities, Future Prospects, and Governance

Committee

Edward W. Felten

Co-Chair

Edward W. Felten, NAE, is the Robert E. Kahn Professor of Computer Science and Public Affairs, Emeritus, at Princeton University and was the founding director of Princeton's Center for Information Technology Policy, a cross-disciplinary effort studying digital technologies in public life. He is also Co-founder and Chief Scientist at Offchain Labs, Inc. Dr. Felten is a member of the U.S. Privacy and Civil Liberties Oversight Board.

From 2015 to 2017 Dr. Felten served on the White House staff as Deputy United States Chief Technology Officer. His research interests include blockchain and cryptocurrency technologies, computer security and privacy; and technology law and policy. He has published more than 150 papers in the research literature and two books. His research on topics such as web security, copyright and copy protection, and electronic voting has been covered extensively in the popular press. Dr. Felten is a member of the American Academy of Arts and Sciences and is a fellow of the Association for Computing Machinery. He has testified at House and Senate committee hearings on privacy, electronic voting, digital television, and artificial intelligence. Among his committee service at NASEM, he served on the committees on Study on Directions for the AFOSR Mathematics and Space Sciences Directorate Related to Information Science and Technology (2005) and Fundamentals of Computer Science: Challenges and Opportunities (2000-2005). He served as a member of the NASEM Committee for the Study on Directions for the AFOSR Mathematics and Space Sciences Directorate Related to Information Science and Technology (2005) and the Committee on Fundamentals of Computer Science - Challenges and Opportunities (2000-2005). Dr. Felten earned a Ph.D. in computer science and engineering from the University of Washington.

Dr. Felten served in an uncompensated advisory role for the Center for Democracy and Technology from 2017 to 2019.

Jennifer L. Mnookin

Co-Chair

Jennifer L. Mnookin, Ralph and Shirley Shapiro Professor of Law, and a member of the UCLA Law faculty since 2005, became dean of the UCLA School of Law in August 2015. Dean Mnookin is a leading evidence scholar and among the most highly cited law faculty in her field. She has been a co-author of two major evidence treatises, "The New Wigmore, A Treatise on Evidence: Expert Evidence" and "Modern Scientific Evidence: The Law and Science of Expert Testimony" and has published extensively on issues relating to evidence, expertise, and the use of specialized knowledge in our lay adjudicatory system. In 2020, Dean Mnookin was elected to the American Academy of Arts and Sciences. She served for six years on the National Academy of Sciences' Committee on Science, Technology, and Law (2014-2020). She currently serves as Chair of UCLA's Professional School Dean's Council (since 2017), co-chaired a group of senior advisors for a President's Council of Advisors on Science and Technology (PCAST) report on the use of forensic science in criminal courts, and currently serves on the board of the Law School Admissions Council (LSAC). Prior to joining UCLA Law, Dean Mnookin was professor of law and Barron F. Black Research Professor at the University of Virginia School of Law and visiting professor of law at Harvard Law School. She received her A.B. from Harvard University, her J.D. from Yale Law School, and a Ph.D. in History and Social Study of Science and Technology from M.I.T.

Dean Mnookin also serves on the non-governing, uncompensated Advisory Board of the Electronic Privacy Information Center.

Thomas D. Albright

Member

Thomas D Albright, NAS, is Professor and Conrad T Prebys Chair at the Salk Institute for Biological Studies. Albright is an authority on the neural basis of visual perception, memory and visually guided behavior. His laboratory seeks to understand how visual perception is affected by attention, behavioral goals, and memories of previous experiences. An important goal of this work is the development of therapies for blindness and perceptual impairments resulting from disease, trauma or developmental disorders of the brain. A second aim of Albright's work is to use our growing knowledge of brain, perception and memory to inform design in architecture and the arts, to leverage societal decisions and public policy, and to advise on matters of law and justice. He is a fellow of the American Academy of Arts and Sciences and a fellow of the American Association for the Advancement of Science. Albright served on the NAS Committee on Science, Technology and Law, and on the National Commission on Forensic Science, an advisory body to the US Department of Justice. Albright is currently a member of the Human Factors Resource Committee of the US National Institute of Standards and Technology Organization of Scientific Area Committees for Forensic Science. Albright served as co-chair of the NAS Committee on Scientific Approaches to Eyewitness Identification, which produced the 2014 consensus report "Identifying the Culprit: Assessing Eyewitness Identification." Dr. Albright received a Ph.D. in psychology and neuroscience from Princeton University.

Ricardo Baeza-Yates

Member

Ricardo Baeza-Yates is the director of research at the Institute for Experiential Artificial Intelligence of Northeastern University. He came to Northeastern after his role as the chief technology officer of NTENT, a semantic search technology company based in California. Prior to these roles, he was the VP of Research at Yahoo Labs, based in Sunnyvale, California, from August 2014 to February 2016. Before joining Yahoo Labs in California, he founded and led the Yahoo Labs in Barcelona and Santiago de Chile from 2006 to 2015. Between 2008 and 2012, he oversaw Yahoo Labs in Haifa, Israel, and started the London lab in 2012. Baeza-Yates is a part-time professor at the Department of Information and Communication Technologies of the Universitat Pompeu Fabra in Barcelona, Spain, as well as at the Department of Computing Science of Universidad de Chile in Santiago. During 2005, he was an ICREA research professor at Universitat Pompeu Fabra. Until 2004, he was a professor and founding director of the Center for Web Research at Universidad de Chile. Additionally, Baeza-Yates is a co-author of the best-seller Modern Information Retrieval textbook, published in 1999 by Addison-Wesley, with a second enlarged edition in 2011, which won the ASIST 2012 Book of the Year award. He is also a co-author of the second edition of the Handbook of Algorithms and Data Structures, Addison-Wesley, 1991, and co-editor of Information Retrieval: Algorithms and Data Structures, Prentice-Hall, 1992, among more than 600 other publications. From 2002 to 2004 he was elected to the board of governors of the IEEE Computer Society, as well as to the ACM Council from 2012 to 2016. He has received the Organization of American States award for young researchers in exact sciences, the Graham Medal for innovation in computing given by the University of Waterloo to distinguished alumni, the CLEI Latin American distinction for contributions to CS in the region and the National Award of the Chilean Association of Engineers, among other distinctions. In 2003, he was the first computer scientist to be elected to the Chilean Academy of Sciences and, since 2010, is a founding member of the Chilean Academy of Engineering. In 2009, he was named ACM Fellow and, in 2011, an IEEE Fellow. Dr. Baeza-Yates received his Ph.D. in computer science from the University of Waterloo, Canada.

He served on the Association for Computing Machinery (ACM) Technology Policy Council (TPC) when it issued a June 2020 statement urging the suspension of the use of facial recognition systems.

Robert Blakley

Member

Bob Blakley is an Operating Partner at Team8. He was previously Global Director of Information Security Innovation at Citi. Bob co-hosts the IEEE Podcast “Over the Rainbow: 21st Century Security and Privacy”. He recently served as a member of the National Academy of Science’s Committee on Technical Assessment of the Feasibility and Implications of Quantum Computing and as a member of Forum on Cyber Resilience – a National Academies Roundtable. He has served as plenary chair of the NSTIC Identity Ecosystem Steering Group and as Research and Development Co-Chair of FSSCC – the Financial Services Sector Coordinating Council for Critical Infrastructure Protection and Homeland Security, and was the general editor of the OASIS SAML specification. Prior to joining Citi, Bob was Distinguished Analyst and Agenda Manager for Identity and Privacy at Gartner and Burton group. Before that, he was Chief Scientist for Security and Privacy at IBM. He is past general chair of the IEEE Security and Privacy Symposium and the ACSA New Security Paradigms workshop. He was awarded ACSAC's Distinguished Security Practitioner award in 2002, and is a frequent speaker at information security and computer industry events. Bob received an A.B. in Classics from Princeton University and an MS and Ph.D. in Computer and Communications Science from the University of Michigan.

Patrick Grother

Member

Patrick Grother is a scientist in the Information Technology Laboratory at the National Institute of Standards and Technology, a division of the U.S. Department of Commerce. Mr. Grother is responsible for biometric standards and technology evaluation at NIST and leads its Face Recognition Vendor Test program, the world’s largest independent public testing program of face recognition algorithms. He co-chairs NIST’s biannual International Face Performance Conference (IFPC) on measurement, metrics and certification and assists several U.S. Government agencies in biometrics performance assessment and standardization. Since 2018, Mr. Grother has served as the chairman of the ISO/IEC/JTC 1 Subcommittee 37 on Biometrics, where he serves as editor of five international standards. He is a three-time recipient of the Department of Commerce Gold Medal award for service to US Industry. Mr. Grother has an M.S. in computer science from Imperial College, London.

Marvin B. Haiman

Member

Marvin Haiman serves as the Chief of Staff for the Metropolitan Police Department. In this capacity, Mr. Haiman oversees daily operations of the Executive Office of the Chief of Police and is responsible for broad agency management and implementing strategic agency objectives. Mr. Haiman is responsible for several organizational units to include the Office of Communications, Office of General Counsel, and the Professional Development Bureau. Mr. Haiman served as the Executive Director of the Professional Development Bureau between 2017 – 2021, leading Recruiting, Training, HR, Discipline, Promotional Processes, EEO, and Volunteer Services Functions. Prior to being named Executive Director, between 2015-2017, Mr. Haiman served in a variety of capacities, including developing the agency's Office of Volunteer Coordination, serving as Chief of Staff for the Technical Services Division tasked with a broad range of IT operations. Prior to returning to the Metropolitan Police Department, Mr. Haiman served as Director for the Homeland Security Advisory Council for the United States Department of Homeland Security, establishing several key task forces for the Secretary. Mr. Haiman is also a graduate of the Naval Postgraduate School Center for Homeland Defense and Security's Executive Leadership Program. Mr. Haiman received recognition by the International Association of Chiefs of Police in 2020 as a 40 under 40 recipient and the prestigious Gary P. Hayes Award by the Police Executive Research Forum. Mr. Haiman also graduated from the Metropolitan Police Academy and served as a reserve police officer with the Metropolitan Police Department. Mr. Haiman graduated from The Johns Hopkins University with a Master's Degree in Management through the Police Executive Leadership Program and has his undergraduate degree in mathematics from the University of Iowa and received designation as a Certified Public Management Program through George Washington University, as well as certification in Strategic Project Management.

Aziz Z. Huq

Member

Aziz Z. Huq is a scholar of U.S. and comparative constitutional law at the University of Chicago. He works on topics ranging from democratic backsliding to regulating AI. His award-winning scholarly work is published in several books and in leading law reviews, social science, and political science journals. He has also written for the Washington Post, the New York Times, Dissent, The Nation, and many other non-specialist publications. In 2015, he received the Graduating Students Award for Teaching Excellence. He has an active pro bono practice, and is on the board of the American Constitution Society, the New Press, and the ACLU of Illinois. Before joining the Law School faculty, Huq worked as counsel and then director of the Brennan Center's Liberty and National Security Project, litigating cases in both the US Courts of Appeals and the Supreme Court. As a Senior Consultant Analyst for the International Crisis Group, he researched and wrote on constitutional design and implementation in Pakistan, Nepal, Afghanistan, and Sri Lanka. He was a law clerk for Judge Robert D. Sack of the US Court of Appeals for the Second Circuit and then for Justice Ruth Bader Ginsburg of the Supreme Court of the United States. He is also a 1996 summa cum laude graduate of the University of North Carolina at Chapel Hill, and a 2001 graduate of Columbia Law School, where he was awarded the John Ordronaux Prize (for the student graduating first in their class). Mr. Huq received his J.D. from Columbia Law School in 2001.

He has served as an uncompensated board member of the American Civil Liberties Union of Illinois since 2018 and an uncompensated board member of the American Constitution Society since 2019. His writings on issues relevant to facial recognition include "The Public Trust in Data" in the Georgetown Law Journal (2021), "Privacy's Political Economy and the State of Machine Learning: An Essay in Honor of Stephen J. Schulhofer" in the NYU Annual Survey of American Law (2021; co-authored with Mariano-Florentino Cuéllar), "Constitutional Rights in the Machine Learning State" in the Cornell Law Review (2020) and "Racial Equity in Algorithmic Criminal Justice" in the Duke Law Journal (2019).

Anil K. Jain

Member

Anil K. Jain, NAE, is a University Distinguished Professor at Michigan State University where he conducts research in pattern recognition, computer vision, and biometrics recognition. He served as member of the United States Defense Science Board and Forensics Science Standards Board. He received Guggenheim, Humboldt and Fulbright fellowships and King-Sun Fu Prize. He was Editor-in-Chief of the IEEE Transactions on Pattern Analysis and Machine Intelligence and is a Fellow of ACM and IEEE. For advancing pattern recognition and biometrics, Jain was awarded Doctor Honoris Causa by Universidad Autónoma de Madrid and Hong Kong University of Science and Technology. Dr. Jain received his Ph.D. in electrical engineering from Ohio State University.

Elizabeth E. Joh

Member

Elizabeth Joh is a Professor of Law at the University of California, Davis School of Law. She researches and writes primarily in the areas of policing, surveillance, and technology. Her work in this area focuses on the impacts of new technologies on democratic policing and its effects on privacy and civil liberties. She has written in nationally prominent law journals as well as in publications including the New York Times, Slate, and the Los Angeles Times. Professor Joh is an elected member of the American Law Institute, a Faculty Advisory Board member of the University of California CITRIS Policy Lab, an Affiliate Scholar with Stanford's Center for Internet and Society, and served on the University of California Presidential Working Group on Artificial Intelligence. Professor Joh received her J.D. and Ph.D. in Law and Society from New York University.

She has served as an uncompensated Advisory Board member of the Electronic Privacy Information Center (EPIC) since 2019. Her previous writings on issues related to the committee's work include "The Corporate Shadow in Public Policing" in Science (2021), "Increasing Automation in Policing" in Communications of the ACM (2020), and "Police Surveillance Machines: A Short History" in Law and Political Economy (2018).

Michael C. King

Member

Michael King is an Associate Professor in the Department of Computer Engineering and Sciences; and Research Scientist for the L3-Harris Institute for Assured Information at Florida Institute of Technology and has served in this role since August 2015. Before joining academia, Dr. King served fourteen years as a scientific research/program management professional in the United States Intelligence Community. While in government, Dr. King created and managed research portfolios covering a broad range of topics related to biometrics and identity. He crafted and successfully led the Intelligence Advanced Research Projects Activity's Biometric Exploitation Science and Technology Program to transition technology deliverables to over 40 Government organizations. As a subject matter expert in biometrics and identity intelligence, Dr. King has been invited to brief the Director of National Intelligence, Congressional staffers and science advisers, Defense Science Board, Army Science Board, and Intelligence Science Board. Also, he served as Intelligence Community Department Lead to the White House Office of Science and Technology Policy's (OSTP) National Science and Technology Council Subcommittee (NSTC) on Biometrics and Identity Management. Additionally, Dr. King worked for the National Security Agency as Technical Director in the Research Directorate's Human Interface Security Research Focus Area. Dr. King's final Government appointment as Director of Applied Research and Innovation in the Directorate of Science and Technology's Office of Technical Services at the Central Intelligence Agency. In this role, he was responsible for leading a team of scientists in the delivery of advanced capabilities in cyber, identity intelligence, and special communication systems. Dr. King received his Ph.D. in Electrical Engineering from North Carolina Agricultural and Technical State University.

Dr. King briefly consulted for Idemia-National Security Solutions from January to March of 2020. He has spoken on facial recognition at Idemia user conferences in 2017 and 2019, for which his travel was compensated. He has received and evaluated software from Idemia, Rank One Computing, and Cyberextruder, for which he received no compensation.

Ira S. Reese

Member

Ira Reese is currently the Chief Technology Officer of the Washington, DC based firm of Global Security and Innovative Solutions and consults in the areas of Border and Sports venue security as well as specific issues regarding international trade. He is a internationally recognized expert in Border Security and equipment and software used to secure borders. He formerly was the Senior Executive Service (SES) Executive Director of Laboratories and Scientific Services of U.S. Customs and Border Protection for 16 years and responsible for the management of field laboratories, forensic units, an engineering branch and 24X7 Weapons of Mass Destruction response center . These units have 350 scientists and engineers specializing in trade issues, development of border security protocols and related equipment procurement, narcotics and human trafficking enforcement, approval of U.S. international pipelines and licensing of Commercial Gaugers. During this time Mr. Reese was the 6 times elected Chairman (2 year terms) of the World Customs Organization Scientific Sub-Committee representing 171 countries. He has received the Presidential Award from the American Health Physics Society for the development, deployment and maintenance of the U.S. Radiation WMD Ports Security Program and is a graduate of the Harvard University Senior Executive Fellows Program. During his time in Federal Service Mr. Reese carried Top Secret; Top Secret/SCI and Q Security Clearances.

Cynthia Rudin

Member

Cynthia Rudin is a professor of computer science and engineering at Duke University, and directs the Interpretable Machine Learning Lab. Her goal is to design predictive models that people can understand. She is the recipient of the 2022 Squirrel AI Award for Artificial Intelligence for the Benefit of Humanity from the Association for the Advancement of Artificial Intelligence (the “Nobel Prize of AI”). She is also a three-time winner of the INFORMS Innovative Applications in Analytics Award, and a 2022 Guggenheim Fellow. She is a fellow of the American Statistical Association, the Institute of Mathematical Statistics, and the Association for the Advancement of Artificial Intelligence. She has served on three committees for the National Academies of Sciences, Engineering and Medicine, including the Committee on Applied and Theoretical Statistics, the Committee on Law and Justice, and the Committee on Analytic Research Foundations for the Next-Generation Electric Grid. Dr. Rudin received her Ph.D. in applied and computational mathematics from Princeton University.

She has submitted a letter to the White House in 2021 on the use of artificial intelligence in criminal justice, and co-authored the 2021 article in Translational Criminology on “A Truth Serum for your Personal Perspective on Facial Recognition Software in Law Enforcement.”

Nicol Turner-Lee

Member

Nicol Turner Lee is a senior fellow in Governance Studies, the director of the Center for Technology Innovation. She also serves as Co-Editor-In-Chief of TechTank, and co-host of the #TechTank podcast. Dr. Turner Lee's research explores public policies designed to enable equitable access to technology, especially those that create systemic changes in global communities. Her work focuses on global and domestic broadband deployment, artificial intelligence, and various internet governance concerns. She's an expert on the intersection of race, technology, and social justice. She has a forthcoming book on the U.S. digital divide entitled, "Digitally Invisible: How the Internet is Creating the New Underclass (Brookings Press, 2022)." She has also written various papers and book chapters on inclusive, and equitable AI. Dr. Turner Lee is a graduate of Colgate University magna cum laude and has a M.A. and Ph.D. in Sociology from Northwestern University. She also holds a Certificate in Nonprofit Management from the University of Illinois-Chicago. Currently, she serves as a Vice Chair of the Federal Communications Commission's Communications Equity and Diversity Council.

Brendan Roach

Staff Officer