Bias in Face Recognition

As the poster-child of the AI revolution, face recognition has undergone a period of rapid improvement to the point that individuals can be readily identified when a single photograph is searched against a database containing tens of millions of faces. This task is non-trivial. Algorithms are fully proprietary and not commoditized as some are far more accurate than others. Yet all fail more or less gracefully when fed poor photographs, when a subject changes appearance with age, and on images for certain sub-populations. This latter aspect constitutes an existential threat to use of face recognition as end users, system owners, algorithm developers, and regulators struggle to understand the problem, its magnitude and impact.

The talk will give an overview of face recognition applications and technology, then describe how and where biometric systems fail and the range of demographic influences. The talk will review recent publications and give a preview of an upcoming government report on demographic effects in face recognition. The talk will define metrics, give extensive empirical results for contemporary leading commercial algorithms, make conjectures to explain the observations, and discuss impact and possible mitigation.

Patrick Grother is a scientist at the National Institute of Standards and Technology responsible for biometric algorithm evaluation, and biometric performance testing standardization. He leads evaluations of face and iris recognition algorithms at NIST that give quantitative support to developers, end-users and policy makers faced with algorithm selection, performance adequacy assessment, and procurement specification.

Educated at Imperial College London, he has worked in image processing, pattern recognition, optics and biometrics. His current research interests relate to biometric failure analysis: image quality, demographic effects, scalability. He assists several US Government agencies on research, development and evaluation, and co-chairs NIST's biannual International Biometrics Performance Conference (IBPC) on measurement, metrics and certification. Since 2018, he serves as the chairman of the ISO/IEC/JTC 1 Subcommittee 37 on Biometrics and has been editor of six standards there. He received the Department of Commerce Gold medal on two occasions, the IEC 1906 Award in 2009, and the ANSI Lohse IT Medal in 2013.

Date:	Thursday, March 14, 2019, 8:00 pm.
	(Refreshments and networking at 7:30 pm.)
Place:	Small Auditorium, Room CS 105
	Computer Science Building, Princeton University
Information:	Dennis Mancl (908) 285-1066
On-line info:	**http://PrincetonACM.acm.org**

All Princeton ACM / IEEE-CS meetings are open to the public. Students and their parents are welcome. There is no admission charge, and refreshments are served.

A pre-meeting dinner is held at 6:00 p.m. at Ruby Tuesday's Restaurant on Route 1. Please send email to **princetonacm@gmail.com** in advance if you plan to attend the dinner.

Nassau St. (NJ 27)

Library

Lot 10

Charlton St.

Friend Center

E-Quad

Lot 2

Murray Place

William St.

Lot 10A

N

Washington St. (Rt. 571)

Computer Science Building

Olden St.

Prospect Ave.

Maeder Hall

Parking Garage