Facial Recognition at the NJIT Library

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NJLA Reference Section
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About NJIT

• Carnegie Classification rating (R1 - Very High Research)
• Ranked 97 nationally (U.S News & World Report)
• Ranked #1 nationally in student economic upward mobility (Forbes)
• Ranked top 1% nationally for return on investment (PayScale)
• Student-faculty ratio is 17:1
• 11,859 enrollment fall 2019; average SAT score 1,296 and average GPA of 3.6 (fall 2019)
• 100% of tenured/tenure-track faculty with a PhD
• $168 million in research activities
About NJIT University Libraries

- 112 hours/week during fall and spring semesters
- 405,000+ annual visits to the library building
- 350,000+ annual visits to the library website
- 222,000 print books
- 185,000 ebooks
- 63,000 unique research e-journals
- 45 databases (mostly STEM)
- 24 library staff and 60+ student employees
About NJIT Facility Systems

- Parking / Transportation
- Locksmith / Mailroom
- Work order / Timekeeping / Floor plan Systems
- Security Systems:
  - Photo ID
  - Access control & Alarm monitoring
  - Emergency phones & intercom
  - Police two way radio
  - Computer aided police dispatch
  - Video management systems
The Need

• Uptick in reported incidents of crime
  – 15 reported thefts in library in 2014 (laptops, phones, etc.)
  – Crimes of opportunity
  – Higher than any other area on campus

• Higher level of public access

• Longer hours of operation: 7:30 to 12:00, 2:00 or 3:00 am

• Increased patrols by Public Safety
The Opportunity

• Security systems budget
• Panasonic relationship
• Team data gathering meeting
• FacePro system beta testing
• 3 month testing agreement
The System

Panasonic FacePro Facial Recognition System

- High resolution / high frame rate IP cameras (entry and exit)
- Two dedicated servers for analytics and storage
- Isolates the face within the video for capture
- Indexing of images for retrieval
- Applies custom algorithms to map the face
- Compares captured images to database of images
- Alert notification
- Public viewing monitors
The Challenges

- Camera angle of view
- Lighting
- Networking
- Banned from campus list and photos
- False positive alerts
The Results

• Reported thefts in library:
  – 2014 - 2015: 15
  – 2015 - 2019: 5

• Perception:
  – Increased safety
  – Increased security

• Costs
  – Panasonic donated FacePro in 2015 - $80,000 (MSRP)
  – NJIT security systems install lighting - $10,000
The News

• NJIT newspaper articles

• NBC News, July 27, 2018
  – NJIT Library Facial Recognition Testing Site

• Feedback
The Opinions & Concerns

- EU General Data Protection Regulations
- Consent
- Tracking of Individuals “Big Brother is Watching”
- Alternative Motives
- Convenience vs Privacy vs Security
- AI - Programmed Biases (race or gender)
THE EVOLUTION OF INTELLECTUAL FREEDOM

I'M GOING TO RESEARCH WHATEVER I WANT!

I'M GOING TO RESEARCH WHATEVER MY PROFESSOR WANTS!

I'M GOING TO RESEARCH WHATEVER MY TENURE COMMITTEE WANTS!

I'M GOING TO RESEARCH WHATEVER MY GRANT COMMITTEE WANTS!

I'M GOING TO RESEARCH WHATEVER I-

BEFORE GRAD SCHOOL

GRAD STUDENT

ASSISTANT PROFESSOR

TENURED PROFESSOR

EMERITUS PROFESSOR

“Research In Peace”

WWW.PHDCOMICS.COM
The Future Opportunity

• Facilitate registration and access to information resources
• Enhance supports for “invisible” disabilities
• Improve student classroom experience
• Enable on-the-spot classroom analytics
• Help with attendance tracking
• Improve campus security
Thank You