Exam Security: The Next Frontier

2018 Conference on Test Security

Introductions

- Presenters
  - Ardeshir Geranpayeh, Cambridge Assessment English
  - Ray Nicosia, ETS
  - Rachel Watkins Schoenig, Cornerstone Strategies, LLC
  - Camille Thompson, The College Board

- Getting to know you!

Test Security Challenges with Technology

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The Next Frontier

Next Frontier Detection/Prevention: Pre-Test Analysis and Use of AI and ML

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Next Frontier Prevention: Impersonation

- ▶ Biometrics
- ▶ Identification / passport authentication

Next Frontier Prevention: Digital Devices

WANDING

Next Frontier Detection: During the Test

Next Frontier Detection: During the Test

Next Frontier Detection: During the Test

Next Frontier Detection: Post-Test Analytics

- AI Scoring
  - Advances in Automated Scoring of Essays and Speech
    - Reliable scoring
    - Speed in providing results (instantly)
- New Candidate behavior: Gaming machine scoring
- AI Detection
  - High quality but incoherent sequences of sentences: http://aclweb.org/anthology/N18-1024)
  - Semantic breakdown: http://aclweb.org/anthology/P/P11/P11-1019.pdf

Next Frontier Detection: Post-Test Analytics

- AI Detection
  - Repetition, for example, repeating "good" sentences/paragraphs
  - Off-topic responses
  - Responses shorter than "normal".
  - Though tricking strategies do depend on the feature set the system uses and/or the algorithm (eg, deep learning)
- Plagiarism Detection: TURNITIN

Next Frontier Detection: Data Mining & Longitudinal Tracking

Next Frontier Detection: Infiltrating Groups

Next Frontier Detection: Secure Credentials

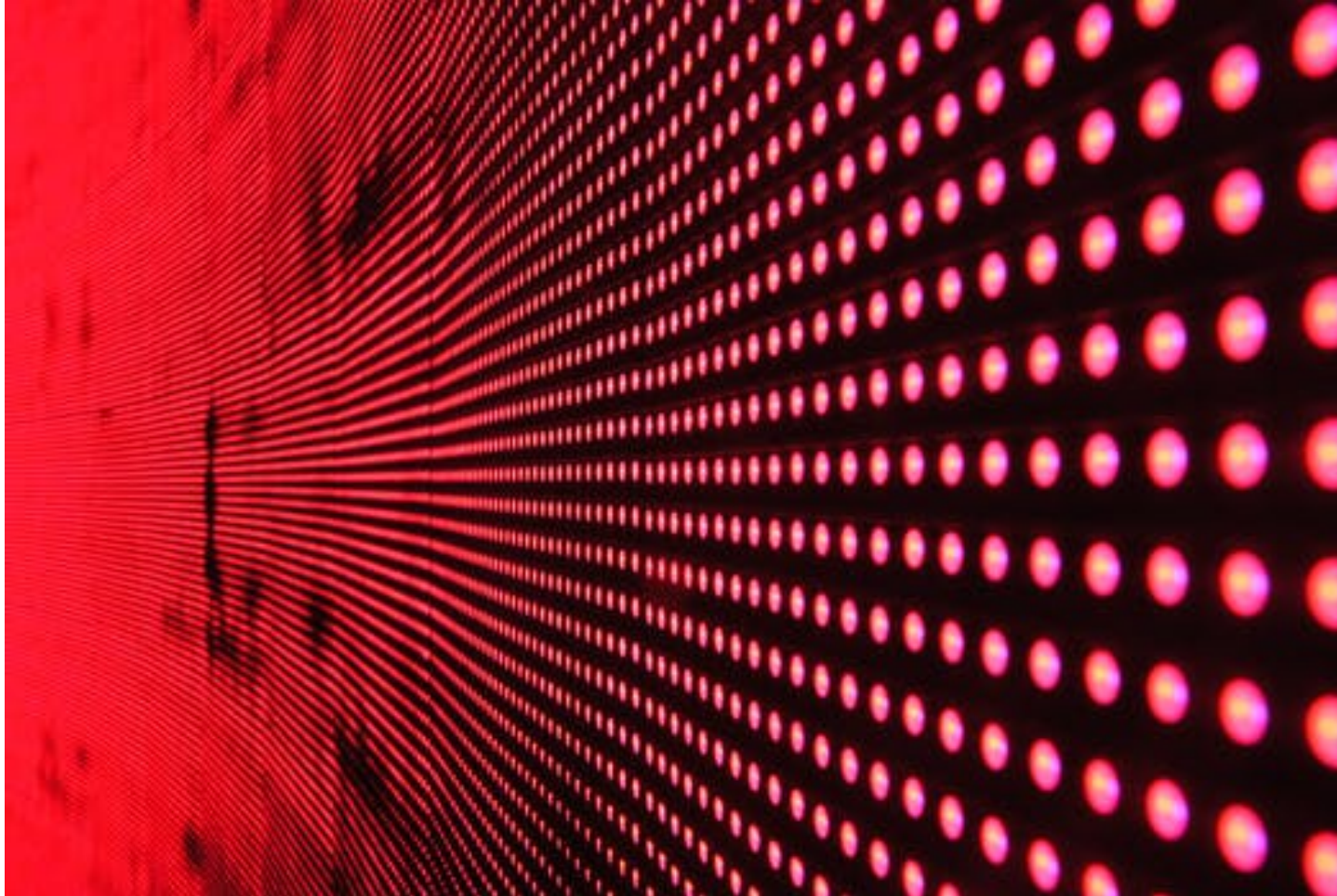# Next Frontier Prevention: Longitudinal / Portfolio Performance Data

Limitations and Considerations for Next Frontier Methods

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To Infinity and Beyond….

- ▶ AI and Machine Learning will continue to grow in importance
  - ▶ Speed and quality of content generation
  - ▶ Speed of scoring non-multiple choice responses
  - ▶ Application of ML models to "learn"

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► AI and Machine Learning will continue to grow in importance

   ► Speed and quality of content generation

   ► Speed of scoring non-multiple choice responses

   ► Application of ML models to "learn"

► Technology and application of methods will continue to change