Opportunity Title: Security of Automatic Speaker Verification Systems to Synthesis Spoofing Attacks
Opportunity Reference Code: IC-18-41

Organization	Office of the Director of National Intelligence (ODNI)
Reference Code	IC-18-41
How to Apply	**Create and release your Profile on Zintellect** – Postdoctoral applicants must create an account and complete a profile in the on-line application system. **Please note: your resume/CV may not exceed 2 pages.** **Complete your application** – Enter the rest of the information required for the IC Postdoc Program Research Opportunity. The application itself contains detailed instructions for each one of these components: availability, citizenship, transcripts, dissertation abstract, publication and presentation plan, and information about your Research Advisor co-applicant. Additional information about the IC Postdoctoral Research Fellowship Program is available on the program website located at: https://orau.org/icpostdoc/. If you have questions, send an email to ICPostdoc@orau.org. Please include the reference code for this opportunity in your email.
Application Deadline	3/12/2018 11:59:00 AM Eastern Time Zone
Description	**Research Topic Description, including Problem Statement:** Research into speech synthesis and voice conversion with generative adversarial networks poses both an unclear and significant security risk to automatic speaker verification systems. With the uptake in smart home devices, developing algorithms to protect against speaker spoofing attacks is becoming much more important. Voice is fast becoming the de-facto medium to accessing online secure services, with the obvious example being Internet banking. The speaker verification task becomes, “Did you produce this sample utterance, on said device A, at location B, and at time C?” The research posed is for the exploratory development of a complete closed loop automatic speaker verification system, capable of informing an operator usefully on the level of spoofing attack risk. Example spoofing attacks include: 1. Speech captured from a separate recording of the speaker, and used to synthesize apassword utterance. 2. Speech captured from a different person uttering the password, and converted to match the targetspeaker. 3. Synthesizing a complete recording of a speaker for propaganda purposes.

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Example Approaches:

Approaches to address this problem could include, but are not limited to:

- A classical direction would be to investigate different feature representations and classification or modelling techniques, to distinguish between spoofed and authentic speech utterances.
- An alternate method is to consider the use of file meta-data.

Qualifications

Postdoc Eligibility

- U.S. citizens only
- Ph.D. in a relevant field must be completed before beginning the appointment and within five years of the application deadline
- Proposal must be associated with an accredited U.S. university, college, or U.S. government laboratory
- Eligible candidates may only receive one award from the IC Postdoctoral Research Fellowship Program.

Research Advisor Eligibility

- Must be an employee of an accredited U.S. university, college or U.S. government laboratory
- Are not required to be U.S. citizens

Eligibility Requirements

- **Citizenship:** U.S. Citizen Only
- **Degree:** Doctoral Degree.
- **Discipline(s):**
  - **Chemistry and Materials Sciences** (12 👁)
  - **Communications and Graphics Design** (6 👁)
  - **Computer, Information, and Data Sciences** (16 👁)
  - **Earth and Geosciences** (21 👁)
  - **Engineering** (27 👁)
  - **Environmental and Marine Sciences** (14 👁)
  - **Life Health and Medical Sciences** (45 👁)
  - **Mathematics and Statistics** (10 👁)
  - **Other Non-Science & Engineering** (5 👁)
  - **Physics** (16 👁)
  - **Science & Engineering-related** (1 👁)
  - **Social and Behavioral Sciences** (28 👁)