Opportunity Title: Unconventional Distributed Sensor Optimization and Integration for Robust Agile Flight Control
Opportunity Reference Code: IC-17-05

Organization	Office of the Director of National Intelligence (ODNI)
Reference Code	IC-17-05
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.
Application Deadline	3/31/2017 11:59:00 PM Eastern Time Zone
Description	**Research Topic Description, including Problem Statement:**

Biomimicry is an approach to innovation where concepts for new materials, structures, or systems are modeled after biological entities and/or processes. Studies of insects, birds, and bats demonstrate their exceptionally robust flight agility and maneuverability, and suggest that this performance is based upon their use of numerous sensory modalities that we typically do not exploit in current engineered aerial vehicles. Recent advances in sensor and sensor processing technologies motivate consideration of the possibility of using unconventional sensor arrays for efficient robust agile flight control. However, a theoretical information and control framework for optimizing distributed multi-modal sensor configurations and for generating robust, high performance controllers for the coupled high-order and rigid body dynamics of such sensor-rich, agile vehicle concepts does not exist.

Example Approaches:

Successful proposals could explore one of the following options, or consider others not listed: ?

- Develop virtual solution which models environment, sensors, controllers, and control framework; and allows for optimization of the framework.
- Develop micro-sized (60g to 2kg) demonstration vehicle employing, sensors, controllers, and optimized control framework.

Eligibility Requirements

- **Citizenship:** U.S. Citizen Only
- **Degree:** Doctoral Degree.
- **Discipline(s):**
  - **Business** (11 👁)
  - **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** (13 👁)
  - **Physics** (16 👁)
  - **Science & Engineering-related** (1 👁)
  - **Social and Behavioral Sciences** (28 👁)

Opportunity Title: Unconventional Distributed Sensor Optimization and
Integration for Robust Agile Flight Control
Opportunity Reference Code: IC-17-05