Autonomy Technology Research Center

Air Force Research Laboratory Sensors Directorate and Wright State University

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Sensors Directorate 1 December 2019

ATR Center

AFRL Sensors Directorate

Mission

Lead the discovery and development of future capabilities providing integrated Intelligence, Surveillance, and Reconnaissance (ISR), combat identification, and spectrum warfare effects

Vision

Enable ubiquitous Situation Awareness and Spectrum Dominance for Global Vigilance, Reach, and Power

Primary Research Directions

Radio Frequency (RF) Sensing

Electro-Optical (EO) Sensing

Spectrum Warfare

Trusted and Resilient Mission Systems

Multi-Domain Sensing Autonomy

Enabling Sensor Devices and Components

Autonomy Technology Research Center

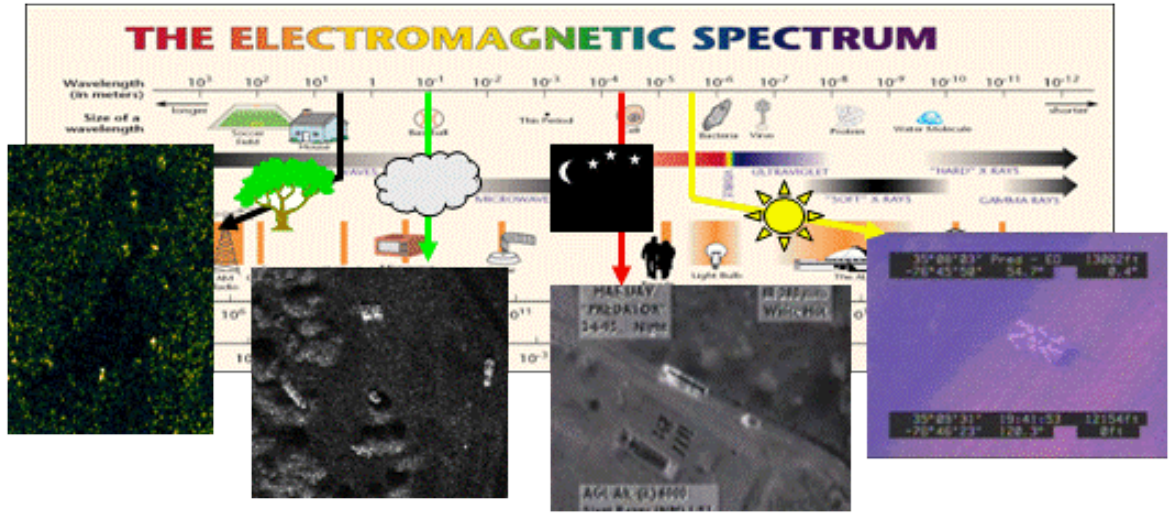
- Air Force relevant topics in autonomous sensing, including machine learning and adaptive sensing
- 14 week summer intern program
- Mentor-driven student research
- Predominately graduate students but suitably prepared undergraduate and high school students are also included
- Engineering (predominately electrical), physics, mathematics, computer science, and statistics
- Competitive pay, free housing, travel to and from Dayton OH, and use of WSU facilities
- Work remotely or on-site at Wright State University and Wright-Patterson Air Force Base (WPAFB) depending on facility requirements
- Seminars, tours, extra-curricular activities (e.g., amusement parks, canoeing, tubing, and hiking, local events such as Celtic Fest and Dayton Air Show)

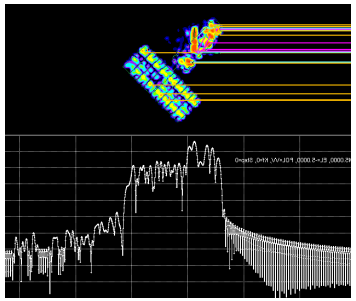
ATR Center

AFRL ATRC STUDENTS SUCCESS

ATR Center Project Scope

- Radio Frequency (RF) Sensing
  - Passive, bistatic, and multistatic RF sensing for imaging, moving target detection, localization, direction finding and over-the-horizon sensing
  - Adaptive aperture and waveform technology
- Electro-Optical (EO) Sensing
  - High resolution passive imaging and hyperspectral imaging
  - 3-D and synthetic aperture ladar imaging and laser vibrometry sensing
- Multi-domain Sensing Autonomy
  - Deep learning, general AI, and fusion for detection, tracking, identification, and pattern of life analysis
  - Simulation and modeling for algorithm development and evaluation
- Spectrum Warfare
  - Cognitive algorithms for wideband spectrum awareness
  - Advanced algorithms for position, navigation, and timing
- Enabling Devices and Components
  - Modeling/simulation/design of advanced RF and EO/IR device technology, electronics/optoelectronics integration methods and RF/EO/IR sensor subsystems
  - Performs application demos including embedded sensor signal processing.
- Trusted and Resilient Mission Systems
  - Trusted, open system technology resistant to physical tampering and cyber attack





Autonomy Technology Research Center

- Cutting edge research with Air Force Research Laboratory mentors addressing defense challenges for the Nation
- Competitive pay; free housing, and travel to Dayton, Ohio
- Not just work – tours, seminars, short courses, and extra-curricular activities

ATR Center

www.wright.edu/autonomy-technology-research-center

How to Apply

- **Apply online at https://jobs.wright.edu/postings/16446. Upload the following PDF documents:**

  1) Resume
  2) Unofficial Transcript(s)
  3) Research Interests (relevant course work, projects, technical work experience)
  4) Cover Letter (optional)
  5) Email the above PDFs to: merle.myers.ctr@us.af.mil
     edmund.zelnio@us.af.mil

  – If you have prior ATR center experience or would like to work with a particular government mentor, please indicate this.

- US CITIZENS ONLY.
- Rolling admissions begin January 15, 2021.

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AFRL ATRC STUDENTS SUCCESS

For more information, please visit www.wright.edu/autonomy-technology-research-center

WRIGHT STATE UNIVERSITY

Questions?