

Call for Papers and Posters



Co-Sponsor:



2019 IEEE International Symposium on Technologies for Homeland Security

November 5–6, 2019 • Crown Plaza, Woburn MA • information@ieee-hst.org

Call for Papers & Posters

The 19th annual IEEE Symposium on Technologies for Homeland Security (HST '19), will be held November 5–6, 2019 in the greater Boston, MA area. This symposium brings together innovators from leading academic, industry, businesses, Homeland Security Centers of Excellence, and government agencies to provide a forum to discuss ideas, concepts, and experimental results.

Produced by IEEE with technical support from IEEE, IEEE Boston Section, and IEEE-USA and organizational support from MIT Lincoln Laboratory, and Raytheon, this year's event will once again showcase selected technical papers and posters highlighting emerging technologies in:

Humanitarian Assistance
& Disaster Relief

Land/Maritime Borders & Critical
Infrastructure Protection

Biometrics &
Forensics

Cyber Security

Frontier and
Emerging Technologies

We are currently seeking technical paper and poster session submissions in the above areas. This year, we are opening submissions for new Emerging Technologies with promise to affect Homeland Security. Papers examining the feasibility of transition to practice will also be considered. All areas cover the following common topics:

- Strategy, threat characterization, operational concepts and risk analysis;
- Modeling, simulation, experimentation, and exercises & training; and
- Testbeds, standards, performance and evaluations.

Contact Information

For more detailed information on the Call for Papers and Posters, as well as Sponsorship and Exhibit Opportunities, visit the website <http://ieee-hst.org/> or email: information@ieee-hst.org. Submissions should be made at the following website: <https://cmt3.research.microsoft.com/HST2019/>

Important Dates (All deadlines are by midnight Eastern Time)

Paper Extended Abstract Deadline: **EXTENDED TO JUNE 10, 2019**
Paper and Poster Acceptance Notification: July 1, 2019
Final Paper Submission Deadline: September 16, 2019

Organizing Committee

General Chairs: Melissa Choi, MIT Lincoln Laboratory
James Flavin, MIT Lincoln Laboratory
Deputy Chair: Fausto Molinet, Matrix Internationale
Technical Chairs: Gerald Larocque, MIT Lincoln Laboratory
Anthony Serino, Raytheon
Bob Alongi, IEEE Boston
Local Arrangement Chair: Jessica Kelly, Raytheon
Marketing Chair: Adam Norige, MIT Lincoln Laboratory
Publications Chair: Fausto Molinet, Matrix Internationale
Sponsorship/Exhibits Chair: Lennart Long, EMC Consultant
Special Advisor to the Chair: Karen Safina, IEEE Boston
Registration Chair:

Technical Program Committee

Humanitarian Assistance and Disaster Relief
Mischa Shattuck, MIT Lincoln Laboratory
Matt Daggett, MIT Lincoln Laboratory
Lance Fiondella, UMass Dartmouth
Biometrics and Forensics
Eric Schwoebel, MIT Lincoln Laboratory
Bengt Borgstrom, MIT Lincoln Laboratory
Land/Maritime Borders & Critical Infrastructure Protection
John Aldridge, MIT Lincoln Laboratory
Rich Moro, Raytheon
Arash Samani, MITRE
Cyber Security
Hong Liu, UMass Dartmouth
Firas Glaiel, Raytheon
Thomas Edgar, Pacific Northwest National Laboratory

Call for Papers and Posters

Land/Maritime Borders and Critical Infrastructure Protection

Critical Infrastructure Protection sub-track focus: Technologies to facilitate threat detection (including chemical, biological, nuclear, explosives) and counter-terrorism surveillance. Technologies for effective data analysis. Technologies to track responders, improve situational awareness, and better mitigate, respond to, and recover from incidents, including but not limited to:

- Detection of hazardous materials, field detection equipment, dispersion tracking
- Machine learning, advanced analytic methods, predictive modeling
- Situational awareness / situational understanding and decision support
- Decontamination and restoration strategies, equipment, approaches, and sensing following WMD events
- Autonomous, robotic, composable, and artificial intelligence for offsetting human response capabilities
- Survivor-centric technologies

Land/Maritime Borders sub-track focus: Technologies that enable remote detection of unlawful movement or actions, non-invasive transport screening, and situational awareness in complex environments while allowing efficient lawful trade and travel, including but not limited to:

- Personnel screening
- Container/Compartment/Vehicle screening (Detection, monitoring and tracking)
- Ground surveillance, especially small dark vessel / aircraft detection and interdiction
- Port (land, sea and air) and in-between-port surveillance for situational awareness
- Automated recognition and identification of suspicious objects
- Border security sensor and intelligence integration and data analytics
- Surveillance and communication (especially in remote environments)

Cyber Security

Track focus: Technologies to enable rapid and efficient cyber operations while protecting availability, integrity, and confidentiality of information and services. Technologies that enable identification and apprehension of cyber criminals, characterization of cyber adversaries, and effective cyber resilience, control, and mitigation, including but not limited to:

- Host and network security, including opportunities and challenges in software defined networking (SDN)
- Mobile security technologies, including continuous diagnostics and mitigation
- Cyber and cyber-physical incident response
- Industrial control system / critical infrastructure security
- Security for the Internet of Things, including safety-critical devices
- Cloud application and infrastructure security
- Cyber event investigations, forensics, and malware analysis
- Applications of artificial intelligence/ machine learning for securing cyber space
- Supply chain security
- Attack and defense modeling and characterization
- Public policy, ethical, legal, privacy, economic and social issues pertaining to cyber security technology
- New trust models and architectures
- Cyber resilience in critical mission systems

Biometrics & Forensics

Track focus: Technologies to verify identity and evaluate evidence quickly and accurately, including but not limited to:

BIOMETRICS

- Biometric recognition based on DNA, voice, fingerprint, iris, face, handwriting, gait, and other modalities
- Statistical estimation of stability and distinctiveness
- Datasets, corpora, and evaluation
- Multimodal biometrics
- New biometrics and novel sensing technologies
- Robust biometrics with respect to standoff, environmental conditions, channel impairments, and adversaries
- Analysis of biometric applications
- Wearable technology applications

FORENSICS

- Evaluation of the scientific basis, validity, reliability, and uncertainty of forensic analyses under realistic case scenarios
- Statistical estimation and reporting
- Human observer bias and sources of human error with forensic sciences
- Tools and protocols (automated and manual) for forensic examinations, methods, and practices
- Nationwide and international biometric data interoperability

Call for Papers and Posters

Humanitarian Assistance and Disaster Relief

Track focus: Technologies, ranging from basic science to systems, that have global humanitarian impact, emphasizing operationally-relevant context, and drawing on real-world experience. Topics of interest include operations and logistics, disaster relief, emergency management, food and water security, public health surveillance, human trafficking, and international development, including, but not limited to:

- Remote sensing and data exploitation methods for disaster response and situational awareness
- Supply chain instrumentation, data visualization, and optimization methodologies for aid distribution
- Mobile communication hardware and software for public health surveillance
- Information architectures for monitoring vaccine coverage, effectiveness, and safety
- Computational social-science, network-analysis, and natural-language processing methods for combating human trafficking
- Applications of social media platforms and publicly available information for humanitarian indications and warnings
- Computer vision, machine learning, and statistical inference methods for remote monitoring of complex humanitarian crises
- Distributed collaboration and information sharing capabilities for humanitarian operations integration

Frontier and Emerging Technologies

Special Topics focus: New technologies and innovative applications of existing technology with promise to affect Homeland Security that are not covered in other tracks.

Instructions for Paper and Poster Submissions

Paper Submissions

Prospective paper authors are invited to submit one or more detailed **extended abstracts by June 10, 2019**. The abstracts are to be **three to seven pages in length** (minimum 12 point font) and will serve as the basis for acceptance of papers for the conference. Authors will be notified of the review result (i.e., acceptance or rejection), with any applicable comments, by **July 1, 2019**. Depending on program needs, some prospective paper authors may be asked to present a poster in lieu of an oral paper presentation. The abstract should include the author(s) title, name, address, phone, email and organizational affiliation within the page limit. Attached to this should be a one page or shorter biography of the presenting author.

A **completed paper**, is required only from authors receiving a notice of acceptance from the conference. This paper should be prepared in standard IEEE format and not exceed seven pages, including all illustrations and references. Technical papers must not substantially overlap with material published at or simultaneously submitted to another venue. Final paper manuscripts must be submitted by **September 16, 2019**.

Poster Submissions

Some authors may prefer to present their work as a poster presentation. In this case, an abstract should be prepared and submitted in accordance with the paper submission process and the preference for a poster presentation indicated. Authors will be notified of the review result (i.e., acceptance or rejection) and any applicable comments, by **July 1, 2019**.

Please note: Accepted paper and poster submissions require at least one author to register and pay the conference fee. The organizers of HST, as well as our attendees, expect all accepted papers and posters to be presented at the conference. IEEE reserves the right to exclude a paper from distribution after the conference if the paper is not presented.

All submissions should be made at the following website: <https://cmt3.research.microsoft.com/HST2019/>

Publishing Information

All papers and posters will be published in the conference proceedings and distributed to conference attendees. Extended versions of selected full technical papers that meet the publishing requirements may be published in selected journals and in the IEEE Xplore as part of the IEEE Conference Publication Program.

Call for Sponsors and Exhibitors

A limited number of sponsorships and exhibit packages are available. To learn more, visit the conference website or contact or sponsorship@ieee-hst.org.

For more information on the conference, see the website, www.ieee-hst.org or email, information@ieee-hst.org