IEEE International Conference on Human-Machine Systems and IEEE International Defence Excellence and Security Symposium – Highlights from the 2024 Events
Ming Hou, Saeid Nahavandi, and Tiago H. Falk, ICHMS'24 and IDEaS'24 General Co-Chairs

The 4th IEEE International Conference on Human-Machine Systems (ICHMS 2024) was held between May 15-17, 2024 in Toronto, Canada, under the theme "Trustworthy Human-Autonomy Teaming". ICHMS 2024 was held jointly with the 2024 IEEE International Defence Excellence and Security (IDEaS) Symposium and followed a hybrid in-person and virtual format with 213 attendees.

The joint ICHMS/IDEaS 2024 technical events were opened by Dr. Jaspinder Komal (Assistant Deputy Minister, Defence Research and Development Canada) and MGen Karsten Stoye (Head of Civil Military Cooperation, EUROCONTROL). The dual event included eight keynote addresses, five panels, and 106 paper presentations over the three-day period. The keynotes were delivered by Mr. Pete Saunders, Mr. Siegfried Usal, Dr. Edward Tunstel, Prof. Saeid Nahavandi, LCol David Dunwoody, LCdr Joseph Geeseman, Prof. Ljiljana Trajković, and Prof. Missy Cummings with topics including NORAD Modernization, Interfaces for Space Exploration, Cognitive Superiority, Trust in Human-AI Teaming, Human Factors Considerations for Autonomy, Internet Outages in Times of Conflict, and The Good, The Bad & The Ugly of Self- Driving Cars.

Regular papers were organized into 18 regular and special sessions spread across the three conference days. Technical sessions covered a wide-range of HMS topics spanning human-machine systems design, development, and applications, as well as special sessions covering topics related to trustworthy human-autonomy and human-AI teaming (e.g., Human-AI Interaction and Trust; Autonomy in Vehicles and Transportation). The papers were co-authored by over 500 researchers across all IEEE Regions (1-10). Special thanks go to the Program Co-Chairs (see list in the last page) for their efforts in facilitating the submission review process and decisions. For 2024, there were a total of 177 submissions with a 45% acceptance rate for regular papers, based on a multi-stage review process performed by over 200 reviewers and 20 Associate Editors. The ICHMS series continues to attract high-quality research contributions.

We are also thankful to the Awards Committee which oversaw the judging of the six short-listed Best (Student) Paper Award candidates. All six papers were of excellent quality. Awards were presented at the conference banquet on the evening of the second day. The winners included:

- **Best Paper Award:** Tomohiro Nakade, Robert Fuchs and Jürg Schiffmann for paper "The Haptic Link Enabling Driver-Automation Teaming"
- **Best Student Paper Award:** Camila Correa-Jullian, Marilia Ramos, Ali Mosleh and Jiaqi Ma for paper "Exploring Human-Autonomy Teams in Automated Driving System Operations"
- **Best Paper Runners-Up:** Scott Meyers, August Capiola, Gene Alarcon and Walter Bennette for paper "Transparency and trustworthiness: Exploring human-machine interaction in an image classification task" and Shreya Sharma, Dana Hughes and Katia Sycara for paper "CBGT-Net: A Neuromimetic Architecture for Robust Classification of Streaming Data"
- **Best Student Paper Runners-Up:** Fahim Anzum and Marina L Gavrilova for paper "EmoBlend Fusion: Leveraging Handcrafted and Deep Features for Emotion Detection" and Jingyi Huang, Shuying Wu, Ziyi Yang, Yi Zhang, Neretin Evgeny and Bo Li for paper "Curiosity Driven Collaborative Reconnaissance of Multiple Unmanned Aerial Vehicles".

We congratulate all awardees on their exceptional achievements!

The event would not have been made possible without the efforts of the dedicated team of local staff, technical staff, and student volunteers (Ayman Mohamed, Eman Ahmed, Fatemeh Bagheri, Rui Qi Ji, Katelyn Hou, and Benjamin Hou) who helped prepare and run the conference with great efficiency and support. Conference staff also organized and facilitated an exciting social program with a reception and banquet social, which was enjoyed by all in-person attendees. The room in which the closing ceremony took place, after three full days of activities, was still packed – a true sign of a successful event! We hope to see many of you next year at ICHMS/IDEaS 2025!
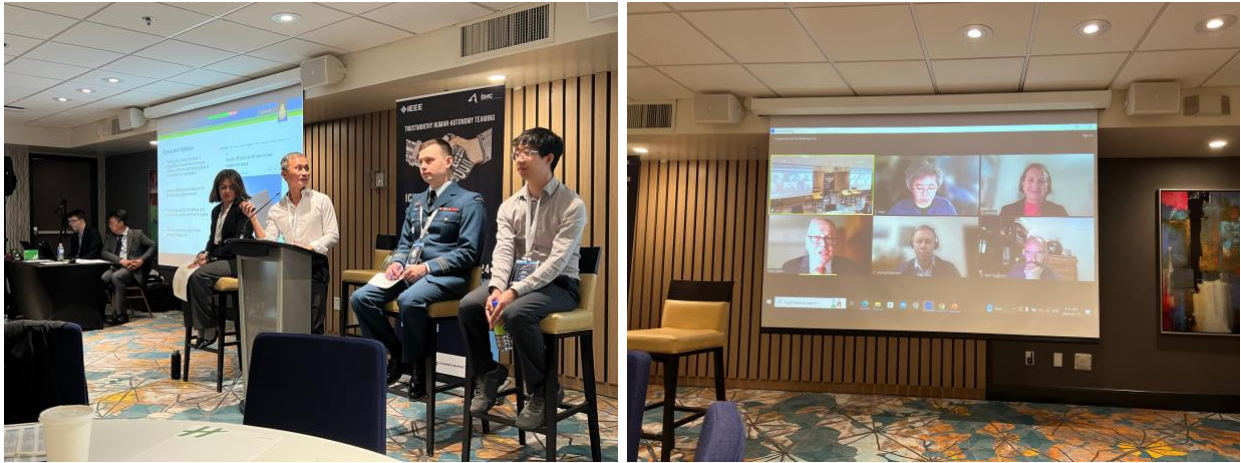
Figure 1. Representative in-person and virtual expert panels that took place during the first day of the joint ICHMS/IDEaS event

Figure 2. Representative keynotes from (left) day 1 by Mr. Siegfried Usal, (middle) day 2 by Prof. Ljiljana Trajković, and (right) day 3 by Prof. Missy Cummings.

Figure 3. Technical (top) and demo (bottom) sessions were always well attended with high-quality presentations
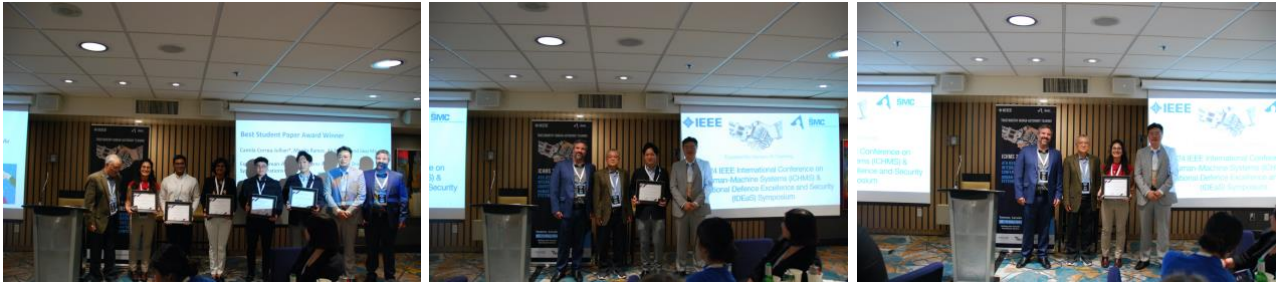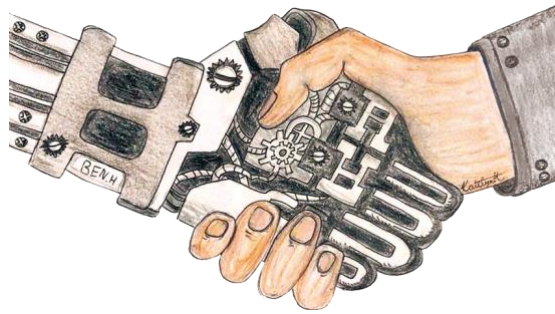
Figure 4. (left) Best Paper Award Candidates, (middle) Best Paper Awardee and (right) Best Student Paper Awardee

Figure 5. Team of dedicated volunteers and conference staff that helped make ICHMS 2024 and IDEaS 2024 a huge success!

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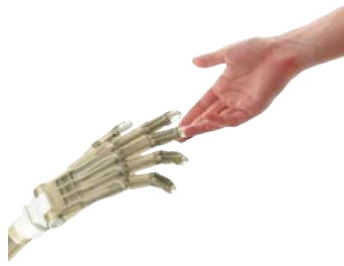Dale Richards, Thales Group (United Kingdom)

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