ASME/IMECE 2023: Human-Robot Collaboration & AI Integration Workshop: Two Sessions

Location: Room 299, Convention Center, New Orleans, LA, https://event.asme.org/IMECE
Date: Thursday/November 2, 2023 (full day – Two Sessions)
Time: Split into Two Sessions → Session I: 10:30am – 12:00pm and Session II: 2:00pm – 6:00pm

Registration for Workshop: (2 options)
- Option 1: 'Complimentary' workshop only using 'IMECE Committee Meetings Registration 2023' selection at below link.
    o   Note, this registration selection does not give access to the IMECE Technical Conference.
  https://web.cvent.com/event/740ce250-36c7-4a8e-8aa0-99bd4e16115a/summary?i=4N2yCeF2yUaQVWktwVAGsA
- Option 2: IMECE Technical Conference registration includes access to both Workshop and Technical Conference.
- For workshop program details: https://event.asme.org/IMECE/Program/Special-Panel-Sessions

Workshop Program: Two Sessions (*preliminary*)

SESSION I: 10:30am – 12:00pm (noon)
- Introduction – *5 min*
- Welcome and Opening Remarks – *20 min*
    o   NSF ENG/CMMI Senior Advisor/Program Director (Bruce Kramer)
    o   STIIMA-CNR Director (Lorenzo Molinari Tosatti)
    o   Sponsors: ASME/MED and ARM Institute
- ARM – Mission & Vision (www.arminstitute.org) – *5 min*
- Panel: Risk and Safety for HRC – *60 min*
    o   Panelists: NIST (Jeremy Marvel), STIIMA-CNR (Irene Fassi), NIOSH
    o   Moderator: Mihai Diaconeasa – Safety Engineering, Risk Analysis Division

> Objective:
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> To engage stakeholders from academe, industry, and government in the areas of robotics, human-robot interaction/collaboration, and AI integration.
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> Technology focus includes robotics, automation, AI, safety, and other relevant Industry 4.0/5.0 technologies.

12:00pm (noon) – End Session I, reconvene at 2pm for Session II

SESSION II: 2:00pm – 6:00pm

- Presentations: HRC – AI Integration – *80 min*
    o   Moderator: Robert Gao (Case Western Reserve University)
    o   State of the Art in Human-Robot Collaboration for Manufacturing
    o   Research and Application – End-Users

- Presentations: Intelligent Human-Robot Collaboration for Smart Factory – *80 min*
    o   "*Human Action Analysis from Cameras and Wearable Sensors: Recognition, Localization, Anticipation, and Pose Estimation*" – Zhaozheng Yin/ MD Moniruzzaman (Stony Brook University)
    o   "*Sensing and Recognition of Speech, Gesture, Eye Gaze, and Brain Wave for Human-Robot Communication*" – Ming Leu (Missouri University of Science and Technology)
    o   "*When to Assist: Prediction of Human Action and Trajectory for Proactive Human-Robot Collaboration*" – Robert Gao (Case Western Reserve University)
    o   "*A Proactive/Reactive Human-Robot Collaboration Framework for Smart Manufacturing*" – Gloria Wiens/Jared Flowers (University of Florida)

- Break (20 min)

- ASME Robotics Roadmap Briefing and Discussion – *50 min*
    o   Briefing: Ashis Banerjee (U-Washington), Stephen Canfield (TN-Tech), Jeff Ge (Stony Brook)
    o   Open Discussion
        Human-robot physical interaction and beyond physical interaction; Human-centered manufacturing; and other topics of interest

- Wrap-up & Close – *10 min*

Sponsors:
ASME/Manufacturing Engineering Division (MED) and ARM Institute

Co-Hosted by:
ASME Robotics Technology Group