CISC
Collaborative Intelligence for Safety Critical systems

NEWSLETTER

www.ciscproject.eu

COLLABORATIVE INTELLIGENCE FOR SAFETY CRITICAL SYSTEMS BOOTCAMP 2024: FROM CONCEPT TO APPLICATION

The fourth edition of the Collaborative Intelligence for Safety Critical Systems (CISC) Bootcamp took place in Florence, Italy, from June 10-14, 2024. Hosted by the Italian National Research Council (CNR), this event gathered young researchers and experts from across Europe to explore the latest advancements in safety-critical systems through collaborative intelligence.

SEE THE AGENDA

KEY TOPICS

- HUMAN MACHINE INTERACTION
- EXPLAINABLE AI
- TRANSFER LEARNING
- BAYESIAN BELIEF NETWORKS
- ANOMALY DETECTION
- DYNAMIC EVENT TREES A
- HUMAN ROBOTIC INTERACTION
- NEUROERGONOMICS
- CHANGES IN MACHINERY REGULATIONS AND STANDARDS
- EU AI SAFETY ACTS AND IMPLICATIONS FOR COLLABORATIVE INTELLIGENCE

CISC project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under the Marie Skłodowska-Curie grant agreement no. 955901

NEWSLETTER

www.ciscproject.eu

Over the course of five days, attendees delved into cutting-edge topics such as human-machine interaction, with a focus on enhancing collaboration between operators and automated systems.

Sessions on explainable AI offered insights into making AI-driven decisions more transparent and understandable, while workshops on Bayesian Belief Networks (BBN) provided practical experience in risk assessment and decision-making under uncertainty. Anomaly detection and sensitivity analysis were also key themes, equipping participants with tools to identify and address potential issues before they escalate. The bootcamp sessions explored dynamic event trees and other innovative risk analysis methods, crucial for improving the resilience of safety-critical systems. Human-robot interaction sessions examined the future of collaborative robotics, emphasizing the seamless integration of robots in environments where safety is paramount. The bootcamp also covered data management in neuroergonomics, focusing on handling and analyzing EEG data to optimize human performance and safety.

On the regulatory front, participants gained a comprehensive understanding of the latest changes in machinery regulations and standards related to collaborative intelligence, as well as an introduction to the EU AI Safety Acts, which are poised to shape the future of AI applications in safety-critical domains.

One of the standout features of the bootcamp was the workshop on commercialization of research ideas. This workshop guided participants through the process of turning innovative research into viable products and services. Through group work and presentations, attendees gained practical insights into navigating the challenges of bringing research to market, fostering a deeper understanding of the commercialization landscape.

The event was a valuable opportunity for the researchers to expand their knowledge, engage in hands-on learning, and network with experts in the field, all while contributing to the advancement of safety in critical systems through collaborative intelligence.

CISC project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under the Marie Skłodowska-Curie grant agreement no. 955901

NEWSLETTER

www.ciscproject.eu

CISC AT THE 34TH EUROPEAN SAFETY AND RELIABILITY CONFERENCE

CISC project made a notable contribution to the 34th European Safety and Reliability Conference (ESREL 2024), held from June 23-27, 2024, at Jagiellonian University in Cracow, Poland. The conference, which focuses on the latest advancements in reliability, safety, and security, featured a special session dedicated to Human-AI Teaming and Collaborative Intelligence for Safety-Critical Systems, organized by the CISC project team.

This special session presented a series of insightful research findings and case studies that highlighted the integration of human and AI capabilities to improve safety and performance in critical environments. Key topics from the CISC Project:

- Defect Detection in Vehicle Painting: Case Study
- Wearable Devices Enhancing Human Capabilities In Direct Enamel Painting Defect Detection
- Building Integrated Legal And Ethical Frameworks For Collaborative Intelligence: Towards More Interdisciplinary Approaches To Human-Robot Collaboration
- Lessons Learnt From Human-In-Loop Experimental Scenarios For Advanced Automation In Process Safety
- A Comparative Analysis of Mental Workload in Adaptive Human-Robot Collaboration During Assembly Tasks
- The Role of Human Dynamics in Effective Robot Learning through Programming by Demonstration (Extended Abstract)
- Navigating Fine Line Between Operational Effectiveness And Mental
- Overload In Control Room Operations (Extended Abstract)
- ROBOMATE: A case for Reconfigurable Collaborative Robots in Manufacturing
- Human-Machine teaming in the manufacturing environment: Preliminary interface example

The CISC project's participation at ESREL 2024 highlighted the critical role of collaborative intelligence in advancing safety-critical systems. By combining human expertise with AI, the sessions offered valuable insights and innovative solutions for enhancing safety and reliability across various industries.

CISC project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under the Marie Skłodowska-Curie grant agreement no. 955901

CISC
Collaborative Intelligence for Safety Critical systems

NEWSLETTER

www.ciscproject.eu

INTERNATIONAL EVENTS CONTRIBUTIONS

- Presentation of research paper by Carlo Caiazzo "A Comparative Analysis of Mental Workload in Adaptive Human-Robot Collaboration During Assembly Tasks" at the Doctoral Consortium session organized by the Chartered Institute of Ergonomics and Human Factors (22-24 April, Kenilworth, UK)

- Naira López Cañellas participated in a panel discussion on Supervision, Responsibility and Accountability in AI, part of the TRAIL - TRusted AI Labs meeting on Human-AI interaction (8 May 2024, Brussels, Belgium)

- Presentation of research paper by Aayush Jain: "CoBT: Collaborative Programming of Behaviour Trees from One Demonstration for Robot Manipulation" International Conference on Robotics and Automation (13-17 May, Yokohama, Japan)

- Naira López Cañellas presented her research at Pint of Science Ireland Festival (13 May 2024, Dublin, Ireland)

- Poster presentation by Naira López Cañellas at the ADAPT Annual Scientific Conference (14 May 2024, Dublin, Ireland)

- Joseph Mietkiewicz and Ammar Abbas participated to the Irish competition Ma Thèse en 180 secondes 2024 organized at Trinity College Dublin (30 May 2024, Dublin, Ireland)

- Milos Pusica was awarded best paper in the Biomedical Engineering section received at the XI International IcETRAN 2024 conference for the paper "Towards Practical Deployment: Subject-Independent EEG-based Mental Workload Classification on Assembly Lines" (03-06 June 2024, Niš, Serbia)

CISC project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under the Marie Skłodowska-Curie grant agreement no. 955901