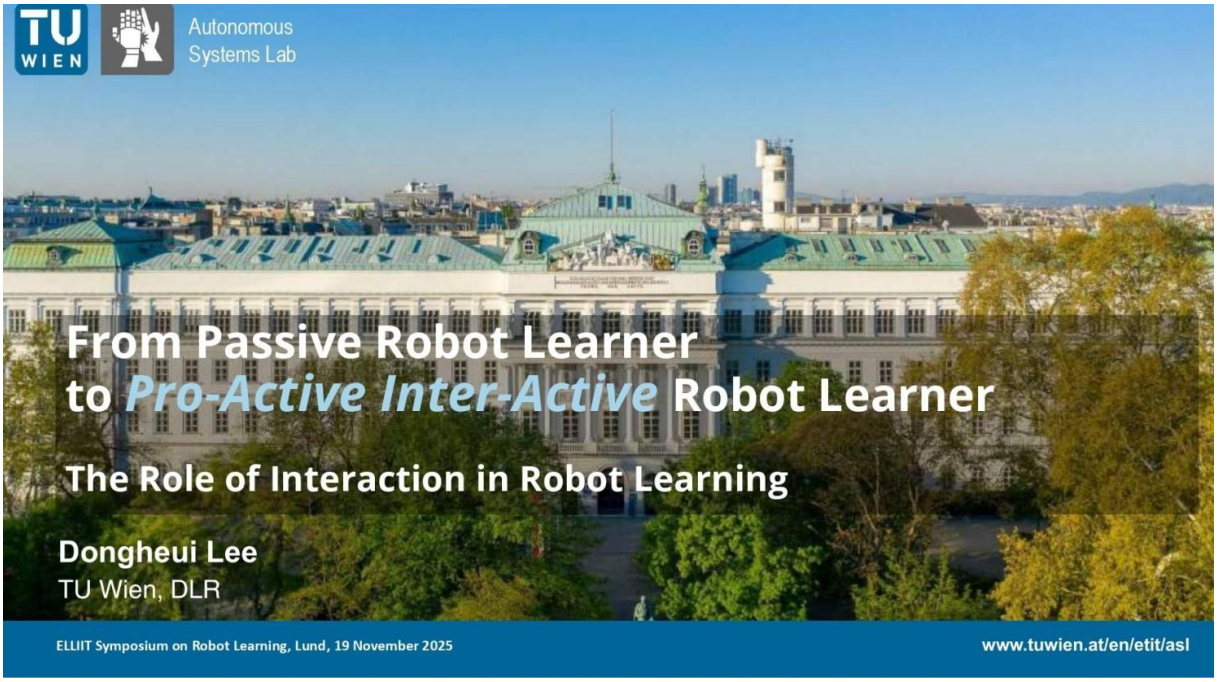
Welcome to the fifth edition of "INVERSE insights"!

Welcome to the fifth edition of "INVERSE insights"! We are excited to provide you with the latest updates, insights, and news from our Horizon Europe project focused on advancing longterm robot autonomy and continual learning. INVERSE aims at enhancing robotic capabilities, enabling them to tackle complex manipulation tasks across various domains, even when training data is limited.

Don’t miss a beat from INVERSE! Subscribe to our newsletter for project highlights, event updates, and the latest in human-robot collaboration.

🔔 Project Updates

INVERSE at ELLIIT Focus Period Symposium on Robot Learning



Prof. Dongheui Lee from INVERSE Partner TU Wien was invited at the **ELLIIT Focus Period Symposium** and gave the talk "From Passive Learner to Pro-Active and Inter-Active Learner" on November 19th 2025 in Lund, Sweden.

The ELLIIT Focus Period Symposium is the highlight of the five-week focus period, during which young international scholars, ELLIIT researchers and other well-established international academics gather in Lund to work together on joint research challenges. The Focus Period Symposium took place at Lund University Faculty of Engineering (LTH).

Dongheui Lees talk focused on the approach of imitation learning for robot learning:

- Autonomous motor skill learning and control are central challenges in the development of intelligent robotic systems. Imitation learning offers an efficient

approach, enabling robots to acquire new skills from human guidance while reducing the time and cost of manual programming.

🔹 Traditional approaches to robot learning from demonstration tend to render the robot a passive learner, confined largely to motion planning derived from the current observations.

🔹 To progress beyond the traditional paradigm of imitation learning, it is essential to develop methods that allow robots to continuously learn new skills and to refine previously learned ones, if necessary, particularly in uncertain or dynamic environments. This may require the ability to reason about the robot's own actions, or to extend its knowledge through proactive and interactive engagement with humans.

INVERSE at the NII Shonan Meeting

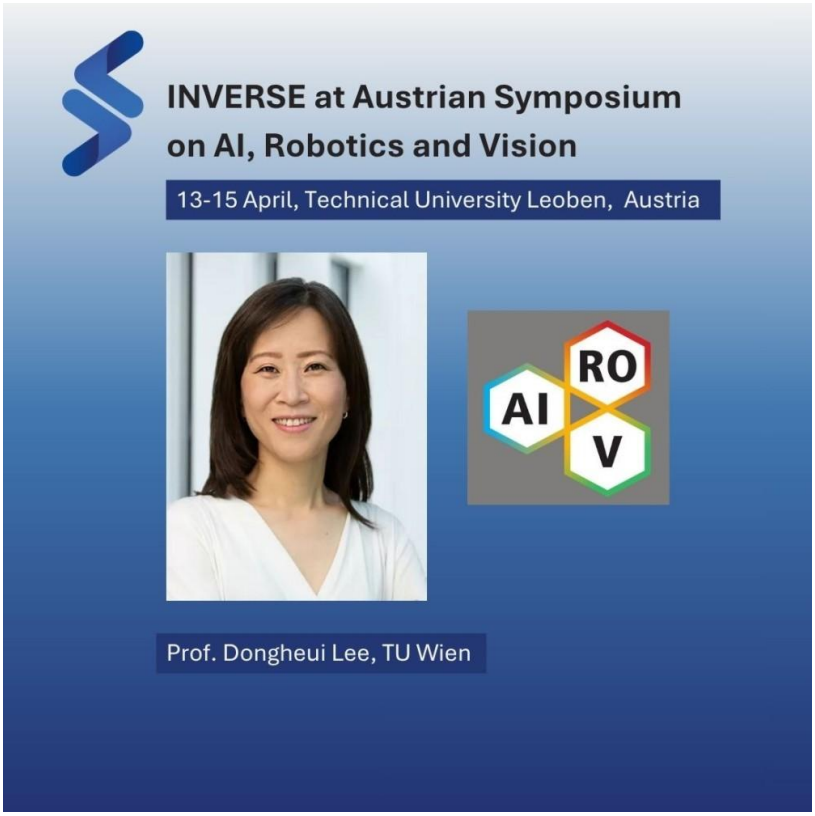
👏 Emre Uğur from INVERSE Partner **Boğaziçi University** gave a talk at the **NII Shonan Meeting**: “Next Generation Cognitive Robotics: Nurturing Embodied Intelligence for a Symbiotic Future with Humans and AI”. The Meeting took place from **November 17 – 20, 2025 in Shonan Village Center, Japan.**

INVERSE Integration Week at CRF in Orbassano

From **16–20 March 2026**, the INVERSE consortium met at **CRF in Orbassano** (Turin area) for an Integration Week focused on bringing project components together, testing interfaces across work packages, and validating progress on site. The week also included the General Assembly and an Exploitation Workshop on March 18th.

Click here to find out more

AIRoV – Austrian Symposium on AI, Robotics, and Vision 2026



Austrian Symposium on AI, Robotics and Vision

AIRoV 2026 took place from 13.-15.04.2026 on the Campus of the Technical University Leoben. Prof. Dongheui Lee from INVERSE partner TU Wien gave a keynote titled "Multimodal Scene Understanding for Human and Robot Action Monitoring " at the workshop "Semantic Scene Representations".

AIRoV 2026 AI, Robotics & Vision is the joint Symposium of the Austrian Society for Artificial Intelligence (ASAI), the Austrian Society of Measurement, Automation and Robot Technologies (GMAR) and the Austrian Association for Pattern Recognition (OAGM).

The program was built around two half-day sessions of parallel workshops. In addition to workshops the event had plenary sessions featuring keynote presentations, contributed talks, and a poster session.

Partner Spotlight

DLR Deutsches Zentrum für Luft- und Raumfahrt
German Aerospace Center

German Aerospace Center

The German Aerospace Center (DLR) is the Federal Republic of Germany's research centre for aeronautics and space. It also conducts extensive research and development in areas such as energy, transport and security, embedded in national and international cooperative ventures. DLR describes its identity as a research institution focused on scientific excellence, combined with a capable administrative organisation that supports society and acts responsibly toward clients, partners, affiliates and employees - guided by sustainable action and a commitment to solving societal issues.

Role in INVERSE

- DLR is the Lead Beneficiary for WP3: "Scene Understanding and Workers' Context Interpretation", steering the work package's overall direction and objectives - ranging from characterising geometric relations between assembly parts, to detecting

anomalous/failure cases, improving perception through retraining cycles, and interpreting human worker activity during operations.

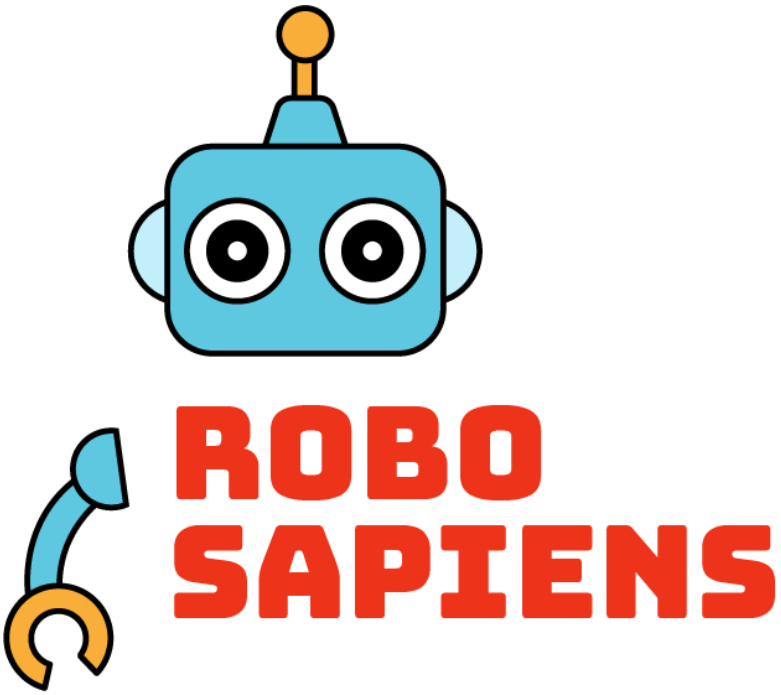
🔹 DLR leads core technical development such as semantic and geometric scene interpretation, including estimating and tracking 6D poses and constellations of parts, classifying state transitions and connection types, and leveraging CAD models alongside synthetic RGBD and real-world data for robust perception. In addition, WP3 work covers domain adaptation via active/few-shot retraining, bridging sim-to-real gaps and varying conditions (lighting/viewpoints) through continual, efficient retraining cycles informed by failure/low-confidence events.

🔹 Beyond perception, DLR contributes to the broader INVERSE stack by helping define geometric relations that feed higher-level reasoning, supporting knowledge representations, contributing to user interfaces, and developing adaptive motion primitives that enable task inversion in practical human - robot collaboration scenarios

👉 **More about the INVERSE consortium**

Upcoming Events

INVERSE will participate in a Webinar on June 2nd with RoboSapiens



The webinar, organized by the **RoboSapiens** project will take place online on June 2nd from 11-12h CEST. Join in to hear our coordinator Matteo Saveriano discuss with other projects.

The subject of the webinar is **safety and trustworthiness in robotic autonomous adaptation**. Projects participating are: **RoboSAPIENS**, **Pillar Robots**, **AGIMUS**, and **INVERSE**.

More information to follow soon and follow INVERSE on LinkedIn to keep up to date!

IEEE International Conference on Robotics & Automation 2026

ICRA 2026 in Vienna

The **IEEE International Conference on Robotics & Automation 2026** (ICRA 2026) will take place in Vienna from **June 1-5.**

ICRA 2026 will gather the world's top researchers and industry leaders to share ideas, exchange knowledge, and advance the field of robotics for the benefit of humanity. As one of the world's landmark events in the field, important and exciting developments are consistently unveiled on site at ICRA. With such a rapidly changing landscape, it has never been more important to partake in industry leading events. ICRA 2026 will include plenary and keynote sessions, contributed paper sessions, workshops and tutorial sessions, forums, expo and exhibitions from our corporate partners, robot competitions and numerous social events.

💡 **Learn from INVERSE partners at ICRA 2026:**

1) Paper presentations

- **MultiModal Robotic Representation for Temporal Action Segmentation** - Sliwowski, Daniel and Lee, Dongheui *from INVERSE partner TU Wien*
- **Cross-Embodiment Imitation: Learning a Unified Latent Space for Multirobot Control** - Yashuai Yan and Lee, Dongheui *from INVERSE partner TU Wien*
- **RAMPA: Robotic Augmented Reality for Machine Programming by DemonstrAtion** -F. Dogangun, S. Bahar, Y. Yildirim, B.T. Temir, Emre Ugur *from INVERSE partner Boğaziçi University*
- **Symbolic Manipulation Planning with Discovered Object and Relational Predicates** - Alper Ahmetoglu, Erhan Oztop, Emre Ugur

2) Invited talks at workshops

- **Invited talk** at the workshop *"Intelligent Space Robotics and Systems"* - Lee, Dongheui *from INVERSE partner TU Wien*
- **Invited talk** at the workshop *"Semantics for Reliable Robot Autonomy: From Environment Understanding and Reasoning to Safe Interactions"* - Lee, Dongheui *from INVERSE partner TU Wien*

3) Technical tour

- **ICRA Technical Tour** to TU Wien, **Autonomous Systems Lab** – *INVERSE partner TU Wien*

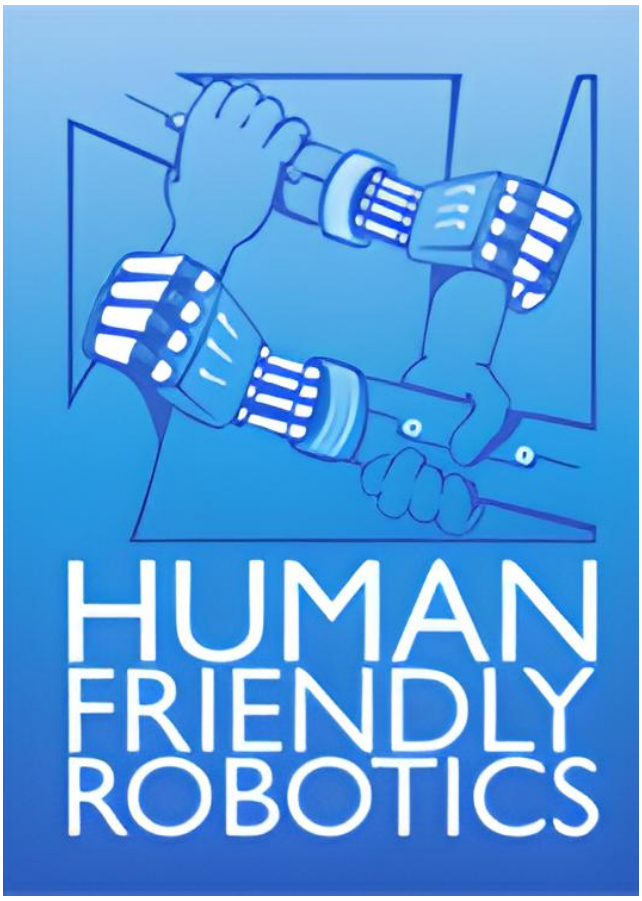
Click here to find more about ICRA 2026

2026 IEEE International Conference on Advanced Robotics and its Social Impact (ARSO)

2026 IEEE International Conference on Advanced Robotics and its Social Impacts

The **IEEE ARSO 2026** will take place from **10-12 June 2026** in Vienna. The conference aims to bring together experts from various fields to discuss the impact of advanced robotics on individuals, groups and larger social systems. INVERSE Partner TU Wien, the Austria's largest research and educational institution in the field of technology and natural sciences, will host the conference. Sebastian Schlund & Dongheui Lee are the IEEE ARSO 2026 General Chairs.

19th International Workshop on Human-Friendly Robotics



19th International Workshop on Human Friendly Robotics

🤝 INVERSE is excited to be part of HFR 2026 this July together with **MAGICIAN**! The 19th International Workshop on Human-Friendly Robotics will take place in Trento on the **16th and 17th July 2026**. The workshop is organized by **IDRA.**

The International Workshop on Human-Friendly Robotics brings together researchers and practitioners to explore how robots can work safely, effectively, and meaningfully alongside humans in everyday and industrial environments.

Click here to find out more

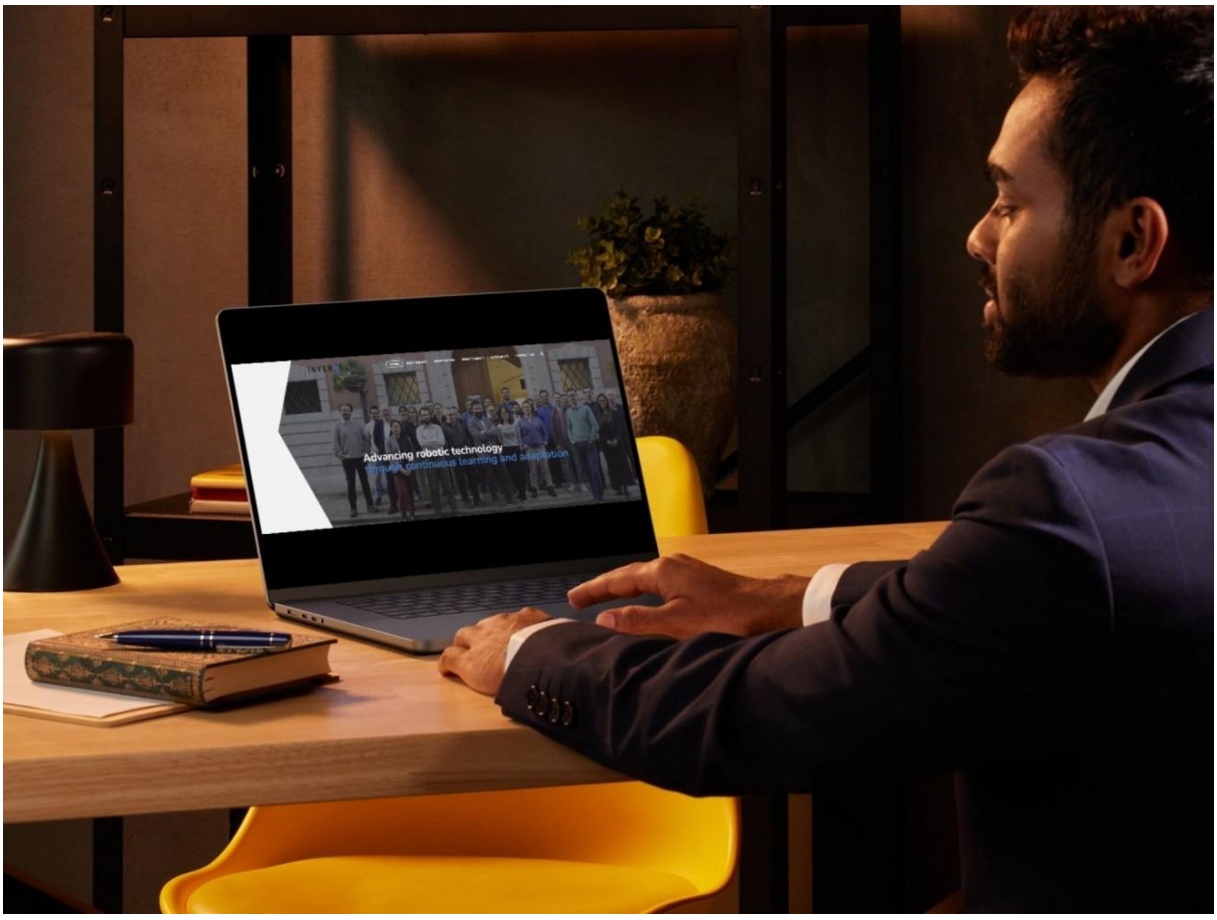
Turkish Robotics Conference

Turkish Robotics Conference 2026

Emre Uğur from INVERSE partner Boğaziçi University is invited to talk at the **Turkish Robotics Conference** in Istanbul, Turkey from **20-21 July 2026 at Koç University.**

The **Turkish Robotics Conference** will take place on 20–21 July 2026 at Koç University's Sevgi Gönül Cultural Center (SGKM) in Istanbul, bringing together researchers, educators, industry leaders, startups, and students for high-level scientific exchange and collaboration. The programme will include plenary and keynote talks as well as poster presentations, with tutorial sessions on 19 July for students and early-career researchers. The main conference language is English, with Turkish presentations welcome and simultaneous translation provided. The conference is hosted by Prof. Dr. Metin Sitti, President of Koç University.

Do you want to learn more about INVERSE? 🧐



🔍 Check out the **INVERSE website** and follow us on social media!

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