



Program at a Glance of the RAAD 2026

Tuesday, June 16, 2026

19:00 – 21:00 *Informal welcome for conference participants.*
STU University Centre - Science Café

Wednesday, June 17, 2026

8:00 – 9:00 Registration
9:00 – 9:20 Opening ceremony
9:20 – 10:20 Keynote lecture I
Prof. Dr. MSc. Eng. Eduardo Bayro-Corrochano
Geometric Algebra and Quantum Computing for Robot Modelling and Control
10:20 – 10:40 Coffee break
10:40 – 12:45 Technical sessions
- Robot kinematics and motion control I
- Future manufacturing and robotic technologies powered by AI I
12:45 – 14:00 Lunch
14:00 – 16:00 Technical sessions
- Robot kinematics and motion control II
- Future manufacturing and robotic technologies powered by AI II
16:00 – 16:30 Coffee break
16:30 – 18:30 Technical sessions
- Mobile, aerial (UAV) and swarm robotics
- Sensing and information - control systems
19:30 *Welcome reception*
Pálffy Palace on Zámocká Street

Thursday, June 18, 2026

8:30 – 9:00 Registration
9:00 – 10:00 Keynote lecture II
MUDr. Vladimír Baláž, PhD.
Robotic surgery; experiences and ideas for research
10:00 – 10:30 Coffee break
10:30 – 12:30 Technical sessions
- Medical, rehabilitation and surgery assisting robots
- Innovative solutions of robotic applications I
12:45 – 14:00 Lunch / RAAD ISC meeting
14:00 – 15:00 Plenary session
- From the Mining Machines to Robotics: History of Development in the Slovak Territory
16:00 – 18:30 *Excursion*
18:30 *Gala dinner*
Restaurant Dunajský Pivovar

Friday, June 19, 2026

9:00 – 10:00 Keynote lecture III
Dr. Hung-Yin Tsai
Development and Applications of Robotics in Taiwan
10:00 – 10:30 Coffee break
10:30 – 12:30 Technical sessions
- Innovative solutions of robotic applications II
- Novel design of robotic mechanisms and tools for intelligent manipulation
12:30 Closing ceremony and Lunch

Detailed Technical Program

Keynote lecture 1

Wednesday, June 17, 2026

Time: 9:20 – 10:20

Chair: Müller, A.

Room: S4

Geometric Algebra and Quantum Computing for Robot Modelling and Control
 Prof. Dr. MSc. Eng. Eduardo Bayro-Corrochano

Technical session 1

Wednesday, June 17, 2026

Robot kinematics and motion control I

Time: 10:40 – 12:45

Chairs: Švaco, M., Geonea, I.

Room: S4

Postural Optimization of Mobile Manipulators under End-Effector Constraints through Local Redundancy Exploitation

Petric, T., Žlajpah, L.

A Low-Cost Inertial Framework for Dynamic Posturography: From Preliminary Validation to Kinematic Integration

Bottoni, E., Galletta, L., De Benedictis, C., Paterna, M., Pacheco Quiñones, D., Maffiodo, D., Roatta, S., Ferraresi, C.

Fault detection in Collaborative robots using semi-supervised techniques

Aggogeri, F., Pellegrini, N.

Stewart-Platform Six-DoF Haptic Joystick with Force-Feedback via Cartesian Wrench Compensation

Varga, B., Gashi, I., Liu, J., Galambos, P., Rudas, I.

Kinematic Design Optimization of RCM-Constrained Surgical Robots Based on Minimum Singular Value.

Moulianitis, V., Wolniakowski, A., Trochimczuk, R., Cheng, Z., Kuciej, M., Miatluk, K., Aspragathos, N.

Practicalities of Symmetric vs. One-Side-Dominant Absolute Task Control in Bimanual Robots

Avsec, O., Mihelj, M., Gams, A.

Technical session 2

Wednesday, June 17, 2026

Future manufacturing and robotic technologies powered by AI I

Time: 10:40 – 12:45

Chairs: Rezapour, M., Rodič, A.

Room: S3

A Robot Skill-Based Framework for Complex Assembly Processes in Agile Manufacturing

Zarmakoupis, P., Prezas, L., Arkouli, Z., Dimitropoulos, N., Makris, S.

Learning-based Strategy for Composite Robot Assembly Skill Adaptation

Abuibaid, K., Sidorenko, A., Wagner, A., Ruskowski, M.

Factors Influencing Immersion in Desktop-Based Human–Robot Collaboration Simulations

Hümmer, J., Perz, T., Henrich, D.

A Modular Behavior Tree Engine for Smart Manufacturing: An AAS-Driven Framework for Autonomous Skill Execution

Rezapour, M., Darwish, A., Wagner, A., Görge, D., Ruskowski, M.

Middleware-Driven Vision Offloading for Mixed Reality Assisted Robotics

Hajdu, C., Szilágyi, Z., Galambos, P., Széll, K.

Mixed Reality–Based Spatial Task Definition and Reward Shaping for Deep Reinforcement Learning in Robotics

Matour, M., Winkler, A.

Technical session 3

Robot kinematics and motion control II

Chairs: Pellegrini, N., Aspragathos, N.

Wednesday, June 17, 2026

Time: 14:00 – 16:00

Room: S4

Design of a Bipedal Locomotion Mechanism for Obstacle Avoidance

Mic, C., Copilusi, C., Geonea, I., Dumitru, S., Florescu, S.

Physics-Based Collision-Free Motion Planning in RobotBlockSet Using OMPL and MuJoCo

Žlajpah, L., Deniša, M., Petric, T.

Residual Physics-Informed Neural Networks for Joint Parameter Identification in Belt-Driven Robotic Systems

Kicic, A., Zhang, T., Golić, A., Nikolić, M.

Autonomous overtaking trajectory optimization using reinforcement learning and opponent pose estimation

Cihlar, M., Šiktar, L., Čaran, B., Švaco, M.

Robust Fixed-Point Transformation-Based Adaptive Control With Prescribed Transient Behavior

Varga, B., Zsámbok, Á., Horváth, R., Tar, J.

Kinematic Analysis of an Aircraft Wing Trailing Edge Based on Flexible Morphing Mechanisms

Xi, J., Benatar, A., Ghosh, A.

Technical session 4

Future manufacturing and robotic technologies powered by AI II

Chairs: Galambos, P., Hümmer, J.

Wednesday, June 17, 2026

Time: 14:00 – 16:00

Room: S3

Design and Validation of AMR-based Tool Distribution in Aerospace Manufacturing: A Case Study

Říha, A., Wierbica, R., Krejčí, J., Krys, V.

LLM-based Integration of Contextual Knowledge in Natural Language Commands for Enhanced Robot Programming

Sucker, S., Khaleghian, S., Henrich, D.

AI-Driven Cloud–Edge Data Pipelines for Proactive Maintenance and Operation In Automated Manufacturing

Skaličan, M., Dlugolinský, Š., Hluchý, L., Škrlec, I.

Determination of Stable Conditions for Robotic Milling to Reduce Vibrations

Križan, P., Hanko, L., Tóth, T., Svátek, M.

A Survey on Soft PLC Integration within Modern Robotic and Industrial Control Architectures

Pšenka, R., Abdallah, M., Belavý, C., Kmeť, V., Pohánka, M., Kmeť, M.

Educational Use of Industrial Simulation Tools in Digital Factory and Robotics-Oriented Study Programs
 Lučan, M., Smetaniuk, A., Trebuľa, M., Duchoň, F.

Technical session 5

Mobile, aerial (UAV) and swarm robotics

Chairs: Rosenfelder M., Schwenk C.

Wednesday, June 17, 2026

Time: 16:30 – 18:30

Room: S4

Framework for coordination of heterogeneous UAV's
 Zelenka, J., Kasanický, T.

Controlling the distribution of UAVs using artificial pheromone tags: Parameter Tuning
 Zelenka, J., Kasanický, T., Chivarov, N.

Setpoint Control for Wheeled Mobile Robots Using Geometry-Conforming Model Predictive Controllers
 Rosenfelder, M., Ebel, H., Eberhard, P.

Risk-minimizing Planning in Partially Controlled Multi-Agent Systems
 Schwenk, C., Henrich, D.

Decision support system for selecting the optimal structure and parameters of a group of mobile robots
 Rybak, L., Malyshev, D., Dyakonov, D., Dhar, N., Bhardwaj, R.

Deep Learning-based Algorithm for Detection of Cyber-attacks on Mobile Robot with Visual Servoing Controller
 Jokić, A., Petrović, M., Miljković, Z.

Technical session 6

Sensing and information - control systems

Chairs: Abdallah, M., Sibinović, V.

Wednesday, June 17, 2026

Time: 16:30 – 18:30

Room: S3

Object Distance Estimation from Electromagnetic Interactions in Robotics
 Štironja, V., Mikulić, D., Tomić, D., Petrović, L., Marković, I., Bosiljevac, M., Šipuš, Z., Petrović, I.

Robot Assisted Freehand Ultrasound Scanning for 3D Blood Vessel Model Reconstruction
 Ćirić, L., Ruzic, N., Knezevic, N., Radovic, T., Jankovic, M., Jovanović, K.

A Survey on Neuromorphic Vision Systems in the Perception of Industrial Robotics
 Abdallah, M., Pšenka, R., Kmeť, M., Pohánka, M., Kmeť, V., Belavý, C.

A Biologically Inspired Vision–Language Pipeline for Explainable Scene Reconstruction from RGB Data
 Rodič, A.

Classification of contact type based on the magnetic field data for tactile sensor
 Sibinović, V., Apostolović, S., Raković, M.

Development of the Test Facility for Wireless Pressure Sensors
 Hricko, J., Havlík, Š., Osadchyi, H.

Keynote lecture II

Thursday, June 18, 2026

Time: 9:00 – 10:00

Chair: Havlík, Š.

Room: S4

Robotic surgery; experiences and ideas for research
 MUDr. Vladimír Baláž, PhD.

Technical session 7

Thursday, June 18, 2026

Medical, rehabilitation and surgery assisting robots

Time: 10:30 – 12:30

Chairs: Jovanović, K., Markulin, M.

Room: S4

Visual Servoing Based Patient Movement Compensation for Prostate Biopsy Procedure
 Markulin, M., Šiktar, L., Jurdana, J., Matijević, L., Zekulić, T., Šuligoj, F., Šekoranja, B., Kuliš, T., Hudolin, T., Švaco, M.

Structural Optimization and Prototype Development of a Lower-Limb Exoskeleton for Human Gait Rehabilitation
 Geonea, I., Dumitru, N., Copilusi, C., Corzanu, A., Ionescu, A., Stancut, A., Tarnita, D.

Biomechanical Simulation of Neck Muscle Activations for Cervical Dystonia Assessment
 Brecelj, T., Filipović, T., Petric, T.

Optimization of Robot Base Placement for Prostate Biopsy Planning
 Touri, M., Markulin, M., Matijević, L., Šekoranja, B., Šuligoj, F., Švaco, M.

Development of a Robotic System with Force Control for Dynamic Hip Screw (DHS) Insertion Procedure Towards Autonomous Orthopedic Trauma Surgery
 Larios, C., Kouzelis, A., Nikolakopoulos, G., Koustoumpardis, P.

Implementation of Digital Twins in Unity with React Native and MQTT Communication for Rehabilitation Robotics
 Stoev, P., Guler, Y., Yumer, D.

Technical session 8

Thursday, June 18, 2026

Innovative solutions of robotic applications I

Time: 10:30 – 12:30

Chairs: Raileanu, S., Kitzinger, A.

Room: S3

Impact of snow cover on mobile robots traversability in urban areas
 Koszyk, J., Ambroziński, Ł.

Onboarding Developers into Robotics Ecosystems: A Modeling-Driven Approach with LLM Assistance
 Meckel, D., Egelhof, J., Gassen, E., Berns, K.

Automation in metamaterial design applied by Large Language Models - case study
 Klarák, J., Agu, F., Hartansky, R., Andok, R.

An Integrated Robotics Framework for Inspection, Monitoring, and Cleaning of Photovoltaic Installations

Vourkos, E., Agathokleous, R., Panayides, A., Kalogirou, S., Christoforou, E.

Industrial Cleaning Robots in Dynamic AMR-populated Environments: A Case Study

Szeszák, B., Keréjártó, I., Soltész, L., Galambos, P.

Care Lift Enabling “Two-Hand Support” Motion to Provide Reassurance to Care Recipients

Sakaki, T., Lee, Y., Kihara, Y., Kimura, N.

Plenary session

Thursday, June 18, 2026

Time: 14:00 – 15:00

Room: S4

Chairs: Vachálek, J.

From the Mining Machines to Robotics: History of Development in the Slovak Territory

Havlík, Š., Rusko, M., Kozáková, A., Duchoň, F., Hubinský, P.

Keynote lecture III

Friday, June 19, 2026

Time: 9:00 – 10:00

Room: S4

Chair: Budinská, I.

Development and Applications of Robotics in Taiwan

Dr. Hung-Yin Tsai

Technical session 9

Innovative solutions of robotic applications II

Chairs: Vourkos, E., Meckel, D.

Friday, June 19, 2026

Time: 10:30 – 12:30

Room: S4

Vision-Based Reconstruction of Silicon Ingots for Surface Resistivity Measurements

Galli, D., Vian, A., Vidoni, R.

Robotized assembly of metal panels using compliant vacuum-based end-effector

Cristea, I., Raileanu, S., Borangiu, T., Legat, C.

Robotic Removal of Sand Residuals from Castings Using Reinforcement Learning

Kitzinger, A., Gattringer, H., Müller, A., Mariadass, M.

Real-Time Apple Detection and Tracking in Orchard Environments Using Deep Learning and Computer Vision

Nuhić, A., Mihelj, M., Mongus, Ž., Munih, M., Germšek, B.

Model-based Path Planning for Robotic Wire and Arc Additive Manufacturing of hybrid porous components

Kleinschmidt, S., Kolditz, T., Schatull, A., Seewig, J., Raatz, A.

Design of a Constant-Force Mechanism for Stack Pressure Control in Solid-State Battery Modules

Chen, Y., Chao, C., Wang, F.



Technical session 10

Novel design of robotic mechanisms and tools for intelligent manipulation

Chairs: Petric, T., Gasparetto, A.

Friday, June 19, 2026

Time: 10:30 – 12:30

Room: S3

MARINERO: Robot Digital Twin for Simulation of Autonomous Navigation in Nautical Marinas
Androšić, A., Šiktar, L., Čaran, B., Dragičević, N., Jakovljević, J., Švaco, M.

Kinematic Null-Space Torque Minimization for Extended-Tool Manipulation
Sifrer, J., Petric, T.

Workspace Analysis of an Industrial Robot for Precision Machining Applications
Florea, E., Gasparetto, A., Scalera, L., Vidoni, R.

Probabilistic Grasping with Soft Multi-Fingered Grippers: Experimental Success-Rate Matrices
Todić, V., Ružić, N., Knežević, N., Jovanović, K.

Mechanical Architectures and Locomotion Concepts in In-Pipe Robotics: A Brief Review
Osadchy, H., Hricko, J.