

# IEEE RCAR 2026 Program at a Glance

August 18-19, 2026

| <b>Tuesday August 18, 2026</b> |                                                                                                                |
|--------------------------------|----------------------------------------------------------------------------------------------------------------|
| 09:00-09:40                    | Plenary Talk: Jianru Xue<br>Approaches to Safe and Trustworthy Physical Agents                                 |
| 09:40-10:10                    | Keynote Talk I: Lin Wang<br>Intelligent Human-Machine Interaction in Rehabilitation Robots                     |
| 10:10-10:30                    | Coffee Break                                                                                                   |
| 10:30-11:00                    | Keynote Talk II: Yufeng Yue<br>Spatial Perception and Action Learning for Cognitive Navigation                 |
| 11:00-11:48                    | Session 1 - TuBP1: Best Conference Paper<br>(Room 1 / Virtual Room A; Tencent ID: 303-451-832)                 |
| 12:00-13:30                    | Lunch Break                                                                                                    |
| 13:30-14:18                    | Session 2 - TuBP2: Best Student Paper<br>(Room 1 / Virtual Room A; Tencent ID: 303-451-832)                    |
| 14:18-15:06                    | Session 3 - TuBP3: Best Paper in Control<br>(Room 1 / Virtual Room A; Tencent ID: 303-451-832)                 |
| 15:06-15:26                    | Coffee Break                                                                                                   |
| 15:26-16:14                    | Session 4 - TuBP4: Best Paper in Robotics<br>(Room 1 / Virtual Room A; Tencent ID: 303-451-832)                |
| 16:14-17:02                    | Session 5 - TuBP5: Best Paper in Bio-Medical Engineering<br>(Room 1 / Virtual Room A; Tencent ID: 303-451-832) |
| 18.30-21.00                    | Banquet                                                                                                        |

## Wednesday August 19, 2026

|                 |                                                                                                                               |                                                                       |                                                                             |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 09:00-09:30     | <b>Keynote Talk III: Le Xie</b><br><b>Research on Minimally Invasive Surgical Robots for natural orifices</b>                 |                                                                       |                                                                             |
| 09:30-09:50     | <b>Session 6 - TuA1: SLAM / Localization / Depth Estimation</b><br><b>(Room 1 / Virtual Room B; Tencent ID: 204-470-661)</b>  |                                                                       |                                                                             |
| 09:50-10:20     | <b>Session 7 - TuA2: Motion Planning / Navigation</b><br><b>(Room 1 / Virtual Room B; Tencent ID: 204-470-661)</b>            |                                                                       |                                                                             |
| 10:20-10:40     | <b>Coffee Break</b>                                                                                                           |                                                                       |                                                                             |
| 10:40-11:10     | <b>Session 8 - TuA3: Sensing / Perception / Object Detection</b><br><b>(Room 1 / Virtual Room B; Tencent ID: 204-470-661)</b> |                                                                       |                                                                             |
| 11:10-11:35     | <b>Session 9 - TuA4: Humanoid &amp; Soft Robots</b><br><b>(Room 1 / Virtual Room B; Tencent ID: 204-470-661)</b>              |                                                                       |                                                                             |
| 12:00-13:30     | <b>Lunch Break</b>                                                                                                            |                                                                       |                                                                             |
| <b>Location</b> | <b>Virtual Room 1</b><br>Tencent ID: 960-293-267                                                                              | <b>Virtual Room 2</b><br>Tencent ID: 515-645-217                      | <b>Virtual Room 3</b><br>Tencent ID: 122-778-893                            |
| 14:00-14:40     | <b>WeA1: SLAM /</b><br><b>Localization / Odometry</b>                                                                         | <b>WeB1: Dexterous</b><br><b>Manipulation / Grasping</b>              | <b>WeC1: Surgical /</b><br><b>Interventional / Medical</b><br><b>Robots</b> |
| 14:40-15:20     | <b>WeA2: 3D Reconstruction</b><br><b>/ Depth Estimation</b>                                                                   | <b>WeB2: Embodied</b><br><b>Intelligence /</b><br><b>Manipulation</b> | <b>WeC2: Medical Imaging</b><br><b>/ Biosignal Processing</b>               |
| 15:20-15:40     | <b>Coffee Break</b>                                                                                                           |                                                                       |                                                                             |
| 15:40-16:20     | <b>WeA3: Object Detection</b><br><b>/ Segmentation / Pose</b>                                                                 | <b>WeB3: Motion Planning /</b><br><b>Navigation</b>                   | <b>WeC3: Multi-Robot /</b><br><b>Collaboration /</b><br><b>Scheduling</b>   |
| 16:20-17:00     | <b>WeA4: Sensing / Tactile /</b><br><b>Vision Hardware</b>                                                                    | <b>WeB4: UAV / Aerial</b><br><b>Robots</b>                            | <b>WeC4: Robot Control /</b><br><b>Modeling</b>                             |
| 17:00-17:40     | <b>WeA5: Deep Learning /</b><br><b>Vision AI Methods</b>                                                                      | <b>WeB5: Humanoid /</b><br><b>Legged / Mobile Robots</b>              | <b>WeC5: Intelligent</b><br><b>Transportation /</b><br><b>Applications</b>  |
| 17:40-18:00     | <b>WeD1: Aerial Perception</b><br><b>&amp; Motor Control</b>                                                                  |                                                                       |                                                                             |

## Session Information with Paper IDs

### Onsite / Hybrid:

| Tuesday August 18, 2026 - Hybrid - 12 minutes per paper       |              |          |                                                                                                                                |                               |
|---------------------------------------------------------------|--------------|----------|--------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| Time                                                          | Section Code | Paper ID | Paper Title                                                                                                                    | Location                      |
| <b>Session 1 - TuBP1: Best Conference Paper (11:00-11:48)</b> |              |          |                                                                                                                                |                               |
| 11:00-11:12                                                   | TuBP1        | 50       | ManiCM: Real-time 3D Diffusion Policy via Consistency Model for Robotic Manipulation                                           | Room 1 /<br>VR A: 303-451-832 |
| 11:12-11:24                                                   | TuBP1        | 138      | SPARC: Sparse Proximity Planning via Gabriel Graphs for Scalable Multi-Robot Target Coverage                                   | Room 1 /<br>VR A: 303-451-832 |
| 11:24-11:36                                                   | TuBP1        | 148      | Hierarchical Semantic Protocol Graph for Autonomous Thyroid Ultrasound Scanning                                                | Room 1 /<br>VR A: 303-451-832 |
| 11:36-11:48                                                   | TuBP1        | 282      | Diffusion-Based Trajectory Planning Policy for Robotic Bronchoscopy                                                            | Room 1 /<br>VR A: 303-451-832 |
| <b>Session 2 - TuBP2: Best Student Paper (13:30-14:18)</b>    |              |          |                                                                                                                                |                               |
| 13:30-13:42                                                   | TuBP2        | 75       | Safe Real-Vehicle Autonomous Driving via Offline-to-Online Human-in-the-Loop Reinforcement Learning                            | Room 1 /<br>VR A: 303-451-832 |
| 13:42-13:54                                                   | TuBP2        | 153      | A Lightweight Real-Time Framework for Multi-Object Detection, Tracking, and Prediction via Camera-LiDAR Fusion                 | Room 1 /<br>VR A: 303-451-832 |
| 13:54-14:06                                                   | TuBP2        | 225      | Energy-Aware Wind-Resilient Routing for Truck-Assisted Multi-UAV Delivery under Wind Uncertainty                               | Room 1 /<br>VR A: 303-451-832 |
| 14:06-14:18                                                   | TuBP2        | 120      | S2D-Flow: One-Step Underwater Dense Flow Field Reconstruction                                                                  | Room 1 /<br>VR A: 303-451-832 |
| <b>Session 3 - TuBP3: Best Paper in Control (14:18-15:06)</b> |              |          |                                                                                                                                |                               |
| 14:18-14:30                                                   | TuBP3        | 79       | HUGS: Humanoid Unified General Skill Learning for Challenging Whole-body Motions via Trajectory Tracking from Monocular Videos | Room 1 /<br>VR A: 303-451-832 |
| 14:30-14:42                                                   | TuBP3        | 161      | A Two-Stage Learning Framework for Autonomous Obstacle Avoidance of an Eel-Like Robot                                          | Room 1 /<br>VR A: 303-451-832 |
| 14:42-14:54                                                   | TuBP3        | 131      | Collaborative Planning for Multiple Unmanned Vehicles with Isolated Spatio-temporal Bands in Dynamic Community Scenarios       | Room 1 /<br>VR A: 303-451-832 |

**Tuesday August 18, 2026 - Hybrid - 12 minutes per paper**

| Time                                                                          | Section Code | Paper ID | Paper Title                                                                                                | Location                      |
|-------------------------------------------------------------------------------|--------------|----------|------------------------------------------------------------------------------------------------------------|-------------------------------|
| 14:54-15:06                                                                   | TuBP3        | 23       | Physics-Informed Koopman Linearized MPC with Structured ADMM for Agile Spinal Quadrupedal Locomotion       | Room 1 /<br>VR A: 303-451-832 |
| <b>Session 4 - TuBP4: Best Paper in Robotics (15:26-16:14)</b>                |              |          |                                                                                                            |                               |
| 15:26-15:38                                                                   | TuBP4        | 85       | Design of a High-Expansion-Ratio Hybrid Rigid-Soft Gripper for Multi-Scale Grasping                        | Room 1 /<br>VR A: 303-451-832 |
| 15:38-15:50                                                                   | TuBP4        | 121      | Design and Control of a Hydraulic Wheel-legged Humanoid Robot: WLR-ZJ                                      | Room 1 /<br>VR A: 303-451-832 |
| 15:50-16:02                                                                   | TuBP4        | 37       | Vision-to-Dexterity: A Monocular Transfer Framework for Robot Hands                                        | Room 1 /<br>VR A: 303-451-832 |
| 16:02-16:14                                                                   | TuBP4        | 68       | End-to-End Obstacle Avoidance for Mobile Robots via Hybrid Spatio-Temporal Networks and Event-Based Vision | Room 1 /<br>VR A: 303-451-832 |
| <b>Session 5 - TuBP5: Best Paper in Bio-Medical Engineering (16:14-17:02)</b> |              |          |                                                                                                            |                               |
| 16:14-16:26                                                                   | TuBP5        | 159      | ScolioMorph: A Dual-Stream Transformer-Wavelet Network for Spinal CT–MR Registration                       | Room 1 /<br>VR A: 303-451-832 |
| 16:26-16:38                                                                   | TuBP5        | 199      | Visual Servo Control of an Endoscope-Holding Surgical Robot under Remote Center of Motion Constraints      | Room 1 /<br>VR A: 303-451-832 |
| 16:38-16:50                                                                   | TuBP5        | 31       | FusionAug: gTCN-Based Latent Feature Augmentation for Cross-Subject Hydrocephalus EEG Classification       | Room 1 /<br>VR A: 303-451-832 |
| 16:50-17:02                                                                   | TuBP5        | 74       | Continuous Lip-Sync Control for Digital Humans via Neural Motion Retargeting and Dual-modal Alignment      | Room 1 /<br>VR A: 303-451-832 |

| Wednesday August 19, 2026 - Hybrid - 5 minutes per paper                       |              |          |                                                                                                                 |                               |
|--------------------------------------------------------------------------------|--------------|----------|-----------------------------------------------------------------------------------------------------------------|-------------------------------|
| Time                                                                           | Section Code | Paper ID | Paper Title                                                                                                     | Location                      |
| <b>Session 6 - TuA1: SLAM / Localization / Depth Estimation (09:30-09:50)</b>  |              |          |                                                                                                                 |                               |
| 09:30-09:35                                                                    | TuA1         | 77       | Sensitivity Analysis of Magnetic Moment Deviation in Magnetic Localization with Sensor Array                    | Room 1 /<br>VR B: 204-470-661 |
| 09:35-09:40                                                                    | TuA1         | 86       | 2DGS-Loc: Geometry-Consistent Visual Localization with Planar Gaussian Splatting                                | Room 1 /<br>VR B: 204-470-661 |
| 09:40-09:45                                                                    | TuA1         | 88       | CMDepth: Self-Supervised Monocular Depth Estimation based on Hybrid CNN-State Space Models                      | Room 1 /<br>VR B: 204-470-661 |
| 09:45-09:50                                                                    | TuA1         | 146      | RSL-SLAM: Robust Visual SLAM for Sparse Lunar Environments                                                      | Room 1 /<br>VR B: 204-470-661 |
| <b>Session 7 - TuA2: Motion Planning / Navigation (09:50-10:20)</b>            |              |          |                                                                                                                 |                               |
| 09:50-09:55                                                                    | TuA2         | 61       | Autonomous Robotic Task Planning Based on Ontology-Enabled Behavior Tree                                        | Room 1 /<br>VR B: 204-470-661 |
| 09:55-10:00                                                                    | TuA2         | 76       | Inverted-Modeling-Based Motion Planning for Asymmetric Fault-Tolerant Legged Mobile Landers                     | Room 1 /<br>VR B: 204-470-661 |
| 10:00-10:05                                                                    | TuA2         | 134      | Scaling High-Quality Supervision for Vision-Language Navigation via LMM-Based Data Synthesis                    | Room 1 /<br>VR B: 204-470-661 |
| 10:05-10:10                                                                    | TuA2         | 283      | TAPA-BG: A Jacobian-Free Averaged-Correction Framework for Distributed Bilevel Games                            | Room 1 /<br>VR B: 204-470-661 |
| 10:10-10:15                                                                    | TuA2         | 273      | Gateway-Aware Multi-Layer 2.5D Elevation Mapping and Path Planning for Multi-Floor Mobile Robot Navigation      | Room 1 /<br>VR B: 204-470-661 |
| 10:15-10:20                                                                    | TuA2         | 285      | A Convergence-Guaranteed Learning-to-Optimize Method for Distributed LASSO                                      | Room 1 /<br>VR B: 204-470-661 |
| <b>Session 8 - TuA3: Sensing / Perception / Object Detection (10:40-11:10)</b> |              |          |                                                                                                                 |                               |
| 10:40-10:45                                                                    | TuA3         | 87       | Software-Based Timing Characterization of a BLE-to-CAN Physiological Sensing Architecture for Robotic Systems   | Room 1 /<br>VR B: 204-470-661 |
| 10:45-10:50                                                                    | TuA3         | 89       | A Perspective Review of Learning Algorithms in Radar-Based Fall Detection for Elderly Home Care                 | Room 1 /<br>VR B: 204-470-661 |
| 10:50-10:55                                                                    | TuA3         | 90       | Reading QR Codes on Curved and Folded Surfaces via HueCode-Based Fiducial Marker Overlay and Planar Restoration | Room 1 /<br>VR B: 204-470-661 |

| Wednesday August 19, 2026 - Hybrid - 5 minutes per paper          |              |          |                                                                                                           |                               |
|-------------------------------------------------------------------|--------------|----------|-----------------------------------------------------------------------------------------------------------|-------------------------------|
| Time                                                              | Section Code | Paper ID | Paper Title                                                                                               | Location                      |
| 10:55-11:00                                                       | TuA3         | 116      | Short-History Pedestrian Trajectory Prediction with Hierarchical Intent Guidance                          | Room 1 /<br>VR B: 204-470-661 |
| 11:00-11:05                                                       | TuA3         | 169      | YOLOv11-MMD: Real-Time Underwater Visual Perception for Floc Monitoring in Sedimentation Tanks            | Room 1 /<br>VR B: 204-470-661 |
| 11:05-11:10                                                       | TuA3         | 214      | A Lightweight Space Debris Detection Framework Based on Improved RT-DETR                                  | Room 1 /<br>VR B: 204-470-661 |
| <b>Session 9 - TuA4: Humanoid &amp; Soft Robots (11:10-11:35)</b> |              |          |                                                                                                           |                               |
| 11:10-11:15                                                       | TuA4         | 65       | Toward Actuatable Reconstruction of Soft Manipulators with Deformable Gaussians                           | Room 1 /<br>VR B: 204-470-661 |
| 11:15-11:20                                                       | TuA4         | 117      | A Hierarchical Architecture for Humanoid Hand Reaching with Guided Diffusion Planning                     | Room 1 /<br>VR B: 204-470-661 |
| 11:20-11:25                                                       | TuA4         | 118      | From Generated Motion to Physical Execution: A Hierarchical Framework for Humanoid Motion Tracking        | Room 1 /<br>VR B: 204-470-661 |
| 11:25-11:30                                                       | TuA4         | 125      | Reference-Augmented Learning for Precise Tracking Policy of Tendon-Driven Continuum Robots                | Room 1 /<br>VR B: 204-470-661 |
| 11:30-11:35                                                       | TuA4         | 257      | PhysiFlow: Physics-Aware Humanoid Whole-Body VLA via Multi-Brain Latent Flow Matching and Robust Tracking | Room 1 /<br>VR B: 204-470-661 |

## Online:

| Wednesday August 19, 2026 - 5 minutes per paper |                                            |          |     |     |     |     |     |                                             |             |
|-------------------------------------------------|--------------------------------------------|----------|-----|-----|-----|-----|-----|---------------------------------------------|-------------|
| Section Code                                    | Section Theme                              | Paper ID |     |     |     |     |     | Virtual Meeting Room                        | Time        |
| WeA1                                            | SLAM / Localization / Odometry             | 24       | 133 | 152 | 261 | 264 | 266 | Virtual Room 1<br>(Tencent ID: 960-293-267) | 14:00-14:40 |
| WeB1                                            | Dexterous Manipulation / Grasping          | 78       | 158 | 235 | 240 | 252 | 259 | Virtual Room 2<br>(Tencent ID: 515-645-217) | 14:00-14:40 |
| WeC1                                            | Surgical / Interventional / Medical Robots | 29       | 38  | 140 | 194 | 234 | 250 | Virtual Room 3<br>(Tencent ID: 122-778-893) | 14:00-14:40 |
| WeA2                                            | 3D Reconstruction / Depth Estimation       | 95       | 151 | 173 | 174 | 175 | 262 | Virtual Room 1<br>(Tencent ID: 960-293-267) | 14:40-15:20 |
| WeB2                                            | Embodied Intelligence / Manipulation       | 83       | 135 | 136 | 162 | 209 | 243 | Virtual Room 2<br>(Tencent ID: 515-645-217) | 14:40-15:20 |
| WeC2                                            | Medical Imaging / Biosignal Processing     | 63       | 98  | 110 | 122 | 123 | 192 | Virtual Room 3<br>(Tencent ID: 122-778-893) | 14:40-15:20 |
| WeA3                                            | Object Detection / Segmentation / Pose     | 70       | 71  | 84  | 149 | 260 | 263 | Virtual Room 1<br>(Tencent ID: 960-293-267) | 15:40-16:20 |
| WeB3                                            | Motion Planning / Navigation               | 40       | 64  | 73  | 155 | 163 | 222 | Virtual Room 2<br>(Tencent ID: 515-645-217) | 15:40-16:20 |

**Wednesday August 19, 2026 - 5 minutes per paper**

| <b>Section Code</b> | <b>Section Theme</b>                            | <b>Paper ID</b> |     |     |     |     |     | <b>Virtual Meeting Room</b>                 | <b>Time</b> |
|---------------------|-------------------------------------------------|-----------------|-----|-----|-----|-----|-----|---------------------------------------------|-------------|
| WeC3                | Multi-Robot /<br>Collaboration /<br>Scheduling  | 47              | 132 | 144 | 156 | 280 | 281 | Virtual Room 3<br>(Tencent ID: 122-778-893) | 15:40-16:20 |
| WeA4                | Sensing / Tactile /<br>Vision Hardware          | 62              | 66  | 67  | 109 | 126 | 157 | Virtual Room 1<br>(Tencent ID: 960-293-267) | 16:20-17:00 |
| WeB4                | UAV / Aerial Robots                             | 53              | 55  | 57  | 115 | 241 | 258 | Virtual Room 2<br>(Tencent ID: 515-645-217) | 16:20-17:00 |
| WeC4                | Robot Control /<br>Modeling                     | 119             | 143 | 154 | 191 | 200 | 206 | Virtual Room 3<br>(Tencent ID: 122-778-893) | 16:20-17:00 |
| WeA5                | Deep Learning /<br>Vision AI Methods            | 108             | 124 | 164 | 211 | 244 | 245 | Virtual Room 1<br>(Tencent ID: 960-293-267) | 17:00-17:40 |
| WeB5                | Humanoid / Legged /<br>Mobile Robots            | 54              | 181 | 203 | 215 | 218 | 226 | Virtual Room 2<br>(Tencent ID: 515-645-217) | 17:00-17:40 |
| WeC5                | Intelligent<br>Transportation /<br>Applications | 60              | 107 | 145 | 170 | 248 | 269 | Virtual Room 3<br>(Tencent ID: 122-778-893) | 17:00-17:40 |
| WeD1                | Aerial Perception &<br>Motor Control            | 97              | 99  |     |     |     |     | Virtual Room 1<br>(Tencent ID: 960-293-267) | 17:40-18:00 |