

ROBOPROX 

WP2

Robotics and Computation Methods for Production

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Robotics and Advanced Industrial Production
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WP2: Research Areas

- **Advanced robot autonomy (RA6) – Libor Preucil**
vision-based navigation in human-inhabited environments, robustness, self-recovery
- **Human-machine collaboration (RA7) – Robert Babuska**
modular architecture for HRC, learning by demonstration, interactive perception, multi-modal human-machine communication
- **Cooperative aerial robots for advanced industrial production (RA8) – Martin Saska**
delivery in industrial facilities, multi-robot autonomy, mapping and localization, motion planning in unknown dynamic environments, high-level mission planning
- **Resilient machines through continuous learning and sensing (RA9) – Tomas Svoboda**
weakly-supervised and self-supervised machine learning in combination with whole robot body sensing



WP2: Research Areas (cont'd)

- **Robotic routing in dynamic human-populated industrial environments (RA10) – Jan Faigl**
long-horizon planning and self-improving systems, combinatorial sequencing and continuous optimization, quality guarantees, dynamic problems
- **Scheduling, discrete optimization and decision-making (RA11) – Zdenek Hanzalek**
graph theory, (meta)heuristics, constraint programming, machine learning, bin packing, energy awareness, decision-making for long-term autonomy
- **Scalable formal methods in robotics and production (RA12) – Mikolas Janota**
formal methods for scalable analysis and improvement of software, static code analysis and optimization, automated reasoning
- **Complex systems for flexible production (RA13) – Vladimir Marik**
modeling, design and control of manufacturing systems, flexible response to changing production requirements, reconfiguration, multi-agent modeling, knowledge engineering

