

Mertcan Kaya

Complete Record of Publications & Scientific Research Output

Coburg, Bavaria, Germany • mertcan.kaya@hs-coburg.de

[Google Scholar](#) • [ResearchGate](#) • [LinkedIn](#) • [GitHub](#)

ORCID ID: 0000-0002-3174-9394 • Scopus Author ID: 57198376675

Research Profile Summary

My research bridges control theory, dynamic optimization, and upper-limb human biomechanics to formulate human-aware robotic trajectory generators. By modeling how human motion profiles adjust dynamically around physical and visual robotic behaviors, my frameworks optimize spatial negotiation patterns and track collaborative trajectories in close-proximity human-robot interaction (HRI) environments.

Bibliometric Indexation Matrix

- ◆ **Total Indexed Publications:** 11 Scientific Items (3 Journals, 6 Conference Proceedings, 2 Active Preprints)
- ◆ **Primary Funding Context:** Active Framework Contributor across multiple German Research Foundation (DFG) Grants
- ◆ **Institutional Anchors:** Cooperative Doctorate via Technical University of Munich (TUM) & Coburg University
- ◆ **Editorial Footprint:** Associate Editor for the IEEE International Workshop on Advanced Robotics (ARSO 2026)

1. Peer-Reviewed Journal Articles

- [1] **Kaya, M.**, Becker, K., Greve, J., Keller, J., Meserle, M., Först, C., Siegel, R., Stelzer, J., & Kühnlenz, K. (2026). Motor interference of elbow configuration changes in human-robot interaction. *Interaction Studies*, 26(1), 130–149.
<https://doi.org/10.1075/is.25026.kay>
- [2] **Kaya, M.**, & Kühnlenz, K. (2025). Subjective task-load influences anthropomorphism during cooperative human and robot hand movements. *at - Automatisierungstechnik*, 73(1), 22–28.
<https://doi.org/10.1515/auto-2024-0031>
- [3] **Kaya, M.**, Akbulut, M. A., Bayraktaroglu, Z. Y., & Kühnlenz, K. (2024). A novel recursive algorithm for the implementation of adaptive robot controllers. *Journal of Intelligent & Robotic Systems*, 110(3), 115.
<https://doi.org/10.1007/s10846-024-02135-x>

2. Peer-Reviewed Conference Proceedings

- [4] **Kaya, M.**, Bauer, J., Nickl, F., & Kühnlenz, K. (2025). Towards motor interference of limb configuration changes — A potential measure for human-likeness of robots. In *Artificial Intelligence in HCI. HCII 2025*. Lecture Notes in Computer Science, Springer, Cham.
https://doi.org/10.1007/978-3-031-93429-2_9
- [5] **Kaya, M.**, & Kühnlenz, K. (2024). Explorative study on motor interference during synchronous human and robot arm movements under varied presence of a robot head. In *Proceedings of the 2024*

IEEE International Conference on Robotics and Biomimetics (ROBIO).

<https://doi.org/10.1109/ROBIO64047.2024.10907577>

- [6] **Kaya, M.**, & Kühnlenz, K. (2023). Towards prediction of motor interference during synchronous human-robot arm movements using subjective ratings of anthropomorphism. In *Proceedings of the 2023 IEEE International Conference on Robot and Human Interactive Communication (RO-MAN)*, 2042–2047.
<https://doi.org/10.1109/RO-MAN57019.2023.10309618>
- [7] **Kaya, M.**, & Kühnlenz, K. (2022). Motor interference of incongruent hand motions in HRI depends on movement velocity. In *Social Robotics. ICSR 2022*. Lecture Notes in Computer Science, Springer, Cham.
https://doi.org/10.1007/978-3-031-24667-8_30
- [8] **Kaya, M.**, Arın, Ö. F., Akbaş, S., & Bayraktaroğlu, Z. Y. (2018). İşbirlikçi robot uygulamaları için hibrit konum/kuvvet kontrolü [Hybrid position/force control for collaborative robot applications]. In *TOK2018 Otomatik Kontrol Ulusal Toplantısı [TOK2018 National Automatic Control Meeting]*. [Available via ResearchGate Document Server]
- [9] Arın, Ö. F., Akbaş, S., **Kaya, M.**, & Bayraktaroğlu, Z. Y. (2018). 6-eksenli endüstriyel manipülâtörün eklem sürtünmelerinin tanılanması [Identification of joint frictions of a 6-axis industrial manipulator]. In *TOK2018 Otomatik Kontrol Ulusal Toplantısı [TOK2018 National Automatic Control Meeting]*. [Available via ResearchGate Document Server]

3. Preprints & Manuscripts Under Active Review

- [10] **Kaya, M.**, & Kühnlenz, K. (2026). *Disentangling Hardware Embodiment and Trajectory Kinematics During Human-Robot Spatial Negotiation*. Manuscript under review at *Advanced Robotics Research*. Preprint Retrieval Pipeline: <https://doi.org/10.5281/zenodo.20611666>
- [11] **Kaya, M.**, & Kühnlenz, K. (2026). *The Geometry of Interference: Quantifying Spatial Leakage and Biomechanical Adaptation During Human-Robot Collaboration*. Preprint Retrieval Pipeline: <https://doi.org/10.5281/zenodo.20609858>