# Academic Research Publications and Recognition

## Optional Criteria 4 - Academic Contributions (Evidence 3/3)

### Peer-Reviewed Journal Publications

#### High-Impact Scientific Publications (2023-2025)

**Bozuyuk, U.*, Ozturk, H.*, & Sitti, M. (2023).** The mismatch between experimental and computational fluid dynamics analyses for magnetic surface microrollers. *Scientific Reports*, 13, 10196.

* **Journal Impact Factor**: 4.996 (Nature Publishing Group)
* **Status**: Co-first author (equal contribution with PhD researcher)
* **Citations**: Early-stage citations building momentum
* **Field**: Computational fluid dynamics with microrobotics simulation
* **Collaboration**: Max Planck Institute for Intelligent Systems
* **Technical Innovation**: First comprehensive comparison of experimental vs computational approaches for magnetic microrollers

**Bozuyuk, U.*, Ozturk, H.*, & Sitti, M. (2023).** Microrobotic locomotion in blood vessels: a computational study on the performance of surface microrollers in the cardiovascular system. *Advanced Intelligent Systems*, 5(9), 2300099.

* **Journal Impact Factor**: 7.298 (Wiley-VCH)
* **Editorial Recognition**: **Selected for journal cover image** from hundreds of submissions
* **Status**: Co-first author demonstrating research leadership
* **Research Impact**: Computational modeling breakthrough for medical applications
* **Visual Excellence**: Cover selection indicates exceptional quality of computational visualization
* **Commercial Potential**: Medical device applications with direct healthcare impact

**Arslan, B., Bozuyuk, U., Görgülü, K., Yildiz, E., Ozturk, H., Liotta, L., Heinemann, V., Algül, H., & Sitti, M. (2025).** Anisotropic Surface Microrollers for Endovascular Navigation: A Computational Analysis with a Case Study in Hepatic Perfusion. *Advanced Theory and Simulations*, 2400387.

* **Journal Impact Factor**: 3.016 (Wiley-VCH Advanced Science family)
* **Medical Application**: Targeted drug delivery system optimization
* **Collaboration**: Max Planck Institute sustained partnership (2022-2025)
* **Technical Contribution**: Advanced computational modeling for endovascular applications
* **Clinical Relevance**: Hepatic perfusion case study with direct medical applications

**Saruhan, E. N., Ozturk, H., Kul, D., Sevgin, B., Coban, M. N., & Pekkan, K. (2025).** Learning-enhanced 3D fiber orientation mapping in thick cardiac tissues. *Biomedical Optics Express*, 16(8), 3315-3336.

* **Journal Impact Factor**: 3.910 (Optica Publishing Group)
* **Field**: Machine learning applications in biomedical optical systems
* **Institution**: Koç University collaboration
* **Technical Innovation**: AI/ML enhancement of 3D fiber mapping techniques
* **Open Access**: Contribution accessible to global scientific community
* **Cross-Disciplinary**: Connecting ML with cardiac tissue analysis

#### International Conference Recognition

**Yorulmaz, M., Bozuyuk, U., Park, M., Arslan, B., Ozturk, H., Aghakhani, A., & Sitti, M. (2025).** Locomotion Behavior of Magnetic Microrollers in Confined Tubular Geometries Containing Shear-Thinning Fluids. *MARSS 2025*, West Lafayette, USA.

* **Conference**: International Conference on Manipulation, Automation and Robotics at Small Scales
* **Peer Review**: Competitive selection process with international review panel
* **Presentation**: Accepted for oral presentation at premier robotics conference
* **Technical Focus**: Advanced fluid-structure interaction modeling
* **International Visibility**: Platform for demonstrating technical expertise to global research community

### Editorial and Academic Recognition

#### Journal Cover Image Selection

**Advanced Intelligent Systems Cover Recognition (2023)**

* **Selection Process**: Chosen from hundreds of research submissions by editorial board
* **Editorial Criteria**: Technical excellence, visual impact, and scientific significance
* **International Visibility**: Featured on journal cover distributed globally
* **Recognition Type**: Editorial board acknowledgment beyond standard peer review
* **Technical Merit**: Computational visualization quality demonstrating advanced technical skills

#### Co-First Author Leadership Recognition

**Equal Contribution Status**

* **Academic Significance**: Co-first authorship indicates equal intellectual contribution with senior researchers
* **Research Leadership**: Independent contribution to research design, execution, and analysis
* **Peer Recognition**: Senior researchers acknowledging leadership-level contributions from early-career researcher
* **International Collaboration**: Leadership role in projects spanning multiple institutions and countries

### Research Presentations and Speaking Engagements

#### Max Planck Institute Technical Seminar (2022)

* **Audience**: 50+ researchers (PhD students, postdocs, and faculty)
* **Topic**: Computational breakthrough findings and methodology innovations
* **Institution**: Max Planck Institute for Intelligent Systems
* **Recognition**: Invited to present technical innovations to established research community
* **Impact**: Knowledge transfer accelerating research capabilities across the institute

### Technical Innovation Metrics

#### Computational Performance Breakthroughs

* **200x COMSOL Simulation Acceleration**: First researcher to successfully integrate COMSOL with high-performance computing infrastructure
* **Workflow Optimization**: Reduced simulation time from months to days for complex models
* **Infrastructure Development**: Created computational framework adopted by multiple research groups
* **Knowledge Transfer**: Enabled PhD students and researchers to achieve previously impossible results

#### Research Collaboration Impact

* **3-Year Sustained Partnership**: Continuous collaboration with Max Planck Institute (2022-2025)
* **Multi-Institutional Demand**: Active collaborations with Koç University and Imperial College London
* **Cross-Disciplinary Applications**: Research spanning medical robotics, fluid dynamics, optical systems, and automotive applications
* **Industry Interest**: Imperial College research attracting attention from major automotive companies and technology giants

### Publication Pipeline and Future Impact

#### Manuscripts in Development

* **Advanced simulation techniques**: Building on established computational innovations
* **Cross-institutional collaborations**: Leveraging established research partnerships
* **Industry-relevant applications**: Connecting academic research with commercial potential
* **Open-source contributions**: Ensuring research accessibility for global community

#### Research Trajectory Indicators

* **Consistent productivity**: Publications spanning multiple years demonstrating sustained output
* **Increasing impact**: Growing recognition through cover selections and co-authorship opportunities
* **International reach**: Collaborations across Europe, Turkey, and North America
* **Technical leadership**: Evolution from contributor to leader in computational research innovations