

Erdost Yildiz, MD PhD

Senior Lab Manager of Flow Cytometry Services

Genomics Technology Platform

Max Delbrück Center

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SUMMARY

- Biomedical scientist with expertise in neuroscience, ophthalmology, pharmacology, biomedical imaging, molecular medicine, and their integration with small-scale robotics and artificial intelligence.
- Author of 45 peer-reviewed journal publications (16 as first, co-first, or corresponding author) and developer of several image analysis software and inventor of four patents.
- Principal investigator on multiple competitively funded research projects with around € 1.75 million in funding, including the EU Marie Curie, Carl-Zeiss-Stiftung, and EXIST-FT; in addition to being the co-advisor of 15 graduate students.
- Translational neuroscience and ophthalmology researcher with 10 years of clinical research experience, with EU Function (FELASA) A, B, and D certificates for animal studies, and lab manager experience with an S2 (GenTG) / BSL-2 (WHO) project leader accreditation.

A) Education and Training

MPI for Intelligent Systems	Stuttgart, Germany	Medical Robotics	PostDoc, 2021 – 2026
Koç University	Istanbul, Turkey	Neuroscience	Ph.D., 2017 – 2021
Hacettepe University	Ankara, Turkey	Medicine	M.D., 2009 – 2016
University of Ljubljana	Ljubljana, Slovenia	Medicine	<i>Erasmus+</i> , 2015

B) Research and Professional Experience

2026 – present	Senior Lab Manager, Genomics Technology Platform, Max Delbrück Center Berlin
2024 – present	Guest Researcher, Hertie Institute for Clinical Brain Research, Tübingen
2025 – 2026	EXIST Transfer of Research Phase I Fellow, MPI for Intelligent Systems
2024 – 2025	CyberValley Innovation Postdoctoral Fellow, MPI for Intelligent Systems
2021 – 2024	Marie Skłodowska-Curie Postdoctoral Fellow, MPI for Intelligent Systems
2017 – 2021	Research & Training Graduate Assistant, Koç University, Turkey
2016 – 2017	Emergency Physician, Siirt Eruh State Hospital, Turkey

C) Awards, Grants, and Fellowships

2026 – **ForTra Funding**, Else Kröner Fresenius Foundation

2025 – **EXIST Transfer of Research Phase 1 Funding**, German Federal Ministry for Economic Affairs and Energy (BMWE)

2024 – **CyberValley Innovation Fellowship**, CyberValley GmbH & Carl-Zeiss-Stiftung

2023 – **MPG Diversity Excellence Funding**, Max Planck Society

2023 – **MAX!MIZE Start-up Phase 1 Funding**, Max Planck Innovation GmbH

2022 – **Marie Skłodowska-Curie Individual Postdoctoral Fellowship**, European Commission

2021 – **Individual Young Entrepreneurship Grant (BiGG)**, The Scientific and Technological Research Council of Turkey (TÜBİTAK)

2021 – **Academic Excellence Award**, Koç University

2019 – **Developing Country Eye Researcher Fellowship**, Association for Research in Vision and Ophthalmology (ARVO)

2019 – **Young Investigator Award**, European Association for Vision and Eye Research (EVER)

2018 – **National Outstanding Success Scholarship**, The Scientific and Technological Research Council of Turkey (TÜBİTAK)

D) Teaching and Supervision

Koç University

Undergraduate Courses as Lecturer

Semester	Course Code	Course Title	Faculty	Class
Fall 2019	MEDI110	Cellular & Molecular Basis of Medicine I	Medicine	Junior
Spring 2020	MEDI111	Cellular & Molecular Basis of Medicine II	Medicine	Junior
Fall 2020	MEDI110	Cellular & Molecular Basis of Medicine I	Medicine	Junior
Spring 2021	MEDI111	Cellular & Molecular Basis of Medicine II	Medicine	Junior

Graduate Student Supervision

1. Ayesha Gulzar, PhD, 2019 – 2025 (*currently PostDoc at Jönköping University*)
2. Hümeýra Nur Kaleli, PhD, 2020 – 2025 (*currently PostDoc at Koç University*)
3. Ghazalah Narimanfar, MSc, 2019 – 2022 (*currently PhD student at University of Bologna*)
4. Gülsüm Deniz, MSc, 2020 – 2023 (*currently PhD student at Ruhr University Bochum*)
5. Çiğdem Pehlivan, MSc, 2021 – 2024 (*currently PhD student at FAU Erlangen*)

Max Planck Institute for Intelligent Systems

Undergraduate Training Programs

1. *MAXMINDS: Mentoring for Inclusion and Diversity in Science* - Project Coordinator
2. *CaCTüs: Computation & Cognition Tübingen Summer Internship* - Project Mentor

3. *IMPRS-IS: International Max Planck Research School for Intelligent Systems* - Project Trainer
4. *Robotics Institute Germany* - Project Trainer

Graduate Student Supervision

1. Mertcan Han, PhD candidate at ETH Zürich, 2021 – present
2. Fan Wang, PhD at ETH Zürich, 2021 – 2025 (*currently PostDoc at University of Oxford*)
3. Kaan Kutay Özmen, MD, PhD at Koç University, 2021 – 2025 (*currently PostDoc at Kafkas University*)
4. Linda Werneck, PhD candidate at University of Stuttgart, 2022 – present
5. Izlen Erenoglu, PhD candidate at ETH Zürich, 2023 – present
6. Minjo Park, PhD candidate at ETH Zürich, 2023 – present
7. Serra Ersoy, MSc at Sabancı University, 2023 – 2025 (*currently Staff Scientist at Yildiz Technical University*)
8. Leo Werner, MSc candidate at University of Tübingen, 2024 – 2026
9. Emin Kilic, MSc candidate at University of Tübingen, 2024 – 2026
10. Marco Wolf, MSc candidate at University of Tübingen, 2024 – 2026

E) Publications in Peer-Reviewed Journals

(as of 7 September 2026; * indicates first co-authorship, + indicates corresponding authorship)

[Google Scholar](#) – Citations: 1379, H-index: 19

[Web of Science](#) – Citations: 1094, H-index: 18

1. Mertcan Han, **Erdost Yildiz**, Yan Yu, Leo Werner, Jelena Lazovic, Vivian Moosmann, Devin Sheehan, Emin Kilic, Martin A. Giese, Alia Benali, and Metin Sitti. Wireless cardiac pacing via injectable ultrasound-powered piezoelectric microparticles. *Nature Biomedical Engineering* (under revision), 2026.
2. Stefanie Heyden, **Erdost Yildiz**, and Michael Ortiz. Pressurized fluid-filled vesicles injected in soft materials. *Meccanica* (under revision), 2026.
3. Hannes Becker, Nihal Olcay Dogan, Surender Surender, Zeynep Erenoglu, Jil Trampert, Sarah Erdmann, Louise Maise, **Erdost Yıldız**, Musab Cagri Ugurlu, Marcos Tatagiba, Susanne Beck, Metin Sitti⁺, and Ghazaleh Tabatabai⁺. Magnetically guided immunobots in a syngeneic orthotopic glioma model modulate the glioma-associated microenvironment. *Advanced Science* (under revision), 2026.
4. Cigdem Ardic, Almila Sarigul-Sezenoz, **Erdost Yıldız**⁺, and Sirel Gur-Gungor⁺. Automated quantitative examination of macular perfusion in behcet’s uveitis on optical coherence tomography angiography images. *Current Eye Research* (under revision), 2026.
5. Linda Werneck, Mertcan Han, **Erdost Yildız**, Marc-André Keip, Metin Sitti, and Michael

- Ortiz⁺. A simple quantitative model of neuromodulation, part ii: Mechanosensitive channel gating. *Journal of the Mechanics and Physics of Solids*, page 106609, 2026.
6. Fan Wang, Xianqiang Bao, **Erdost Yıldız**⁺, Yan Yu, Xose Luis Dean-Ben, Wenbin Kang, Shuaizhong Zhang, Devin Sheehan, Ren Hao Soon, Jelena Zinnanti, Daniel Razansky⁺, and Metin Sitti⁺. Optoacoustically augmented magnetic guidewire for radiation-free minimally invasive therapies. *Science Advances*, 12(6):eaea0201, 2026.
 7. Fan Wang, **Erdost Yıldız**⁺, Xose Luis Dean-Ben, Yan Yu, Daniil Nozdriukhin, Wenbin Kang, Shuaizhong Zhang, Jelena Zinnanti, Devin Sheehan, Ren Hao Soon, Shuxin Lyu, Daniel Razansky⁺, and Metin Sitti⁺. Optoacoustic-guided magnetic microrobot platform for precision drug delivery. *Advanced Materials*, 38(5):e11870, 2026.
 8. Andrés Rodríguez-Camargo, **Erdost Yıldız**, Diego Juela, Felix Fischer, Daniel Graf, Bibhuti Rath, Christian Ochsenfeld, Matthias Bauer, Metin Sitti, Liang Yao, and Bettina V Lotsch⁺. Mixed-length multivariate covalent organic framework for combined near-infrared photodynamic therapy and drug delivery. *Journal of the American Chemical Society*, 147(37):33472–33481, 2025.
 9. **Erdost Yıldız**⁺, Ugur Bozuyuk, Eray Yildiz, Fan Wang, Mertcan Han, Alp Can Karacakol, Devin Sheehan, Yan Yu, and Metin Sitti⁺. Magnetically controllable and degradable milliscale swimmers as intraocular drug implants. *Advanced Science*, page e07569, 2025.
 10. Myungjin Park, Ugur Bozuyuk, **Erdost Yıldız**, Hyeongho Min, Jungwon Yoon, and Metin Sitti. 3d locomotion of surface-rolling microrobots: A trade-off between hydrodynamic wall and gravitational effects. *Advanced Intelligent Systems*, page 2500381, 2025.
 11. Burak Arslan, Ugur Bozuyuk, Kıvanç Görgülü, **Erdost Yıldız**, Hakancan Ozturk, Lucia Liotta, Volker Heinemann, Hana Algül, and Metin Sitti. Anisotropic surface microrollers for endovascular navigation: A computational analysis with a case study in hepatic perfusion. *Advanced Theory and Simulations*, page 2400387, 2025.
 12. Dila Atak, **Erdost Yıldız**, Esra Özkan, Mohammadreza Yousefi, Ayşe Özkan, Aysu Bilge Yılmaz, Ali Burak Kızıllırmak, Iman Asaad Alnajjar, Çiçek Kanar, Zeynep Lal Caan, Şakir Ümit Zeybek, Cem İsmail Küçükali, Erdem Tüzün, Yasemin Gürsoy-Özdemir⁺, and Atay Vural⁺. Longitudinal investigation of brain and spinal cord pericytes after inducible pdgfr β cell ablation in adult mice. *Journal of Neurochemistry*, 169(3):e70035, 2025.
 13. Dong Wook Kim*, Paul Wrede*, Hector Estrada, **Erdost Yıldız**, Jelena Lazovic, Aarushi Bhargava, Daniel Razansky⁺, and Metin Sitti⁺. Hierarchical nanostructures as acoustically manipulatable multifunctional agents in dynamic fluid flow. *Advanced Materials*, 36(50):2404514, 2024.
 14. Serra Ersoy, **Erdost Yıldız**⁺, Ziyu Ren, Mingchao Zhang, Hongchuan Zhang, Selcan Karaz, Mertcan Han, Anitha Shiva, Muhammad Yunusa, Cengiz Kaya, Bahattin Koc⁺, and Metin

- Sitti⁺. Fabrication of gold nanoflower-coated photosensitive meta-structures using pμsl 3d printing for hyperthermia applications. *ACS Applied Polymer Materials*, 6(17):10807–10823, 2024.
15. Tianlu Wang*, Yingdan Wu*, **Erdost Yıldız***, Selin Kanyas, and Metin Sitti⁺. Clinical translation of wireless soft robotic medical devices. *Nature Reviews Bioengineering*, 2: 470–485, 2024.
 16. Mertcan Han, **Erdost Yıldız**⁺, Ugur Bozuyuk, Asli Aydin, Yan Yu, Aarushi Bhargava, Selcan Karaz, and Metin Sitti⁺. Janus microparticles-based targeted and spatially-controlled piezoelectric neural stimulation via low-intensity focused ultrasound. *Nature Communications*, 15(1):2013, 2024.
 17. Ugur Bozuyuk*, Paul Wrede*, **Erdost Yıldız***, and Metin Sitti⁺. Roadmap for clinical translation of mobile microrobotics. *Advanced Materials*, 36:2311462, 2024.
 18. Paul Wrede*, Amirreza Aghakhani*, Ugur Bozuyuk, **Erdost Yıldız**, and Metin Sitti⁺. Acoustic trapping and manipulation of hollow microparticles under fluid flow using a single-lens focused ultrasound transducer. *ACS Applied Materials & Interfaces*, 2023.
 19. Linda Werneck, Mertcan Han, **Erdost Yıldız**, Marc-André Keip, Metin Sitti, and Michael Ortiz⁺. A simple quantitative model of neuromodulation, part i: Ion flow through neural ion channels. *Journal of the Mechanics and Physics of Solids*, 182:105457, 2024.
 20. Mingchao Zhang, Aniket Pal, Zhiqiang Zheng, Gaurav Gardi, **Erdost Yıldız**, and Metin Sitti⁺. Hydrogel muscles powering reconfigurable micro-metastructures with wide-spectrum programmability. *Nature Materials*, 22(10):1243–1252, 2023.
 21. Ugur Bozuyuk, **Erdost Yıldız**, Mertcan Han, Sinan Ozgun Demir, and Metin Sitti⁺. Size-dependent locomotion ability of surface microrollers on physiologically relevant microtopographical surfaces. *Small*, 19(47):2303396, 2023.
 22. Varun Sridhar*, **Erdost Yıldız***, Andrés Rodríguez-Camargo, Xianglong Lyu, Liang Yao, Paul Wrede, Amirreza Aghakhani, Birgul M Akolpoglu, Filip Podjaski, Bettina V Lotsch⁺, and Metin Sitti⁺. Designing covalent organic framework-based light-driven microswimmers towards therapeutic applications. *Advanced Materials*, 35(25):2301126, 2023.
 23. M Giray Ersöz, Mümin Hocaoglu, Işıl Sayman Muslubas, Serra Arf, **Erdost Yıldız**, and Murat Karaçorlu⁺. Artifact-removed quantitative analysis of choriocapillaris flow voids. *Turkish Journal of Ophthalmology*, 53(1):37, 2023.
 24. Cem Kesim, Sevval Nur Bektas, Zeynep Kulali, **Erdost Yıldız**, M Giray Ersoz, Afsun Sahin⁺, Cigdem Gunduz-Demir⁺, and Murat Hasanreisoglu⁺. Henle fiber layer mapping with directional optical coherence tomography. *Retina*, 42(9):1780–1787, 2022.
 25. Ren Hao Soon*, Ziyu Ren*, Wenqi Hu, Ugur Bozuyuk, **Erdost Yıldız**, Meng Li, and Metin Sitti⁺. On-demand anchoring of wireless soft miniature robots on soft surfaces. *Proceedings*

of the National Academy of Sciences, 119(34):e2207767119, 2022.

26. Tianlu Wang*, Halim Ugurlu*, Yingbo Yan, Mingtong Li, Meng Li, Anna-Maria Wild, **Erdost Yıldız**, Martina Schneider, Devin Sheehan, Wenqi Hu, and Metin Sitti⁺. Adaptive wireless millirobotic locomotion into distal vasculature. *Nature Communications*, 13(1): 4465, 2022.
27. Onuralp Karatum, **Erdost Yıldız**, Hümeysra Nur Kaleli, Afsun Sahin, Burak Ulgut, and Sedat Nizamoglu⁺. RuO₂ supercapacitor enables flexible, safe, and efficient optoelectronic neural interface. *Advanced Functional Materials*, 32(31):2109365, 2022.
28. Mertcan Han, **Erdost Yıldız**, Hümeysra Nur Kaleli, Selcan Karaz, Guncem Ozgun Eren, Itir Bakis Dogru-Yuksel, Erkan Senses, Afsun Şahin, and Sedat Nizamoglu⁺. Tissue-like optoelectronic neural interface enabled by pedot: Pss hydrogel for cardiac and neural stimulation. *Advanced Healthcare Materials*, 11(8):2102160, 2022.
29. **Erdost Yıldız**^{*,+}, Dilara Aydemir*, Noushin Zibandeh, Eda Kuşan, Koray Gümüş, Özge İlhan Saraç, Melisa Zişan Karşlıoğlu, Nurullah Çağlı, and Afsun Şahin⁺. Investigation of mitophagy biomarkers in corneal epithelium of keratoconus patients. *Current Eye Research*, 47(5):661–669, 2022.
30. Ayşe Yildiz Tas*, Burak Mergen*, **Erdost Yıldız**, Betül N Bayraktutar, Ekrem Çelik, Afsun Sahin⁺, and Ceyhan Arici⁺. Interobserver and intraobserver agreements of detection of demodex infestation by in vivo confocal microscopy. *Beyoglu Eye Journal*, 7(3):0–0, 2022.
31. Ayesha Gulzar*, **Erdost Yıldız**^{*,+}, Hümeysra N Kaleli, Muhammad A Nazeer, Noushin Zibandeh, Anjum N Malik, Ayşe Y Taş, İsmail Lazoğlu, Afsun Şahin, and Seda Kizilel⁺. Ruthenium-induced corneal collagen crosslinking under visible light. *Acta Biomaterialia*, 147:198–208, 2022.
32. Esra Özkan*, Yağmur Çetin-Taş*, Emine Şekerdağ, Ali B Kızılırmak, Ali Taş, **Erdost Yıldız**, Hale Yapıcı-Eser, Serçin Karahüseyinoğlu, Müjdat Zeybel, and Yasemin Gürsoy-Özdemir⁺. Blood–brain barrier leakage and perivascular collagen accumulation precede microvessel rarefaction and memory impairment in a chronic hypertension animal model. *Metabolic Brain Disease*, 36(8):2553–2566, 2021.
33. Ozgun Melike Gedar Totuk*, **Erdost Yıldız**^{*}, Adriano Mollica, Kerem Kabadayi, and Afsun Sahin⁺. The opioid peptide biphalin modulates human corneal epithelial wound healing in vitro. *Journal Français d’Ophtalmologie*, 44(9):1403–1412, 2021.
34. Syeda Rubab Batool, Muhammad Anwaar Nazeer, **Erdost Yıldız**, Afsun Sahin, and Seda Kizilel⁺. Chitosan-anthracene hydrogels as controlled stiffening networks. *International Journal of Biological Macromolecules*, 185:165–175, 2021.
35. Tankut Uzun, Hamdi Çaklı, Didem Turgut Coşan, Şaziye Armağan İncesulu, Ercan Kaya, İbrahim Uğur Çalış, and **Erdost Yıldız**⁺. In vitro study on immune response modifiers

- as novel medical treatment options for cholesteatoma. *International Journal of Pediatric Otorhinolaryngology*, 145:110743, 2021.
36. **Erdost Yıldız**⁺, Abdullah Taha Arslan, Ayşe Yıldız Taş, Ali Faik Acer, Sertac Demir, Afsun Şahin⁺, and Duygun Erol Barkana⁺. Generative adversarial network-based automatic segmentation of corneal subbasal nerves on in vivo confocal microscopy images. *Translational Vision Science & Technology*, 10(6):33–33, 2021.
 37. Deniz Marangoz, Cagri Oner, Martin Schicht, Didem Turgut Cosan, Friedrich Paulsen, **Erdost Yıldız**, Noushin Zibandeh, and Afsun Sahin⁺. The effect of androgens on proinflammatory cytokine secretion from human ocular surface epithelial cells. *Ocular Immunology and Inflammation*, 29(3):546–554, 2021.
 38. Mertcan Han*, Houman Bahmani Jalali*, **Erdost Yıldız**, Mohammad Haroon Qureshi, Afsun Şahin, and Sedat Nizamoglu⁺. Photovoltaic neurointerface based on aluminum antimonide nanocrystals. *Communications Materials*, 2(1):19, 2021.
 39. Onuralp Karatum*, Mohammad Mohammadi Aria*, Guncem Ozgun Eren, **Erdost Yıldız**, Rustamzhon Melikov, Shashi Bhushan Srivastava, Saliha Surme, Itir Bakis Dogru, Houman Bahmani Jalali, Burak Ulgut, Afsun Sahin, Ibrahim Halil Kavakli, and Sedat Nizamoglu⁺. Nanoengineering in quantum dot-based photoactive biointerfaces for optical control of neurons. *Frontiers in Neuroscience*, 15:652608, 2021.
 40. Shashi Bhushan Srivastava*, Rustamzhon Melikov*, **Erdost Yıldız**, Ugur Meric Dikbas, Sadra Sadeghi, Ibrahim Halil Kavakli, Afsun Sahin, and Sedat Nizamoglu⁺. Bulk-heterojunction photocapacitors with high open-circuit voltage for low light intensity photostimulation of neurons. *Journal of Materials Chemistry C*, 9(5):1755–1763, 2021.
 41. Shashi Bhushan Srivastava*, Rustamzhon Melikov*, **Erdost Yıldız**, Mertcan Han, Afsun Sahin, and Sedat Nizamoglu⁺. Efficient photocapacitors via ternary hybrid photovoltaic optimization for photostimulation of neurons. *Biomedical Optics Express*, 11(9):5237–5248, 2020.
 42. Mertcan Han*, Shashi Bhushan Srivastava*, **Erdost Yıldız**, Rustamzhon Melikov, Saliha Surme, Itir Bakis Dogru-Yuksel, Ibrahim Halil Kavakli, Afsun Sahin, and Sedat Nizamoglu⁺. Organic photovoltaic pseudocapacitors for neurostimulation. *ACS Applied Materials & Interfaces*, 12(38):42997–43008, 2020.
 43. Noushin Zibandeh*, **Erdost Yıldız***, Berna Özer, Ayse Yildiz Tas, and Afsun Sahin⁺. Androgen suppresses hyperosmolarity-induced inflammatory mediators in human corneal epithelial cells. *Cornea*, 39(7):886–891, 2020.
 44. **Erdost Yıldız**⁺, Noushin Zibandeh, Berna Özer, and Afsun Şahin. Effects of type 2 diabetes mellitus on gene expressions of mouse meibomian glands. *Current Eye Research*, 45(1):72–80, 2020.

45. Houman Bahmani Jalali, Onuralp Karatum, Rustamzhon Melikov, Ugur Meric Dikbas, Sadra Sadeghi, **Erdost Yıldız**, Itir Bakis Dogru, Guncem Ozgun Eren, Cagla Ergun, Afsun Sahin, Ibrahim Halil Kavakli, and Sedat Nizamoglu⁺. Biocompatible quantum funnels for neural photostimulation. *Nano Letters*, 19(9):5975–5981, 2019.

F) Conference Proceedings Fully Reviewed Prior to Publication

1. Hannes Becker, Nihal Olcay Dogan, Surender Surender, Zeynep Izlen Erenoglu, Jil Trampert, Sarah Erdmann, Louise Maise, **Erdost Yıldız**, Musab Cagri Ugurlu, Marcos Tatagiba, Metin Sitti, and Ghazaleh Tabataba. Magnetic navigation of immunobots to orthotopic experimental glioma modulates the glioma-associated microenvironment. *Meeting of the European Association of Neuro-Oncology*, 27(S3):iii44–iii45, 2025.
2. **Erdost Yıldız**⁺, Ugur Bozuyuk, Gulsen Aybar Tural, Mehmet Efe Tiryaki, Muhammad Turab Ali Khan, Mertcan Han, Anitha Shiva, Abdon Pena-Francesch, and Metin Sitti⁺. Digital light processing 3d printing method for magnetically controllable intraocular dexamethasone implants. *Association for Research in Vision and Ophthalmology (ARVO) Annual Meeting*, 65(7):3980–3980, 2024.
3. **Erdost Yıldız**, Mertcan Han, Linda Werneck, Marc-André Keip⁺, Metin Sitti⁺, and Michael Ortiz⁺. Experimental model for strain-induced mechanical neurostimulation on human progenitor neurons. *Federation of European Neuroscience Schools (FENS) Forum*, 2024.
4. Laura Kondrataviciute, Minesh Kapadia, Jimmy George, Hien Chau, **Erdost Yıldız**, Taufik Valiante, Luka Milosevic, Lorraine V. Kalia, and Suneil K. Kalia⁺. Depressive-like phenotype induced by aav-mediated overexpression of human α -synuclein in midbrain dopaminergic neurons. *Federation of European Neuroscience Schools (FENS) Forum*, 2024.
5. **Erdost Yıldız**^{*}, Varun Sridhar^{*}, Andrés Rodríguez-Camargo, Xianglong Lyu, Liang Yao, Paul Wrede, Amirreza Aghakhani, Birgül Mükrim Akolpoglu, Filip M Podjaski, Bettina V Lotsch⁺, and Metin Sitti⁺. Designing covalent organic framework-based light-driven microswimmers towards intraocular theranostic applications. *Association for Research in Vision and Ophthalmology (ARVO) Annual Meeting*, 64(8):5025–5025, 2023.
6. **Erdost Yıldız**^{*,+}, Ayesha Gulzar^{*}, Hümeysra Nur Kaleli, Muhammad Anwaar Nazeer, Noushin Zibandeh, Anjum Naeem Malik, Ayse Yildiz Tas, Ismail Lazoglu, Afsun Sahin⁺, and Seda Kizilel⁺. Ruthenium-induced corneal collagen crosslinking under visible light. *Association for Research in Vision and Ophthalmology (ARVO) Annual Meeting*, 63(7):2401–A0204, 2022.
7. Cem Kesim^{*}, Mertcan Han^{*}, **Erdost Yıldız**^{*}, Houman Bahmani Jalali, Mohammad Haroon Qureshi, Murat Hasanreisoglu, Sedat Nizamoglu⁺, and Afsun Sahin⁺. Biocompatibility and neural stimulation capacity of aluminum antimonide nanocrystals biointerfaces for use in

artificial vision. *Association for Research in Vision and Ophthalmology (ARVO) Annual Meeting*, 62(8):3217–3217, 2021.

8. **Erdost Yıldız**, Muhammad Anwaar Nazeer, Betül Bayraktutar, Noushin Zibandeh, Seda Kizilel, and Afsun Sahin⁺. Novel corneal crosslinking technique with eosin-y and visible light. *European Vision and Eye Research (EVER) Congress*, 97, 2019.
9. **Erdost Yıldız**, Ozgun Melik Gedar Totuk, Adriano Mollica, Kerem Kabadayi, and Afsun Sahin⁺. Effects of μ -opioid receptor agonists on wound healing of corneal epithelium. *Association for Research in Vision and Ophthalmology (ARVO) Annual Meeting*, 60(9): 3216–3216, 2019.
10. Berna Ozer, **Erdost Yıldız**, and Afsun Sahin⁺. The effect of estrogen and dihydrotestosterone on hyperosmolarity-induced expression and production of il-1 beta, tnf-alpha and il-8 through mapk pathway in human corneal epithelial cells. *European Vision and Eye Research (EVER) Congress*, 96:91–92, 2018.
11. **Erdost Yıldız**, Berna Ozer, Ozgun Melike Gedar Totuk, Adriano Mollica, and Afsun Sahin⁺. Effect of biphalin on corneal epithelial wound healing. *European Vision and Eye Research (EVER) Congress*, 96:141–141, 2018.

G) PhD Thesis

1. **Erdost Yıldız**. *Retinal and neural stimulation with quantum dots based photovoltaic interfaces*. PhD thesis, **Koç University**, Istanbul, TR, 2021. [Open Access Link](#).

H) Patents

1. *A method and a pharmaceutical composition for visible light-induced corneal crosslinking with ruthenium compounds for the treatment of eye disorders*. S. Kızılel, A. Sahin, A. Yıldız-Tas, M. A. Nazeer, A. Gulzar, & **E. Yıldız**. Application Date: 7 September 2022. Patent No: WO2024054165A1
2. *Janus microparticles having piezoelectric and magnetic properties*. M. Han, **E. Yıldız**, U. Bozuyuk, & M. Sitti. Application Date: 16 February 2024. Patent No: EPO.24158087.7
3. *Sorting method using actively controlled magnetic microparticles*. U. Bozuyuk, A. Karacakol, **E. Yıldız**. Application Date: 18 March 2025. PCT No: PCT/EP2025/057422
4. *Magnetic Actuation Device*. U. Bozuyuk, A. Karacakol, **E. Yıldız**. Application Date: 23 June 2026. Patent No: EP26187061.2

I) Invited Talks and Lectures

1. *Bio-inspired small-scale robotics as a research toolbox for cellular biophysics*, University of Kiel, 6 May 2025

2. *Microscale Magnetic Robots as Research Tools for Cellular Functions and Interactions*, University of Stuttgart, 5 December 2024
3. *Micro- and Nanorobotics*, Bionic Intelligence for Healthcare Lecture, University of Tübingen, 18 July 2024
4. *Microscale Robotics as a Research Tool for Cellular Biophysics*, Thermo Fisher Discovery and Impact Symposium, University of Oregon, Eugene, OR, 3 May 2024
5. *Introduction to Medical Image Analysis, IMPRS-IS Bootcamp*, Tübingen AI Research Center, University of Tübingen, 15 September 2023

J) Software Licenses

- [PEMPS](#): Automatic Cell Counter and Branch Analyser, 2023
- [PHOTODOCTOR](#): Photodynamic Ocular Drug Delivery System with Optical Coherence Tomography Oriented Microscale Robots, 2022
- [Pericyte Counter](#): Automatic Pericyte Cell Counter in Brain Tissue Slides, 2021
- [OCTOPUS](#): Automatic Foveal Avascular Zone and Perfused Vessel Density Calculator, 2021
- [OCRA](#): Automatic Non-Perfused Choriocapillaris Area Calculator for OCT-A Images, 2021

K) Professional Skills

- **Design and Handling of Animal Experiments (EU Function [previously FELASA] A, B, and D Certificates)**: Hands-on Experience in Study Design, Caretaking, and Handling of Mice, Rats, Rabbits, Chickens, Pigs, and Zebrafish as Experimental Animal Models
- **In Vivo Electrophysiology Methods**: Local Field Potential (LFP) and Single Unit Electrophysiology, Electroencephalography, Visual Evoked Potential Recordings, Electroretinography
- **Biomedical Imaging Techniques**: Ultrasound Imaging, Optoacoustic Imaging, Magnetic Resonance Imaging (Rodent, 7 Tesla), In Vivo Confocal Microscopy, Optic Coherence Tomography, Fluorescein Angiography, and Color Fundus Photography
- **Animal Behavioral Measurements**: Anxiety, Depression, Object Recognition, and Locomotor Activity Tests; Open Field Test, Dark Light Room, Rotarod, Barnes, and Morris Water Mazes
- **Tissue Processing & Clearing Techniques**: Cryo- & Paraffin Sectioning, CLARITY, 3DISCO & iDISCO Clearing Methods
- **Cell Culture Techniques (S1 and S2 Project Leader according to GenTG)**: Primary Neuron, Astrocyte, Microglia, Pericyte, Fibroblast, Epithelia, Myocyte, Macrophage Differentiation, Culturing, and Isolation Methods
- **3D Printing & Tissue Engineering Methods**: SLA & DLP 3D Printing, NanoScribe, 3D Bioprinting, Organ-on-a-chip, Microfluidic Setup Design, and Brain Organoid Production
- **In Vitro Electrophysiology Methods**: Single Ion Channel, Whole Cell, & Tissue Patch-Clamp and Multielectrode Array (MEA) Recordings

- **Cellular and Molecular Imaging:** Immunofluorescence, Immunohistochemistry, Live–Cell Imaging, STED, Confocal, Two-Photon, and Light Sheet Microscopy, Scanning and Transmission Electron Microscopy Sample Preparation
- **Molecular Biology Techniques:** Polymerase Chain Reaction (PCR, qPCR, and RT-PCR), Western Blotting, Magnetic- and Fluorescence-activated cell sorting, CRISPR-Cas9, Sequence Alignment Tools (BLAST, Clustal), Lipid Transfection, Viral Transduction, Agarose and SDS-PAGE Gel Electrophoresis, Microarray Analysis, ELISA, and Spectrophotometric Assays
- **Pharmaceutical Analysis Techniques:** High-Performance Liquid Chromatography (HPLC), UV-visible Spectrophotometry, Capillary Electrophoresis (CE), and Fourier Transform Infrared Spectroscopy (FTIR)
- **Nanoparticle Fabrication, Functionalization, and Bioconjugation Methods:** Sol-gel, Microemulsion, and Hydrothermal Syntheses; Physical and Chemical Vapor Deposition, PEGylation, Silanization, and Antibody Bioconjugation Methods, including Click Chemistry, Carbodiimide, and Hydrazide Reactions
- **Material Characterization Methods:** Atomic Force Microscopy, Dynamic Mechanical Analyses with Hybrid Rheometer, Tensile Stress Test, Dynamic Light Scattering (DLS), and Vibrating Sample Magnetometer (VSM)
- **Programming Languages, Software, and Simulation Environments:** Python (NumPy, SciPy, Keras, PyTorch & TensorFlow for Machine Learning & AI applications), MATLAB, COMSOL, SOLIDWORKS, NEURON, R, LaTeX, Blender, Arduino, GraphPad Prism, Origin, SPSS, Excel

L) Grants and Fundings Awarded to Date

- **ForTra Funding by Else Kröner Fresenius Stiftung** for microrobotic cellular immunophenotyping platform development. **Budget: € 64 500**, Project No: 2025-EKTP35
- **EXIST Transfer of Research Funding by BMWF** as CELLnROLL Start-up team for development of microrobotic cancer diagnostics. **Budget: € 870 000**, Project No: 03EFBW0313
- **CyberValley Innovation Fellowship by Carl-Zeiss-Stiftung** as CELLnROLL Start-up team for development of microrobotic cancer detection kits. **Budget: € 500 000**
- **EU Marie Skłodowska-Curie Individual Fellowship** for Photodynamic Ocular Drug Delivery System with Optical Coherence Tomography Oriented Microscale Robots. **Budget: € 180 000**, Project No: 101059593 (PHOTODOCTOR)
- **MAX!MIZE Start-up Phase 1 Funding** as CELLnROLL Start-up team to build a microrobotic-based biophysical and functional cell analyzer. **Budget: € 50 000 + € 80 000**
- **MPG Diversity Excellence Funding** for MAXMINDS: Mentoring for Inclusion and Diversity in Science Project. **Budget: € 40 000**
- **TÜBİTAK Individual Young Entrepreneurship Grant** for developing a visible light-based

corneal crosslinking system. **Budget: approx. € 30 000**

- **TÜBİTAK 1002 Research Grant** on The Role of Exosome Therapy in All-Trans Retinal-Associated Retinal Pigment Epithelium Damage. **Budget: approx. € 10 000**, Project No: 220S667
- **TÜBİTAK 1002 Research Grant** for investigation of the Immunomodulatory Effects of Limbal Mesenchymal Stem Cells Stimulated with IFN- γ and IL-17A. **Budget: approx. € 10 000**, Project No: 119S994

M) Industrial Collaborations

Research & Development Projects

2021 – 2026	CELLnROLL, Germany	Microrobotic Diagnostic Device Production
2019 – 2021	GlakoLens, Turkey	Noninvasive Intraocular Pressure Tracking
2019 – 2020	Liba Ilac, Turkey	Transcorneal Drug Delivery System
2018 – 2021	Techy Bilisim, Turkey	In Vivo Corneal Microscopy Software

Medical Consultancy

2026 – present	BioMed X, USA	Novel Biomaterials for Ocular Therapeutic Applications
2020 – 2023	OIRRC, USA	OCT Image Analysis & Software Development
2018 – 2020	GlaucoT, Turkey	Therapeutic Device for Intraocular Pressure Increase

N) Languages

English – C2 (Proficient), German – B2 (Upper Intermediate), French – A1 (Beginner),
Persian – A1 (Beginner), Turkish – C2 (Native)

O) Society Involvements

2024 – present	Ethics, Data Privacy and Security Committee Implantable Brain-Computer Interface Collaborative Community (iBCI-CC)
2023 – 2026	Global Members Committee The Association for Research in Vision and Ophthalmology (ARVO)
2023 – 2024	Associated Scientist International Max Planck Research Schools (IMPRS)
2022 – 2024	Institutional Postdoc Representative Max Planck Society Postdoctoral Network
2022 – 2023	Mentor in Developing Country Eye Researcher Fellowship The Association for Research in Vision and Ophthalmology (ARVO)

P) Editorial Roles on Scientific Journals

Reviewer: Science Robotics, Science Advances, Nature Communications, Frontiers in Neuroscience, Journal of Neural Engineering, Progress in Biomedical Engineering, Investigative Ophthalmology and Visual Science (IOVS), Translational Vision Science and Technology (TVST), ACS Applied Materials and Interfaces, Expert Opinion on Drug Discovery, Human Cell, International Ophthalmology, Neuro-Ophthalmology.

Q) References

The contact information of references will be given upon a reasonable request.

- **Prof. Dr. Metin Sitti** – President of Koc University, Professor in School of Engineering and School of Medicine, Koc University, Istanbul, Turkey – *PostDoc Advisor*
- **Prof. Dr. Martin A. Giese** – Head of the Computational Sensomotorics Section, University of Tübingen, Tübingen, Germany
- **Prof. Dr. Bettina V. Lotsch** – Director of Nanochemistry Department at Max Planck Institute for Solid State Research, Stuttgart, Germany
- **Prof. Dr. Michael Ortiz** – Professor Emeritus of Aeronautics and Mechanical Engineering, California Institute of Technology, CA, USA
- **Prof. Dr. Daniel Razansky** – Professor at Department of Information Technology and Electrical Engineering, ETH Zürich, Zürich, Switzerland
- **Prof. Dr. Ghazaleh Tabatabai** – Head of the Center for Neurology, University of Tübingen, Tübingen, Germany
- **Jun. Prof. Dr. Amirreza Aghakhani** – Professor at Institute of Biomaterials and Biomolecular Systems, University of Stuttgart, Stuttgart, Germany
- **Prof. Dr. Duygun Erol Barkana** – Professor at Electrical and Electronic Engineering Department, Yeditepe University, Istanbul, Turkey
- **Prof. Dr. Yasemin Gursoy Ozdemir** – Head of the Neurology Department, Koc University, Istanbul, Turkey – *PhD Co-advisor*
- **Prof. Dr. Afsun Sahin** – Head of the Ophthalmology Department, Koc University, Istanbul, Turkey – *PhD Co-advisor*
- **Prof. Dr. Sedat Nizamoglu** – Professor at Electrical and Electronic Engineering Department, Koc University, Istanbul, Turkey
- **Prof. Dr. Yildirim Sara** – Professor at Pharmacology Department, Hacettepe University, Ankara, Turkey