Stanford

Hulya Torun

Postdoctoral Scholar, Neurology and Neurological Sciences

Bio

BIO

Hulya Torun is a postdoctoral fellow at Stanford Neurology and Neurological Sciences, continuing her specialization in Biomedical Sciences and Engineering. Her focus involves brain aging & neurodegeneration and diagnostic technologies for the accurate detection of brain tumors and diseases. Hulya is dedicated to making significant contributions to medicine through translational research using engineering techniques and artificial intelligence. Notably, she has been selected as Stanford Representative for a Pediatric Brain Tumor Fellowship Application, a finalist for the Stanford Biodesign MEDTech Spectrum Grant, and the recipient of the Stanford Cancer Institute Mikitani Cancer Research Grant as a Co-PI, OPTICA Zuegel Scholarship, ISEV 2024 International Researcher Award, 1st place in KUIMPACT 2023 Patent Competition, SNO 2023 International Outreach Scholar Award, 3rd place in KUIMPACT 2021 Patent Competition, and SPIE Student Travel Grant, underscoring her commitment to impactful translational research through innovation.

Beyond her academic pursuits, Hulya actively engages in mentorship programs, notably serving as a mentor in the Stanford Canary CREST Program, supported by the National Cancer Institute (NCI), where she guides undergraduate students from diverse backgrounds. Additionally, she holds the esteemed position of President of Stanford Optical Society after her former position as the Co-Chair of the Stanford University Photonics Retreat (SUPR 2024), showcasing her leadership capabilities within the academic community. Her multidimensional engagement, strong research acumen, and dedication to advancing healthcare technology underscore her potential as a future leader in the realm of neuroengineering. Outside of her research endeavors, Hulya is an avid participant in professional extracurricular activities such as dancing and volleyball, reflecting her well-rounded approach to personal and professional development.

HONORS AND AWARDS

- Manuscript Excellence Award for "Rapid Nanoplasmonic-Enhanced Detection of SARS-CoV-2 and Variants", Science Partner Journals (SPJ) - Advanced Devices & Instrumentation (2025)
- Pathways Enrichment Grant, Stanford Wu Tsai Neurosciences Institute (2025)
- Stanford University Community Impact Award - Postdoc Champion, Stanford University Office of Postdoctoral Affairs (2025)
- Woman in Optics 2026, SPIE, the international society for optics and photonics (2025)
- 2224 - Travel Grant Program for Participation of Scientific Meetings Abroad, TUBITAK (The Scientific and Technological Research Council of Turkiye) (2024)
- Biosciences Student Travel Grant, Stanford Office of Graduate Education (OGE) (2024)
- International Researcher Scholar Award (Research Excellence), International Society of Extracellular Vesicles (ISEV 2024 Annual Meeting) (2024)
- KUIMPACT 2023 Patent Competition Award, 1st Place, Koç University (2024)
- Mikitani Cancer Research Grant, Co-PI, Stanford Cancer Institute (2024)

- Pathways to Neurosciences, Stanford Wu Tsai Neurosciences Institute (2024)
- Student Leadership Award, Frontiers in Optics, OPTICA (2024)
- Travel Grant, Koç University Graduate School of Health Sciences (2024)
- Zuegel Scholarship, Siegman School of Lasers, OPTICA (2024)
- International Outreach Student Scholarship Award, Society for NeuroOncology (SNO) (2023)
- Stanford Biodesign MEDTech Spectrum Grant, Finalist, Stanford Biodesign, Stanford University (2023)
- KUIMPACT 2021 Patent Competition Award, 3rd Place, Koç University (2022)
- SPIE Student Travel Grant, Photonics West BIOS, SPIE, the international society for optics and photonics (2022)
- Graduate Student Fellowship, Koç University Graduate School of Health Sciences (2021)
- Best Poster Presentation Award, Research Days, Koç University School of Medicine (2019)
- Erasmus+ Traineeship Award (Charité – Universitätsmedizin Berlin, European Commission of Education, Audiovisual, and Culture Executive Agency (EACEA) (2018)
- Erasmus+ Exchange Study Scholarship Award (Technische Universitaet Berlin), European Commission of Education, Audiovisual, and Culture Executive Agency (EACEA) (2016)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- President, Stanford Optical Society (2024 - 2025)
- Co-Chair, Stanford University Photonics Retreat (SUPR) 2024 Committee, Stanford Optical Society (2023 - 2024)
- Board Member, Koç University Quality Board (2021 - 2022)
- Executive Board Committee Member, Koç University Student Council (2020 - 2022)
- President/Graduate Student Representative, Koç University Graduate Student Council (2020 - 2022)
- Student Representative, Koç University Graduate School of Sciences & Engineering (2020 - 2022)
- Student Representative, Koç University Biomedical Sciences & Engineering Graduate Program (2020 - 2022)
- Student Representative, Yildiz Technical University, Department of Bioengineering (2013 - 2017)

PROFESSIONAL EDUCATION

- Postdoctoral Fellow, Stanford Wu Tsai Neuroscience Institute - Knight Initiative for Brain Resilience , Brain Aging and Resilience (2024)
- Postdoctoral Fellow, Stanford Neurology and Neurological Sciences (Tony Wyss-Coray Lab) , Brain Aging and Resilience (2024)
- PhD, VSR, Stanford University , Radiology (2024)
- PhD, Koç University , Biomedical Sciences & Engineering (2024)
- MS, Koç University , Biomedical Sciences & Engineering (2021)
- MS, VSR, UCSF , Neuropathology (2019)
- BS, Yildiz Technical University , Bioengineering (2017)
- Erasmus, Technical University of Berlin , Biotechnology (2016)

STANFORD ADVISORS

- Tony Wyss-Coray, Postdoctoral Faculty Sponsor

Publications

PUBLICATIONS

- **SHINE: SERS-based Hepatotoxicity detection using Inference from Nanoscale Extracellular vesicle content.** *bioRxiv : the preprint server for biology*
  Parlatan, U., Boudreau, L., Torun, H., Fan, L., Aygun, U., Gokaltun, A. A., Akin, D., Usta, O. B., Demirci, U.

2025

- **Innovative Diagnostic Approaches in Glioblastoma: The Role of Raman Spectroscopy and Liquid Biopsy** *Glioblastoma - New Solutions for Brain Cancerogenesis*
  Torun, H., Solaroglu, I.
  InTech.2025
- **A liquid biopsy approach: Neural networks-based identification of brain tumor exosomes via their SERS signatures** *ISEV 2024 Annual Meeting (International Society of Extracellular Vesicles)*
  Torun, H.
  2024: 284/451
- **Label-Free Identification of Exosomes using Raman Spectroscopy and Machine Learning.** *Small (Weinheim an der Bergstrasse, Germany)*
  Parlatan, U., Ozen, M. O., Kecoglu, I., Koyuncu, B., Torun, H., Khalafkhany, D., Loc, I., Ogut, M. G., Inci, F., Akin, D., Solaroglu, I., Ozoren, N., Unlu, et al
  2023: e2205519
- **Rapid Nanoplasmonic-Enhanced Detection of SARS-CoV-2 and Variants on DNA Aptamer Metasurfaces** *Advanced Devices & Instrumentation*
  Torun, H., et al
  2023; 4
- **Microfluidic contact lenses for ocular diagnostics and drug delivery** *NANO SELECT*
  Torun, H., Fazla, B., Arman, S., Ozdalgic, B., Yetisen, A. K., Tasoglu, S.
  2023; 4 (1): 79-89
- **Clinical Validation of SERS Metasurface SARS-CoV-2 Biosensor**
  Bilgin, B., Torun, H., Ilgu, M., Yanik, C., Batur, N., Celik, S., Ozturk, M., Dogan, O., Ergonul, O., Solaroglu, I., Can, F., Onbasli, M.
  edited by Huang, Z.
  SPIE-INT SOC OPTICAL ENGINEERING.2022
- **Machine Learning-Based Approach to Identify Formalin-Fixed Paraffin-Embedded Glioblastoma and Healthy Brain Tissues**
  Torun, H., Batur, N., Bilgin, B., Esengur, O., Baysal, K., Kulac, I., Solaroglu, I., Onbasli, M.
  edited by Campagnola, P. J., Maitland, K. C., Roblyer, D. M.
  SPIE-INT SOC OPTICAL ENGINEERING.2022
- **Genetic Algorithm-Driven Surface-Enhanced Raman Spectroscopy Substrate Optimization.** *Nanomaterials (Basel, Switzerland)*
  Bilgin, B., Yanik, C., Torun, H., Onbasli, M. C.
  2021; 11 (11)
- **Machine learning detects SARS-CoV-2 and variants rapidly on DNA aptamer metasurfaces** *medRxiv*
  Torun, H., et al
  2021
- **Raman Spectroscopic and Microscopic Analysis of Tissue Type, Molecular Composition, and Glioblastoma Identification in Brain Tissue Sections**
  Torun, H.
  Koc University Graduate School of Science & Engineering.2021
- **Optimization of brain tissue section preparation and raman spectroscopy measurement protocols**
  Torun, H.
  2020