

# Yunus Terzioglu, CV

## Research Vision |

My research focus is on *transfer* and *meta-learning* with the overarching goal of effective *robot learning from demonstrations*, enabling robots to *adapt* to complex tasks much more efficiently. My line of work draws its original inspiration from the schemas in Piaget's cognitive development theory in *lifelong learning* settings. In the future, I am aiming to extend my transfer learning methodology and merge it with the *human-robot interaction* and *collaboration* practices, effectively addressing some of many problems the field of *social robotics* currently suffers from regarding *robot deployment*.

---

## Education

- 2019 -** Northeastern University, Ph.D. Candidate in Khoury College of Computer Sciences
- Ongoing research on Deep Reinforcement Learning and Human-Robot Interaction
  - GPA: 4.0 / 4.0
  - Advisor / Co-advisors: Robert Platt / Lawson Wong, Timothy Bickmore
- 2017 - 2019** Middle East Technical University (METU), Ph.D. Studies in Computer Engineering Department – Continued Ph.D. studies in the USA
- Research on Human-Robot Interaction/Collaboration
  - GPA: 3.75 / 4.0
  - Advisor: Erol Şahin
- 2015 - 2017** Middle East Technical University (METU), Ph.D. Candidate in Electrical and Electronics Engineering – Dropped at own will to change research field
- Intended to focus on Control Strategies for Robotic Systems
  - GPA: - / 4.0
  - Advisor: Tayfun Akın
- 2012 -2015** Middle East Technical University (METU), M.S. in Electrical and Electronics Engineering
- Thesis: [High Performance Closed-Loop Analog Readout Circuit for Capacitive MEMS Accelerometers](#)
  - GPA: 3.57 / 4.0
  - Advisor: Tayfun Akın
- 2007 -2012** Middle East Technical University (METU), B.S. in Electrical and Electronics Engineering
- GPA: 2.93 / 4.0

---

## Research Experience

- 2019 –** PhD Researcher Robotics, Northeastern University Khoury College of Computer Sciences
- Reinforcement Learning
  - Human-Robot Interaction
  - Transfer Learning

**2016 – 2019 PhD Researcher** Robotics, METU-EEE, METU-CENG, METU Kovan Lab.

- Human-Robot Interaction
- Human-Robot Collaboration
- User Studies and Statistical Methods
- Deep Learning
- Developmental Psychology

**2016 Visiting Researcher** (Sep. to Dec.), MIT-LIDS, Sertac Karaman's Group

- Navigation, Autonomous Drones, Agile Flight

**2012 – 2015 Masters' Research**, Inertial Measurement Systems, METU-EEE, METU-MEMS

- Micromechanical accelerometer and closed-loop capacitive readout circuit design
- Automation of the characterization test setups for micro-accelerometers
- Measurement-based post-fabrication characterization of capacitive micro-sensors
- Digital signal processing, PCB design

---

## Work Experience

**2019 Technical Consultant**, Proven Information Technologies Co. Ltd. (6 Months)

- Robotic test systems R&D

**2019 Technical Consultant**, Levitate Stage Innovations (1 Month)

- Drone systems design

**2017 - 2019 Researcher**, METU Kovan Research Laboratory

- Safe Human-Robot Collaboration on the Factory Floor
- Collaborative Furniture Assembly

**2012 - 2016 Scientific Project Expert**, METU-MEMS Research and Applications Center, Inertial Measurement Units Group - Ankara

- High Performance Closed-Loop Accelerometers

**2012 Part Time Engineer**, ASELSAN, Microelectronics Group – Ankara

- Embedded Test and Characterization Systems Design

**2011 Intern**, ASELSAN, Microelectronics Group – Ankara

- Embedded Test and Characterization Systems Design

**2010 Intern**, Czech Technical University – Prague

- Development of Procedures for Measuring the Shielding Efficiency of Carbon-Composite Textiles

---

## Teaching Experience

**2020** CS5100 Foundations of Artificial Intelligence, Teaching Assistant, Northeastern University

**2017** CENG585 Fundamentals of Autonomous Robotics, MATLAB Crash Course, METU-CENG

**2013** EE617 Principles of Analog VLSI Design, Lab Assistant, METU-EEE

---

## Academic Publications

- 2020** Y. Terzioglu, Bilge Mutlu, and Erol Şahin. Designing Social Cues for Collaborative Robots: The Role of Gaze and Breathing in Human-Robot Collaboration. *In Proceedings of the 2020 ACM/IEEE International Conference on Human-Robot Interaction (HRI)*, March 2020.
- 2018** R. T. Sayre-McCord, W. Guerra, A. Antonini, J. Arneberg, A. Brown, G. Cavalheiro, Y. Fang, A. Gorodetsky, D. McCoy, S. Quilter, F. Riether, E. Tal, Y. Terzioglu, L. Carlone, and S. Karaman. Visual-inertial navigation algorithm development using photorealistic camera simulation in the loop. In *IEEE Intl. Conf. on Robotics and Automation (ICRA)*, May 2018.  
**Featured on MIT Tech News:** [Link](#)
- 2018** F. C. Kurnaz, Y. Terzioglu, S. Buyukgoz, E. Sahin, ROS Tabanlı Bagimsiz Guvenlik Bekcisi Modulu (A ROS-Based Standalone Security Watchdog Module), Turkiye Robotbilim Konferansi (ToRK) (National Conference on Robotics), Istanbul, Turkey, April 2018.
- 2016** T. Kose, Y. Terzioglu, K. Azgin, and T. Akin, “A Single-Mass Self-Resonating Closed-Loop Capacitive MEMS Accelerometer,” *IEEE Sensors Conference*, pp. 1-3, Orlando, FL, USA, October 2016.
- 2016** A. Aydemir, Y. Terzioglu, and T. Akin, “A New Design and a Fabrication Approach to Realize a High Performance Three Axes Capacitive MEMS Accelerometer,” *Sensors and Actuators A*, April 2016.
- 2015** Y. Terzioglu, T. Kose, K. Azgin, and T. Akin, “A Simple Out-of-Plane Capacitive MEMS Accelerometer Utilizing Lateral and Vertical Electrodes for Differential Sensing,” *IEEE Sensors Conference*, pp. 525-527, Busan, South Korea, November 1-4, 2015.
- 2015** T. Kose, Y. Terzioglu, K. Azgin, and T. Akin, “A Single Mass Two-Axis Capacitive MEMS Accelerometer with Force Rebalance,” *2015 IEEE Int'l Symposium on Inertial Sensors & Systems (ISISS 2015)*, pp. 1-4, Hapuna Beach, HI, USA, March 23-26 2015.
- 2014** Y. Terzioglu, S.E. Alper, K. Azgin, T. Akin, “A capacitive MEMS Accelerometer Readout with Concurrent Detection and Feedback using Discrete Components”, in *IEEE PLANS*, April, 2014.
- 2010** Y. Terzioglu, “Scalar Measurement of Electromagnetic Shielding Efficiency of Carbon Textiles”, in *Knowledge in Telecommunication Technologies and Optics (KTTO)*, December 2010.

---

## Selected Academic Projects

- 2020** User studies on the effect of sub-optimal behavior on HRI (w/ Dr. Tim Bickmore)
- 2018 – 2019** User studies on human-robot interaction (**Published on HRI 2020**)
- 2018** Collaboration Security Watchdog: A standalone ROS-based security watchdog which runs on Raspberry Pi to monitor and secure the human-robot collaboration. (**Published on ToRK 2018**)
- 2017 – 2019** Funded TUBITAK Project: Designing and developing an assistive/collaborative robotic system to work on factory floor in close proximity to humans
- 2015** Design and Implementation of a  $5.5 \mu\text{g}/\sqrt{\text{Hz}}$  Closed-Loop MEMS Accelerometer, Master's Thesis Project, Advisor: Tayfun Akin

- 2015** Implementation of Path-Planning Algorithms within the Curriculum, Course: Robot Motion Planning and Control, taught by Uluc Saranlı
- 2011 – 2012** An Autonomous Robot that Can Climb a Vertical Wall, Undergraduate Thesis Project, *Best design project award*
- 2012** Designed a 0.6u CMOS rail-to-rail Band-Gap Reference IC with bias stability, Course: Analog Integrated Circuits, taught by Haluk Kulah
- 2011** Designed a 0.6u CMOS Phase Locked Loop locked at 10MHz, Course: Digital Integrated Circuits, taught by Tayfun Akin

## ———— Honors / Awards

- 2018** Invited Speaker at Symposium on Human-Robot Interaction at Middle East Technical University Informatics Institute (December 13)
- 2017** European Robotics Week host at Middle East Technical University Kovan Research Laboratory [Link to the event page](#)
- 2013** Worked as a technical advisor and team member in the award winning “Easy Guitar” project in the entrepreneurship competition “Yeni Fikirler Yeni Isler” in Turkey
- 2012** Awarded as the best project in senior students project fair with “An Autonomous Robot that Can Climb a Vertical Wall”
- 2008 – 2010** Listed in METU Honor Roll for 2 semesters
- 2008 – 2009** Listed in METU High Honor Roll for fall semester
- 2007** Ranked 287<sup>th</sup> among ~2 million students in the National University Entrance Exam
- 2007** Ranked 1<sup>st</sup> from Antalya Anatolian High School, Turkey

## ———— Selected Computer Skills

- |                     |              |               |
|---------------------|--------------|---------------|
| ○ ROS               | ○ MATLAB     | ○ Eagle CAD   |
| ○ CMake             | ○ SPSS/JMP   | ○ Verilog     |
| ○ C/C++ programming | ○ SolidWorks | ○ Cadence     |
| ○ Python            | ○ Comsol     | ○ Agilent Vee |