

Murat Yildirim

Picower Institute for Learning and Memory/ Massachusetts Institute of Technology
43 Vassar Street, Cambridge, MA, 02139, USA, Cell: 512-970-2367, Lab: 617-253-8785,
Email: muraty@mit.edu, Website: <https://yildirimm1983.wixsite.com/mysite>

EDUCATION

- The University of Texas at Austin (UT Austin), Austin, TX, USA** 2015
Ph.D., Department of Mechanical Engineering.
- Thesis: “Nonlinear imaging assisted ultrafast laser microsurgery for the treatment of vocal fold scarring” under the supervision of Prof. Adela Ben-Yakar.
- Middle East Technical University (METU), Ankara, Turkey** 2009
M.Sc., Department of Mechanical Engineering
- Thesis: “Design and construction of an experimental apparatus for the interferometric measurement of micrometer level clearances” under the supervision of Prof. Zafer Dursunkaya.
- Middle East Technical University (METU), Ankara, Turkey** 2006
B.Sc., Department of Mechanical Engineering
- GPA: 3.57/4.00 (Class Rank: 10/250)

RESEARCH EXPERIENCE

Picower Institute for Learning and Memory, MIT, Cambridge, MA, USA
Sep./2015-current

Postdoctoral Associate

- Designed and built a custom-made three-photon microscope to measure evoked neuronal responses in behaving mice with minimum average laser power reported in the literature.
- Led project team that investigated how visual information is processed in all cortical layers and the subplate of visual cortex in awake mice via imaging for the first time.
- Developed a custom-made pulse chirper to compress the pulse width to 30 femtoseconds on the sample which is smallest pulse width for three-photon microscopy reported in the literature.
- Examined how laser pulse energy affects the physiology of neurons in all cortical layers in awake mice.
- Developed an ultrafast laser ablation-based experimental technique to extract absorption and scattering properties of the mouse brain.
- Contributed developing numerical codes to analyze big data resulting from calcium transients.
- Led project team that investigated high correlation between attenuation lengths and visual sign map in primary and higher visual areas in awake mice.
- Modified the custom-made three-photon microscope to perform fixed and live intact organoid imaging to assess key components of neurogenesis in Rett syndrome.
- Member of team that identified migration deficits in mutant cells in intact organoids via live cell imaging.
- Designed and implemented a custom-made two-photon microscope to perform imaging and stimulation of neurons in multiple brain areas simultaneously.
- Developed a navigation-based behavioral paradigm and implemented in virtual reality system.
- Contributed investigating reliable sensory processing in mouse visual cortex through inhibitory interactions between Somatostatin and Parvalbumin interneurons.
- Contributed designing, writing, and providing most of the data for the awarded grants of \$2M.
- Received a Pathway to Independence Award (K99/R00) from NIBIB in May 2020.

Department of Mechanical Engineering, UT Austin, Austin, TX, USA
Jan./2010-Aug./2015

Research Assistant

- Developed table-top scanning microscopes and endoscopic setups to treat vocal fold scarring through nonlinear imaging guided ultrafast laser surgery with a compact turnkey fiber laser
- Differentiated the morphology and optical properties of normal and scarred tissues by utilizing nonlinear imaging techniques such as two-photon and second-harmonic microscopy
- Increased transmitted pulse energy through photonic band-gap fibers by two folds with improving fiber-coupling conditions
- Elaborated numerical codes to understand ultrashort pulse propagation and temperature evolution in tissue for improving tissue ablation and imaging depth
- Demonstrated improving tissue imaging depth by three folds through utilizing a third-harmonic generation microscopy
- Contributed designing, writing, and providing most of the data for the awarded grants of \$3M.

Department of Mechanical Engineering, METU, Ankara, Turkey

Sep./2006-Dec./2009

Research Assistant

- Designed and implemented mechanical apparatus to mimic the motion of a piston-cylinder mechanism in Cartesian coordinate system
- Established fiber-optic interferometry to measure lubricant film thickness, surface roughness, surface waviness, and straightness error of a dynamic system
- Developed a patented data analysis, data acquisition and control system for measuring lubricant film thickness noninvasively

TEACHING, LEADERSHIP AND MENTORSHIP EXPERIENCE

Picower Institute for Learning and Memory, MIT, Cambridge, MA, USA
Sep./2015-current

- Prepared and presented lectures for “Optical Methods in Neuroscience” course offered every winter break for a group of undergraduate and graduate students from multiple disciplines
- Mentored one graduate student to perform two- and three-photon imaging of behaving mice
- Mentored one technician how to train mice for behavioral tasks and how to image neuronal activity in behaving mice
- Contributed organizing Neurotech symposiums and member of MIT Postdoctoral Association

Department of Mechanical Engineering, UT Austin, Austin, TX, USA
2011-2015

Spring

- Contributed preparing lecture slides, ran the lab sessions, supported term projects, helped students with course materials, graded lab reports for the “Optics and Lasers” graduate course for 20 students
- Mentored one graduate student to build hollow piezo materials to scan the optical fiber.
- Mentored one undergraduate student to develop 3-D printed endoscope housing to hold the optical fiber and other optics in the excitation and emission paths.
- Represented Mechanical Engineering Department at UT Austin Graduate Student Association and represented UT Austin at National Photonics Initiative (NPI) Congressional visit

Department of Mechanical Engineering, METU, Ankara, Turkey
2009

Fall 2006-Fall

- Prepared homework problems, graded homework, made recitation lectures for homework weekly for “Thermodynamics I” and “Thermodynamics II” undergraduate courses offered to 50 students.

- Arranged lab groups for 250 students, ran lab sessions for group of 10 students every month, graded lab reports monthly, graded homework weekly for “Heat Transfer I” and “Heat Transfer II” undergraduate courses offered to 50 students.
- Directed and member of Executive Board of METU Couple Dancing Club.

PUBLICATIONS

22. **Yildirim M**, Hu M, Le NM, Sugihara H, So PTC, Sur M. Quantitative third-harmonic generation imaging of mouse visual cortex areas reveals correlations between functional maps and structural substrates. *Biomedical Optics Express* (2020); 11(10), 5650-5673.
 - Our paper for the first time demonstrates a strong correlation between structural substrates of visual cortical areas, represented by EALs, and their functional visual field representation maps.
 - Article highlighted on **National Eye Institute (NEI)’s website** (<https://www.nei.nih.gov/about/news-and-events/news/live-imaging-method-brings-structural-information-mapping-brain-function>)
 - Article highlighted in **MIT’s website** (<https://news.mit.edu/2020/live-imaging-method-brings-structure-mapping-brain-function-0924>)
 - Article appeared on the **cover of Biomedical Optics Express website** (<https://www.osapublishing.org/boe/issue.cfm>)
21. **Yildirim M**, Sugihara H, So PTC, Sur M. Functional imaging of visual cortical layers and subplate in awake mice with optimized three-photon microscopy. *Nature Communications* (2019); 10(1):177.
 - Our paper characterizes for the first time evoked neuronal responses in all cortical layers and subplate of awake mice as well as safety limits of three-photon microscopy for the sake of cell’s physiology.
 - Article highlighted in **NIH Director Francis Collins’s blog** (<https://directorsblog.nih.gov/2019/03/14/taking-brain-imaging-even-deeper/>)
 - Article highlighted in **MIT’s website** (<http://news.mit.edu/2019/3-photon-microscope-advance-reveals-first-look-brain-cortical-layers-0111>)
 - Article highlighted in many scientific magazines such as **BioOpticsWorld** (<https://www.bioopticsworld.com/bioscience/neuroscience/article/16433217/threephoton-microscopy-advance-views-all-cortical-layers-of-awake-brain>)
20. **Yildirim M**, So PTC, Sur M. Three-photon microscopy and its applications in neuroscience. Invited Review. *Current Protocols*, in revision.
19. **Yildirim M**, Le NM, So PTC, Sur M. Integrating Neurophotonics, Computational and Behaviour Neuroscience for Capturing Sensory-Motor Transformations. *Nature Reviews Neuroscience*, in preparation.
18. Zheng C*, Park JK*, **Yildirim M**, Boivin JR, Xue Y, So PTC, Wadduwage DN. De-scattering with Excitation Patterning (DEEP) Enables Rapid Wide-field Imaging Through Scattering Media. *Science Advances*, in revision.
17. Gupta I*, Franzesi* GT, Hu M, **Yildirim M**, Piatkevich K, Vashishtha P, Yoon YG, Pak N, Wissner-Gross AD, Martin-Alarcon DA, Sur M, Boyden ES. Increasing optical transparency of living mouse brain circuitry. *Science*, in review.

16. Karaayvaz M, Silberman RE, Langenbucher A, Saladi SV, Ross K, Zarcaro E, Desmond A, **Yildirim M**, Vivekanandan V, Ravichandran H, Mylavagnanam R, Specht MC, Ramaswamy S, Lawrence M, Amon A, Ellisen LW. Aneuploidy and deregulated DNA damage response define haploinsufficiency in breast tissues of BRCA2 mutation carriers. *Science Advances* (2020); 6(5), eaay2611
15. Hogan B, Kovalska E, Zhukova M, **Yildirim M**, Craciun M, Baldycheva A. 2D WS2 Liquid Crystals: Tunable Functionality Enabling Diverse Applications. *Nanoscale*; (2019).
14. Rikhye R, **Yildirim M**, Breton-Provencher V, Hu M, Sur M. Reliable sensory processing in mouse visual cortex through inhibitory interactions between Somatostatin and Parvalbumin interneurons. *Journal of Neuroscience* (in review); bioRxiv doi: <https://doi.org/10.1101/187062>
13. **Yildirim M**, Delepine C, Pham V, Feldman D, Chou S, So PTC, Sur M. Three-photon imaging of intact human cerebral organoids to assess key components of early neurogenesis in Rett Syndrome. *PNAS*, in review.
12. **Yildirim M**, Sugihara H, So PTC, Sur M. Projection specific neuronal recordings at deep layers of visual cortex via three-photon microscopy in awake mice. In preparation.
11. **Yildirim M**, Okutucu T, Dursunkaya Z. A numerical algorithm to determine straightness error, surface roughness, and waviness measured using a fiber optic interferometer. *Optics and Laser Technology* (2016); 85, 19-29.
10. **Yildirim M**, Quinn K, Kobler J, Zeitels SM, Georgakoudi I, Ben-Yakar A. Quantitative differentiation of normal and scarred tissues using second-harmonic generation microscopy. *Scanning* (2016); 38 (6), 684-693.
9. Gabay I, Subramanian K, Martin C, **Yildirim M**, Tuchin V, Ben-Yakar A. Increasing the penetration depth for ultrafast laser tissue ablation using glycerol based optical clearing. *In Dynamics and Fluctuations in Biomedical Photonics XIII* (2016); (Vol. 9707, p. 97070X).
8. **Yildirim M**, Durr N, Ben-Yakar A. Tripling the maximum imaging depth with third-harmonic generation microscopy. *Journal of Biomedical Optics* (2015); 20 (9), 096013-096013.
7. Hoy CL, Ferhanoglu O, **Yildirim M**, Kim KH, Karajanagi SS, Chan KMC, Kobler J, Zeitels SM, Ben-Yakar A. Clinical Ultrafast Laser Surgery: Recent Advances and Future Directions. *Journal of Selected Topics in Quantum Electronics* (2014); 20(2), 1-14.
6. Ferhanoglu O, **Yildirim M**, Subramanian K., Ben-Yakar A. A 5-mm Piezo-Actuated Fiber Probe for High Speed Ultrafast Laser Microsurgery. *Biomedical Optics Express* (2014); 5(7), 2023-2036.
5. **Yildirim M**, Ferhanoglu O, Kobler J, Zeitels SM, Ben-Yakar A. Parameters Affecting Ultrafast Laser Microsurgery of Subepithelial Voids for Scar Treatment in Vocal Folds. *J Biomed Opt* (2013); 18(11), 118001-1180014.
4. Hoy CL, Everett WN, **Yildirim M**, Kobler J, Zeitels SM, Ben-Yakar A. Towards Endoscopic Ultrafast Laser Microsurgery of Vocal Folds. *J Biomed Opt* (2012); 17(3), 038002-038008.

3. Hoy CL, Ferhanoglu O, **Yildirim M**, Piyawattanametha W, Ra H, Solgaard O, Ben-Yakar A. Optical Design and Imaging Performance Testing of a 9.6-mm Diameter Femtosecond Laser Microsurgery Probe. *Optics Express* (2011); 19(11), 10536-10552.
2. **Yildirim M**, Dursunkaya Z, Okutucu T. An Interferometric Technique for Measuring Micron Level Clearances Filled With a Lubricant. In *STLE/ASME 2010 International Joint Tribology Conference* (2010); pp. 167-169. American Society of Mechanical Engineers.
1. **Yildirim M**, Dursunkaya Z, Okutucu T. Experimental investigation of micron level clearances by fibre optic interferometry. *Proceedings of 11th International Conference on Tribology* (2009); 296-300.

PATENTS

Dursunkaya Z, **Yildirim M**. A Surface Roughness Measurement Method and Setup WO No. 2012053998.

SCIENTIFIC PRESENTATIONS

Talks

26. **Yildirim M**, Hu M, So PTC, Sur M. Label-free characterization of attenuation lengths of cortical regions via three-photon microscopy in awake mice. SPIE Photonics West Conference, San Francisco, February 1-6 2020.
25. **Yildirim M**, Hu M, Sugihara H, So PTC, Sur M. Characterization of temporal and spatial frequency preference of cortical layers in six visual areas via threephoton microscopy in awake mice. SPIE Photonics West Conference, San Francisco, February 1-6 2020.
24. **Yildirim M**, Sugihara H, So PTC, Sur M. Projection-specific neuronal recordings at deep layers of visual cortex via three-photon microscopy in awake mice. SPIE Photonics West Conference, San Francisco, February 1-6 2020.
23. **Yildirim M**. Three-photon imaging of intact human cerebral organoids to assess key components of early neurogenesis in Rett Syndrome. Picower Institute's Summer Retreat. Yarmouth, Boston, MA, June 3 2019.
22. **Yildirim M**, Sugihara H, So PTC, Sur M. Imaging neuronal responses through cortical layers and subplate of visual cortex in awake mice with optimized three-photon microscopy. OSA BIOMED Conference, Tucson, AZ, 14-17 April 2019.
21. **Yildirim M**. Fly through the deep layers of the brain: High resolution imaging and stimulation of neurons. Webinar for Technology Development Foundation of Turkey. March 13 2019.
20. **Yildirim M**. Fly through the visual cortex: Advances in three-photon microscopy for neuroscience. Picower Institute's Plastic Lunch. Boston, MA, March 6 2019.
19. **Yildirim M**. Functional imaging of visual cortical layers and subplate in awake mice with optimized three-photon microscopy. Boston Turkish Biologists' Colloquium. Boston, MA, February 21 2019.
18. **Yildirim M**, Sugihara H, So PTC, Sur M. Imaging neuronal responses through cortical layers and subplate of visual cortex in awake mice with optimized three-photon microscopy. NESBO Conference, Boston, MA, 24 October 2018.
17. **Yildirim M**, Feldman D, Wang T, Ouzounov D, Chou S, Swaney J, Chung K, Xu C, So PTC, Sur M. Third harmonic generation imaging of intact human cerebral organoids to assess key components of early neurogenesis in Rett Syndrome. SPIE Photonics West Conference, San Francisco, January 28-February 5 2017.

16. Gabay I, Subramanian K, Martin C, **Yildirim M**, Tuchin V, Ben-Yakar A. Increasing the penetration depth for ultrafast laser tissue ablation using glycerol based optical clearing. SPIE Photonics West Conference, San Francisco, California, 7-12 February 2016.
15. **Yildirim M**. Nonlinear Imaging Assisted Ultrafast Laser Surgery for the Treatment of Vocal Fold Scarring. Invited Talk at UT BME BOGO Seminar Series, Austin, Texas, 24 April 2015.
14. **Yildirim M**, Karajanagi S, Kobler J, Zeitels SM, Ben-Yakar A. Localization of biogel injection in scar tissue enabled by ultrafast laser ablation: model for treatment of vocal fold scar. SPIE Photonics West Conference, San Francisco, California, 7-12 February 2015.
13. **Yildirim M**, Subramanian K, Ben-Yakar A. High speed deep tissue ablation with nonlinear imaging using an ultrafast fiber laser at 1045 nm. SPIE Photonics West Conference, San Francisco, California, 7-12 February 2015.
12. **Yildirim M**, Ferhanoglu O, Kobler J, Zeitels SM, Ben-Yakar A. Parameters affecting ultrafast laser microsurgery for scar treatment in vocal folds. OSA BIOMED Conference, Miami, FL, 26-30 April 2014.
11. **Yildirim M**, Ferhanoglu O, Durr N, Ben-Yakar A. Maximum Imaging Depth Improvement with Third-Harmonic Generation Microscopy in Turbid Tissues. OSA BIOMED Conference, Miami, FL, 26-30 April 2014.
10. Ferhanoglu O, **Yildirim M**, Subramanian K, Ben-Yakar A. A 5 mm piezo-actuated fiber device for high-speed ultrafast laser microsurgery. OSA BIOMED Conference, Miami, FL, 26-30 April 2014.
9. **Yildirim M**, Ferhanoglu O, Subramanian K, Ben-Yakar A. A 5 mm diameter, piezo-scanning fiber device for high-speed ultrafast laser microsurgery. 40th NEBEC Conference, Boston, MA, 25-27 April 2014.
8. Ferhanoglu O, **Yildirim M**, Ben-Yakar A. 5 mm piezo-actuated fiber endoscope for high-speed ultrafast laser microsurgery. SPIE Photonics West Conference, San Francisco, California, 1-6 February 2014.
7. **Yildirim M**, Ferhanoglu O, Kobler J, Zeitels SM, Ben-Yakar A. Maximum Imaging Depth Comparison of Second and Third Harmonic Generation Microscopies in Porcine Vocal Folds. Invited Talk at the 8th Workshop on Advanced Multiphoton and Fluorescence Lifetime Imaging Techniques, Saarbrücken, Germany, 1-3 July 2013.
6. **Yildirim M**, Ferhanoglu O, Kobler J, Zeitels SM, Ben-Yakar A. Study of Ultrafast Laser Microsurgery of Sub-Epithelial Voids for Scar Treatment in Vocal Folds. SPIE Photonics West Conference, San Francisco, California, 2-7 February 2013.
5. **Yildirim M**, Hoy CL, Ferhanoglu O, Piyawattanametha W, Ra H, Solgaard O, Ben-Yakar A. 9.6-mm Diameter Femtosecond Laser Microsurgery Probe. CLEO Conference, San Jose, CA, 6-11 May 2012.
4. Hoy CL, Ferhanoglu O, **Yildirim M**, Piyawattanametha W, Ra H, Solgaard O, Ben-Yakar A. 9.6-mm Diameter Femtosecond Laser Microsurgery Probe. OSA BIOMED Conference, Miami, FL, 28 April-2 May 2012.
3. **Yildirim M**, Ferhanoglu O, Kobler J, Zeitels SM, Ben-Yakar A. Ultrafast Laser Microsurgery, Simultaneous Multiphoton and SHG Imaging of Healthy and Scarred Vocal Folds. SPIE Photonics West, San Francisco, CA, 21-26 January 2012.
2. **Yildirim M**, Dursunkaya Z, Okutucu T. An Interferometric Technique for Measuring Micron Level Clearances Filled With a Lubricant. STLE/ASME International Joint Tribology Conference, San Francisco, CA, 17-20 October 2010.
1. **Yildirim M**, Dursunkaya Z, Okutucu T. Experimental investigation of micron level clearances by fibre optic interferometry. International Conference on Tribology, Belgrade, Serbia, May 13-15 2009.

12. **Yildirim M**, Delepine C, Feldman D, Pham V, Chou S, So PTC, Sur M. Three-photon imaging of intact human cerebral organoids to assess key components of early neurogenesis in Rett Syndrome. *Frontiers in Autism Research Scientific Retreat*. Boston, MA, June 13 2019.
11. **Yildirim M**, Sugihara H, So PTC, Sur M. Imaging neuronal responses through all cortical layers and subplate of visual cortex in awake mice with optimized three-photon microscopy. *SFN Conference*, San Diego, November 3-7 2018.
10. **Yildirim M**, Delepine C, Feldman D, Pham V, Chou S, So PTC, Sur M. Three-photon imaging of intact human cerebral organoids to assess key components of early neurogenesis in Rett Syndrome. *Neurodevelopmental Disorders Symposium*, Boston, MA, October 22 2018.
9. **Yildirim M**, Delepine C, Feldman D, Wang T, Ouzounov D, Chou S, Swaney J, Chung K, Xu C, So PTC, Sur M. Three-photon imaging of intact human cerebral organoids to assess key components of early neurogenesis in Rett Syndrome. *SFN Conference*, Washington, DC, November 11-15 2017.
8. **Yildirim M**, Feldman D, Wang T, Ouzounov D, Chou S, Swaney J, Chung K, Xu C, So PTC, Sur M. Third harmonic generation imaging of intact human cerebral organoids to assess key components of early neurogenesis in Rett Syndrome. *SFN Conference*, San Diego, November 12-16 2016.
7. **Yildirim M**, Ferhanoglu O, Durr N, Ben-Yakar A. Maximum Imaging Depth Improvement with Third-Harmonic Generation Microscopy in Turbid Tissues. *Gordon Research Conference on Lasers in Biology and Medicine*, Boston, MA, 13-18 July 2014.
6. Ferhanoglu O, **Yildirim M**, Subramanian K, Ben-Yakar A. A 5 mm piezo-scanning fiber device for high-speed ultrafast laser microsurgery. *Gordon Research Conference on Lasers in Biology and Medicine*, Boston, MA, 13-18 July 2014.
5. **Yildirim M**, Ferhanoglu O, Durr N, Ben-Yakar A. Maximum Imaging Depth Improvement with Third-Harmonic Generation Microscopy in Turbid Tissues. *40th NEBEC Conference*, Boston, MA, 25-27 April 2014.
4. **Yildirim M**, Ferhanoglu O, Kobler J, Zeitels SM, Ben-Yakar A. Maximum Imaging Depth in Third Harmonic Generation using 1552 nm. *SPIE Photonics West Conference*, San Francisco, California, 2-7 February 2013.
3. Ferhanoglu O, **Yildirim M**, Ben-Yakar A. Ultrafast Laser Scalpel: A Piezo Scanned Fiber Probe for Tissue Ablation. *SPIE Photonics West Conference*, San Francisco, California, 2-7 February 2013.
2. **Yildirim M**, Ferhanoglu O, Kobler J, Zeitels SM, Ben-Yakar A. Ultrafast Laser Surgery and Nonlinear Optical Imaging of Healthy and Scarred Vocal Folds. *Gordon Conference: Lasers in Medicine and Biology*, Boston, Massachusetts, 22-27 July 2012.
1. Hoy CL, Ferhanoglu O, **Yildirim M**, Eversole D, King D, Ben-Yakar A. 9.6 mm Diameter Femtosecond Laser Scanning Probe for Imaging and Plasmonic Nanosurgery. *Gordon Conference: Lasers in Medicine and Biology*, Boston, Massachusetts, 22-27 July 2012.

FUNDING

NIBIB Pathway to Independence Award (K99/R00)

May 2020

- Designed and wrote the grant as well as managed the budget
- Project started in May 2020.

Picower
2018-2021

Institute**Engineering****Collaboration****Grant**

- Two of twenty multi-institutional, multi-disciplinary teams across MIT to be awarded.
- Designed, and wrote the grant as well as managed the budget.

NSF EAGER Grant- 1451125

2016-2018

- Awarded to groups with innovative, high-risk, high-reward research for tool development.

- Provided most of the data for the grant.
- NIDCD Grant- 5R01DC014783-04** 2016-2021
- Awarded to groups with innovative technology development for translational research
 - Designed, contributed writing, and provided most of the data for the grant.
- CPRIT Grant- 130412** 2014-2015
- Awarded to groups with promising cancer research, product development, and prevention programs.
 - Provided most of the data for the grant.
- NSF Grant- 1014953** 2011-2014
- Awarded to groups with innovative, high-risk, high-reward research for tool development for translational research.
 - Provided most of the data for the grant.
- TUBITAK Grant- 106M433** 2007-2009
- Awarded to groups with innovative research in tool development for industrial applications.
 - Provided most of the data for the grant.

APPEARANCES IN MEDIA

1. My recent article published in *Biomedical Optics Express* was highlighted in **NEI website** (<https://www.nei.nih.gov/about/news-and-events/news/live-imaging-method-brings-structural-information-mapping-brain-function>).
2. My recent article published in *Nature Communications* was highlighted in **NIH Director Francis Collins's** blog (<https://directorsblog.nih.gov/2019/03/14/taking-brain-imaging-even-deeper/>).
3. My representation of UT Austin at the NPI's Congressional Visit appeared at the Mechanical Engineering website of UT Austin: (2014, May 9). http://www.me.utexas.edu/news/2014/0514_yildirim_photonics.php.

MEMBERSHIPS

- Optical Society of America (OSA), Society of Photo-Optical Instrumentation Engineers (SPIE), Society for Neuroscience (SFN), Biomedical Engineering Society (BMES).

EXTRACURRICULAR ACTIVITIES

- Actively playing acoustic guitar since age 17.
- Took Latin-American Dancing courses for 9 years and competed national and international competitions in Turkey and in the United States.
- Actively playing basketball and table-tennis.