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Research Group: <http://mems.ku.edu.tr>

**Professional Experience**

**Koç University, Istanbul, TURKEY**

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| *Professor of Electrical Engineering* | *2010*-present |
| *Associate Professor of Electrical Engineering* | *2007*-2010 |
| *Assistant Professor of Electrical Engineering* | *2001-2007* |

**RESEARCH**

* Established the **O**ptical **M**icrosystems **L**aboratory (OML) <http://mems.ku.edu.tr> specialized in design, testing, and characterization of micro-optics and MEMS. Currently OML is one of the largest groups within the Engineering faculty. OML has more than 300m2 space including 3 separate rooms for special projects and a clean room for MEMS testing.
* Established a **Class 1000 Clean Room** for micro-optics and MEMS micro-fabrication (jointly with Prof. E. Alaca)
* Research Areas and Funding:

Research and development projects focus on: MEMS scanners for display and imaging systems, MEMS Thermal Infrared Imaging Camera development, MEMS Spectrometers, Electrostatic and Electromagnetic actuators, Biological and chemical sensors, 3D and Augmented Realıty displays.

* Research Sponsors: ERC-AdG (European Research Council) Advanced Grant Recipient in 2013 (2014-2019), EC FP7 and FP6 Projects (partner and WP leader in 6 projects, since 2006), Microvision Inc.-USA (since 2001, 7 grants), ASELSAN A.S. (TR) (since 2006, 3 grants), Fraunhofer Institute-IPMS-Germany (1 grant), NSF (USA) (1 grant, 2005), TÜBİTAK (7 projects since 2003, 3 ongoing), OPET A.Ş. (TR) (since 2012, 2 grants), Fotoniks A.Ş. (TR) (1 grant, 2013).

**TEACHING**

* Recently taught undergraduate electrical engineering courses:
* ELEC202: Electric Circuits
* ELEC429: Introduction to Optics
* Graduate level regular courses
* ELEC522: Introduction to MEMS (micro-electro-mechanical systems)
* ELEC523: Optical Information Processing.

ELEC550: Optical Systems Design and Analysis

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| **Cambridge University,** **UK,** Cavendish Laboratory,*Visiting Professor* | 2013 |
| **Boğaziçi University, TURKEY,** Electrical Engineering,*Visiting Professor* | 2013 |
| **Microvision Inc., Seattle, Washington, USA** |  |
| *Job Titles:*  *Research Engineer; Sr. Research Engineer; Staff Engineer; Principal Engineer and Group Lead* | 1998-2001 |
| *Principal Consultant* | 2002-2014 |
| **Georgia Institute of Technology, Atlanta, Georgia, USA** |  |
| *TUBITAK- NATO Science Program Graduate Student Fellow* | 1993-1994 |
| *Graduate Research Assistant, Center for Optical Science and Engineering* | 1995-1997 |
| **Call / Recall Inc., San Diego, California, USA** |  |
| *Co-Op exchange student and Consultant* | 1996-1997  part time |
| **Georgia Tech Research Institute, Atlanta, Georgia, USA** |  |
| *Graduate Research Asst, GTRI-Electro-Optics Laboratory (EOEML)* | 1996 |
| **Bilkent University, Ankara, Turkey** |  |
| *Graduate Research and Teaching Assistant, Electrical and Electronics Engineering* | 1993 |

**Education**

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| **Georgia Institute of Technology** |  |
| School of Electrical and Computer Engineering, Atlanta, Georgia, USA  Ph.D. in Electrical Engineering | 1997 |
| *Advisor: Dr. William T. Rhodes*  *Thesis Title: “Image Acquisition and Processing with AC-Coupled Cameras”* |  |
| *Graduate Cooperative Degree certificate (for industry work during PhD)* | 1997 |
| *MS in Electrical Engineering* | 1996 |
| **Bilkent University** | 10/1992-9/1993 |
| *Electrical and Electronics Engineering Department, Ankara, Turkey*  *Graduate Course work in Optics, Communications, and Electronics* |  |
| **Middle East Technical University** | 1988-1992 |
| *Electrical Engineering Department, Ankara, Turkey*  *BS in Electrical Engineering* |  |

**Academic Service:**

* General Chair, IEEE Optical MEMS and Nanophotonics Conference, Istanbul, Turkey, Aug 2011.
* IEEE Optical MEMS and Nanophotonics Conference. TPC Member since 2006, Steering Committee Member since 2009;
* IEEE MEMS Conference, TPC Member, Cancun, Mexico (2011) and Paris, France (2012)
* IEEE Photonics Annual meeting, Local Chair, Antalya, Turkey, Oct 2009.
* Local Chair, International Conference on Opto-mechatronics (ISOT), Istanbul, Turkey, Sep. 2009
* Co-chair, NSF Workshop on Nanophotonics, Koc University, Istanbul, Turkey, 2006
* Organized Micro-Nano Systems Summer Workshop, Koc University, Istanbul, Turkey, 2005
* Chair (3 times) for SPIE Photonics Europe Conf. titled “MEMS, MOEMS, and Micromachining”, in Strasbourg, France, in 2004, 2006, 2008
* Initiated and Chaired (4 times) the SPIE Photonics West Conf titled “MOEMS Display and Imaging Systems”, in San Jose, California, 2003, 2004, 2005, and 2006

**Awards and Achievements:**

* **ERC-AdG** European Research Council, Advanced Grant (2.5 Million***€***). Only recipient from Turkey in 2013.
* Koç University, Outstanding Faculty Award, 2013
* **TÜBİTAK-Encouragement** Award from the Scientific and Technical Research Council of Turkey (2009).
* **TÜBA-GEBİP** Distinguished Young Scientist Award from Turkish Academy of Sciences (2007)
* Special award from Microvision Inc. for Outstanding contributions to “*Advancement of Scanner Technologies*.” (2008)
* Werner Von Siemens Faculty Excellence Award for outstanding research performance at Koç University (2006)
* IEEE Senior Member (Dec 2009)
* Ten Outstanding Young Person (TOYP) Award in *Science and Technology* category, Junior Chamber International (JCI)-Turkey (2008).
* New Focus Student Award at the Optical Society of America Annual Meeting (1995)
* Co-operative program certificate, Georgia Institute of Technology, Atlanta, USA (1997)
* Among the 3 recipients of TUBITAK-NATO Science Program Graduate Fellowship (1992)
* Recipient of Haci Omer SABANCI Foundation scholarship for 4 years (1988-1992)

**Publications**

***Citations:*** [***http://scholar.google.com/citations?user=4z4L9HMAAAAJ***](http://scholar.google.com/citations?user=4z4L9HMAAAAJ)

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| Source - Google Scholar (GS) | Total | Citations | H-Index | Journals | Patents (issued, pending) | Edited Books | Book Chapter | Conferences |
| All Publications | 180+ | >3,000,  (>2,000 in last 5 years) | 31 | 60 | 29, 20+ | 7 | 4 | 120+ |

***Edited Books:***

1. *MOEMS Display and Imaging Systems,* Hakan Urey, Editor, Proceedings of SPIE, Pages: 360, Volume: 4985, SPIE Press, Bellingham (2003)
2. *MOEMS Display and Imaging Systems II,* Hakan Urey and David Dickensheets, Editors, Proceedings of SPIE, Volume: 5348, SPIE Press, Bellingham (2004)
3. *MEMS, MOEMS, and Micromachining,* Hakan Urey and Ayman El-Fatatry, Editors, Proceedings of SPIE, Volume: 5455, SPIE Press, Bellingham (2004)
4. *MOEMS Display and Imaging Systems III,* Hakan Urey and David Dickensheets, Editors, Proceedings of SPIE, Volume: 5721, SPIE Press, Bellingham (2005)
5. *MOEMS Display and Imaging Systems IV,* Hakan Urey, David Dickensheets, Bishnu Gogoi, Editors, Proceedings of SPIE, Volume: 6114, SPIE Press, Bellingham (2006)
6. *MEMS, MOEMS, and Micromachining II,* Hakan Urey and Ayman El-Fatatry, Editors, Proceedings of SPIE, Volume: 6186, SPIE Press, Bellingham (2006)
7. *MEMS, MOEMS, and Micromachining III,* Hakan Urey, Editor, Proceedings of SPIE, Volume: 6993, SPIE Press, Bellingham (2008)

***Book Chapters:***

1. **Hakan Urey**, *Retinal Scanning Displays*, in Encyclopedia of Optical Engineering, R. Driggers, Editor, Marcel-Dekker, 2003
2. **Hakan Urey** and David Dickensheets, *Display and Imaging Systems*, Ch. 8 in MOEMS and Applications, E. Motamedi, Editor, SPIE Press, Bellingham, 2004
3. **Hakan Urey**, Sid Madhavan, Margaret Brown, Chapter: 10.2.4*“MEMS Displays,”* Handbook of Visual Display Technology, 2011.
4. Jannick P. Rolland, Kevin P. Thompson, **Hakan Urey**, and Mason Thomas, Chapter: 10.4.1*“See-Through Head Worn Display (HWD) Architectures,”* Handbook of Visual Display Technology, 2011.

***Issued Patents:***

1. United States Patent, [9,267,923](http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO2&Sect2=HITOFF&p=1&u=%2Fnetahtml%2FPTO%2Fsearch-bool.html&r=1&f=G&l=50&co1=AND&d=PTXT&s1=urey.INNM.&OS=IN/urey&RS=IN/urey), **H. Urey**, E. Alaca, E. Timurdogan, “Miniaturized integrated micro electro-mechanical systems (MEMS) optical sensor array,” Feb. 23, 2016
2. United States Patent, [9,105,834](http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO2&Sect2=HITOFF&p=1&u=%2Fnetahtml%2FPTO%2Fsearch-bool.html&r=1&f=G&l=50&co1=AND&d=PTXT&s1=urey.INNM.&OS=IN/urey&RS=IN/urey), W.O. Davis, U. Baran, D.R. Dean, **H. Urey**, “Piezoelectric actuated device, method and system,” Aug 2015
3. TPO: TR 2013 05137 B Issued 21.08.2015

RU: 2013 2103 125463

E. Alaca, E. Timurdogan, **H. Urey**, “Miniaturized integrated micro electo-mechanical systems (MEMS) optical sensor array ,” Aug 2015

1. United States Patent, [8,624,187](http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO2&Sect2=HITOFF&p=1&u=%2Fnetahtml%2FPTO%2Fsearch-bool.html&r=1&f=G&l=50&co1=AND&d=PTXT&s1=urey.INNM.&OS=IN/urey&RS=IN/urey), **H. Urey**, H. Torun, “Imaging detector array with optical readout,” Jan 2014
2. European Patent, EP[1,677,086](http://worldwide.espacenet.com/publicationDetails/biblio?FT=D&date=20060705&DB=worldwide.espacenet.com&locale=en_EP&CC=EP&NR=1677086A1&KC=A1&ND=5) (B1), **H. Urey**, C. Ataman, “Fourier transform spectrometer,” Issued Aug. 2013.
3. European Patent, [EP1336127 (B1)](http://worldwide.espacenet.com/publicationDetails/originalDocument?FT=D&date=20090826&DB=EPODOC&locale=en_EP&CC=EP&NR=1336127B1&KC=B1&ND=4) Issued 26.8.2009:

Japan Patent Office: [JP4515029 (B2)](http://worldwide.espacenet.com/publicationDetails/biblio?FT=D&date=20100728&DB=EPODOC&locale=en_EP&CC=JP&NR=4515029B2&KC=B2&ND=4) , 28.7.2010

and others: [AU1360801 (A)](http://worldwide.espacenet.com/publicationDetails/biblio?FT=D&date=20020515&DB=EPODOC&locale=en_EP&CC=AU&NR=1360801A&KC=A&ND=4), [AT441130 (T)](http://worldwide.espacenet.com/publicationDetails/biblio?FT=D&date=20090915&DB=EPODOC&locale=en_EP&CC=AT&NR=441130T&KC=T&ND=4),

**H. Urey**, “Scanned display with switched feeds and distortion correction”

1. United States Patent, [7,999,244](http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO2&Sect2=HITOFF&p=1&u=%2Fnetahtml%2FPTO%2Fsearch-bool.html&r=1&f=G&l=50&co1=AND&d=PTXT&s1=urey.INNM.&OS=IN/urey&RS=IN/urey), W. O. Davis, G. T. Gibson, **H. Urey**, T. W. Montague, B. Xue, J. Lewis, “MEMS devices and related scanned beam devices,” Issued Aug. 16, 2011
2. United States Patent, [7,986,449](http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO2&Sect2=HITOFF&p=1&u=%2Fnetahtml%2FPTO%2Fsearch-bool.html&r=2&f=G&l=50&co1=AND&d=PTXT&s1=urey.INNM.&OS=IN/urey&RS=IN/urey), W. O. Davis, **H. Urey**, “Induced resonance comb drive scanner ” Issued Jul. 26, 2011
3. United States Patent, [7,826,141](http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO2&Sect2=HITOFF&p=1&u=%2Fnetahtml%2FPTO%2Fsearch-bool.html&r=1&f=G&l=50&co1=AND&d=PTXT&s1=urey.INNM.&OS=IN/urey&RS=IN/urey), K. P. Powell, **H. Urey**, A. Malik, R. J. Hennigan, “Scanned-beam heads-up display and related systems and methods ” Issued Nov. 2, 2010
4. United States Patent, [7,733,493](http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO2&Sect2=HITOFF&p=1&u=%2Fnetahtml%2FPTO%2Fsearch-bool.html&r=1&f=G&l=50&co1=AND&d=PTXT&s1=urey.INNM.&OS=IN/urey&RS=IN/urey), **H. Urey**, C. Ataman, “Fourier transform spectrometer” Issued June 8, 2010
5. United States Patent, [7,724,210](http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO2&Sect2=HITOFF&p=1&u=%2Fnetahtml%2FPTO%2Fsearch-adv.htm&r=2&f=G&l=50&d=PTXT&S1=(%22urey%22.INNM.)&OS=IN/%22urey%22&RS=IN/%22urey%22), R. B. Sprague, **H. Urey**, D R Wyatt, M K Brown, J R Lewis, M D Watson, T W Montague, S R Willey, “Scanned light display system using large numerical aperture light source, method of using same, and method of making scanning mirror assemblies” Issued May 25, 2010
6. United States Patent, [7,639,209](http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO2&Sect2=HITOFF&p=1&u=%2Fnetahtml%2FPTO%2Fsearch-bool.html&r=1&f=G&l=50&co1=AND&d=PTXT&s1=urey.INNM.&OS=IN/urey&RS=IN/urey), R. B. Sprague, **H. Urey**, D R Brown, M K Brown, J R Lewis, M D Watson, T W Montague, S R Willey, “Scanned light display system using large numerical aperture light source, method of using same, and method of making scanning mirror assemblies” Issued Dec 29, 2009
7. United States Patent, [7,612,737](http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO2&Sect2=HITOFF&p=1&u=/netahtml/PTO/search-bool.html&r=1&f=G&l=50&co1=AND&d=PTXT&s1=7,612,737.PN.&OS=PN/7,612,737&RS=PN/7,612,737), G. S. Bright, S. W. Straka, P. C. Black, J. G. Moore, J. R. Lewis, **H. Urey**, C. T., Tegreene, “Scanned light beam display with brightness compensation,” Issued Nov 3, 2009.
8. United States Patent, [7,580,189](http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO2&Sect2=HITOFF&p=1&u=/netahtml/PTO/search-bool.html&r=1&f=G&l=50&co1=AND&d=PTXT&s1=7,580,189.PN.&OS=PN/7,580,189&RS=PN/7,580,189), H. Urey and K. D. Powell, “Optical element that includes a microlens array and related method,” Issued Aug 25, 2009.
9. United States Patent [7,489,433](http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO2&Sect2=HITOFF&p=1&u=/netahtml/PTO/search-bool.html&r=1&f=G&l=50&co1=AND&d=PTXT&s1=7,489,433.PN.&OS=PN/7,489,433&RS=PN/7,489,433), H. Urey and O. Ergeneman, “Method and apparatus for making and using 1D and 2D magnetic actuators,” Issued Feb 10, 2009.
10. United States Patent [7,460,305](http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO2&Sect2=HITOFF&p=1&u=/netahtml/PTO/search-bool.html&r=1&f=G&l=50&co1=AND&d=PTXT&s1=7,460,305.PN.&OS=PN/7,460,305&RS=PN/7,460,305)  K. D. Powell, H. Urey, A. Malik, R. J. Hannigan, “Scanned-beam heads-up display and related systems and methods,” Issued Dec 2, 2008
11. United States Patent [7,339,737](http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO2&Sect2=HITOFF&p=1&u=/netahtml/PTO/search-bool.html&r=1&f=G&l=50&co1=AND&d=PTXT&s1=7,339,737.PN.&OS=PN/7,339,737&RS=PN/7,339,737), H. Urey and C. T. Tegreene, “Beam multiplier that can be used as an exit-pupil expander and related system and method,” Issued March 4, 2008
12. United States Patent [7,209,271](http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO2&Sect2=HITOFF&p=1&u=/netahtml/PTO/search-bool.html&r=1&f=G&l=50&co1=AND&d=PTXT&s1=7,209,271.PN.&OS=PN/7,209,271&RS=PN/7,209,271), J. R. Lewis, H. Urey, B. G. Murray, “Multiple beam scanning imager,” Issued April 24, 2007
13. United States Patent [7,133,204](http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO2&Sect2=HITOFF&p=1&u=/netahtml/PTO/search-bool.html&r=1&f=G&l=50&co1=AND&d=PTXT&s1=7,133,204.PN.&OS=PN/7,133,204&RS=PN/7,133,204), H. Urey, “Apparatus and methods for generating multiple exit-pupil images in an expanded exit pupil,” Issued Nov 7, 2006
14. United States Patent [7,071,594](http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO2&Sect2=HITOFF&p=1&u=/netahtml/PTO/search-bool.html&r=1&f=G&l=50&co1=AND&d=PTXT&s1=7,071,594.PN.&OS=PN/7,071,594&RS=PN/7,071,594), J. Yan, V. Casasanta, S. H. Luanava, H. Urey, F. A. DeWitt, C. T. Tagreene, C. A. Christopher, “MEMS scanner with dual magnetic and capacitive drive,” Issued July 4, 2006
15. United States Patent [7,061,450](http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO2&Sect2=HITOFF&p=1&u=/netahtml/PTO/search-bool.html&r=1&f=G&l=50&co1=AND&d=PTXT&s1=7,061,450.PN.&OS=PN/7,061,450&RS=PN/7,061,450), G. S. Bright, S. W. Straka, P. C. Black, J. G. Moore, J. R. Lewis, H. Urey, C. T. Tegreene, “Electronically scanned beam display,” Issued: June 13 2006
16. United States Patent [6,954,308](http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO2&Sect2=HITOFF&p=1&u=/netahtml/PTO/search-bool.html&r=1&f=G&l=50&co1=AND&d=PTXT&s1=6,954,308.PN.&OS=PN/6,954,308&RS=PN/6,954,308), H. Urey, “Apparatus and methods for generating multiple exit-pupil images in an expanded exit pupil,” Issued: Oct 11, 2005
17. United States Patent [6,795,221](http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO2&Sect2=HITOFF&p=1&u=/netahtml/PTO/search-bool.html&r=1&f=G&l=50&co1=AND&d=PTXT&s1=6,795,221.PN.&OS=PN/6,795,221&RS=PN/6,795,221), H. Urey, “Scanned display with switched feeds and distortion correction,” Issued: Sep 21, 2004
18. United States Patent [6,768,588](http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO2&Sect2=HITOFF&p=1&u=/netahtml/PTO/search-bool.html&r=1&f=G&l=50&co1=AND&d=PTXT&s1=6,768,588.PN.&OS=PN/6,768,588&RS=PN/6,768,588), H. Urey, “Apparatus and methods for generating multiple exit-pupil images in an expanded exit pupil,” Issued: July 27, 2004
19. United States Patent [6,755,536,](http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO2&Sect2=HITOFF&p=1&u=/netahtml/PTO/search-bool.html&r=1&f=G&l=50&co1=AND&d=PTXT&s1=6,755,536,.PN.&OS=PN/6,755,536,&RS=PN/6,755,536,) C. T. Tegreene, J. R. Lewis, H. Urey, “System and method for displaying/projecting a color image,” Issued: June 29, 2004
20. United States Patent [6,714,331](http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO2&Sect2=HITOFF&p=1&u=/netahtml/PTO/search-bool.html&r=1&f=G&l=50&co1=AND&d=PTXT&s1=6,714,331.PN.&OS=PN/6,714,331&RS=PN/6,714,331), J. R. Lewis, H. Urey, B. G. Murray, “Scanned imaging apparatus with switched feeds,” Issued: March 30, 2004
21. United States Patent [6,639,719](http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO2&Sect2=HITOFF&p=1&u=/netahtml/PTO/search-bool.html&r=1&f=G&l=50&co1=AND&d=PTXT&s1=6,639,719.PN.&OS=PN/6,639,719&RS=PN/6,639,719), C. T. Tegreene, J. R. Lewis, H. Urey, “System and method for using multiple beams to respectively scan multiple regions of an image,” Issued: Oct 28, 2003
22. United States Patent [6,515,781](http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO2&Sect2=HITOFF&p=1&u=/netahtml/PTO/search-bool.html&r=1&f=G&l=50&co1=AND&d=PTXT&s1=6,515,781.PN.&OS=PN/6,515,781&RS=PN/6,515,781), J. R. Lewis, H. Urey, B. G. Murray, “Scanned imaging apparatus with switched feeds,” Issued: Feb 4, 2003
23. United States Patent [6,362,912](http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO2&Sect2=HITOFF&p=1&u=/netahtml/PTO/search-bool.html&r=1&f=G&l=50&co1=AND&d=PTXT&s1=6,362,912.PN.&OS=PN/6,362,912&RS=PN/6,362,912), J. R. Lewis, H. Urey, B. G. Murray, “Scanned imaging apparatus with switched feeds,” Issued: March 26, 2002

**Pending Patent Applications**:

1. Erdem Ulusoy, Deniz Mengu, Hakan Urey, “System and method for high-quality speckle-free phase-only computer-generated holographic image projection,” PCT/TR2016/050247, July 2016
2. Hakan Urey, Goksenin Yaralioglu, Erdem Ulusoy, “Near-to- Eye Image Display Device Delivering Enhanced Viewing Experince,” PCT/TR2016/050083, Mar. 2016
3. YO Cakmak, H Urey, S Olcer, K Aksit, “Electro-stimulation device,” US Patent 20,160,106,982, 2016
4. Hakan Urey, Shoaib Soomro, Physical object reconstruction through a projection display system, PCT/TR2015/050227, Dec. 2015
5. Hakan Urey, Shoaib Soomro, Muhsin Eralp, A dual-function display and multi-view imaging system, PCT/TR2015/050231, Dec. 2015
6. Hakan Urey, Multi-view occlusion-preventive optical system in the form of a screen combined with an image capturing device, PCT/TR2015/050226, Dec. 2015
7. YO Cakmak, H. Urey, B. Ozsoy, electro-stimulation device effective in muscle location identification and therapeutic response enhancement
8. H. Urey, G. Yaralioglu, Miniaturized integrated micro electo-mechanical systems (mems) optical sensor array for viscosity and mass detection, PCT/IB2013/058407, Sep. 2015
9. H. Urey, G. G. Yaralioglu, F. Civitci, Y. S. Yaras, G. Saglam, A sensing device using fiber based cantilevers embedded in a cartridge, PCT/TR2015/050117, Sep. 2015
10. H. Urey, E. Ulusoy, Near-to-eye display device, PCT/TR2014/00512, Dec. 2014
11. H. Urey, E. Ulusoy, Near-to-eye display device with variable resolution, PCT/TR2014/00516, Dec. 2014
12. H. Urey, F. Civitci, Y.S.Yaras, H. Er, Apparatus for generating a coherent beam illumination, PCT/TR2014/00515, Dec. 2014
13. H. Urey, S. Holmstrom, Near-to-eye display device with moving light sources, PCT/TR2014/00514, Dec. 2014
14. H. Urey, Near-to-eye display device with spatial light modulator and pupil tracker, PCT/TR2014/00513, Dec. 2014
15. H.Urey, E. Heves, F.Civitçi, B.Can, O.V.Akgun,"A fluorescent substance detection system", October 22 ,2014 European Patent Application, PCT/TR2014/000301, Oct. 2014
16. H Urey, K. Aksit, A. Ghanbari Niaki, Bir Görüntüleme Sistemi, TPE, 2014
17. H. Urey, E. Heves, F. Civitci, B. Can, V. Akgun, A Fluorescent Substance Detection System, WIPO PCT application, 2014
18. H. Urey, Apparatus for a wearable 3D display, WIPO PCT application, 2014
19. H. Urey, Contact lens for 3D display, TPE 2013
20. H. Urey, G. Yaralioglu, Method and apparatus for mass and viscosity sensing using MEMS cantilevers, WIPO PCT application, 2013
21. Y. O. Cakmak, H. Urey, S. Olcer, K. Aksit, Method and Apparatus for external electrostimulation of Parkinson’s Disease symptoms, WIPO PCT application 2013
22. H. Er, K. Aksit, H. Urey, Milk deterioration technique, TPE application 2013
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***International Journal Papers:***

**In Review / Submitted:**

1. Adiyan, U.; Civitci, F.; Ferhanoglu, O.; Torun, H.; Urey, H., "MEMS Bimaterial IR Sensor Array with Prism-Based Optical Readout," (submitted to Photonics Technology Letters, IEEE)
2. Ozgur Cakmak, Apaydin et.al., “Potential effects of Electroacupuncture like Electrical stimulation of  Intrinsic Auricular Muscles on Parkinson’s Disease Motor Symptoms,” (submitted to Muscle and Nerve), May 2015.
3. U. Aygun, O. Avci, E. Seymour, H. Urey, M.S. Unlu, A.Y. Ozkumur, "Label-free and high-throughput detection of biomolecular interactions using a flatbed scanner biosensor," Submitted to Lab on a Chip, August 2016.
4. S.R. Soomro, E. Ulusoy, H. Urey,’’ *Decoupling of Real and Digital Content in Projection based Augmented Reality Systems using Time Multiplexed Image Capture,’’* Submitted to Journal of Imaging Science and Technology (in review).
5. Y.S. Yaras, H. Urey, A.B. Gunduz, G. Saglam, S. Olcer, F. Civitci, İ. Barıs, G. Yaralioglu, ‘’Coagulation Measurement from whole blood Using Vİbrating optical Fiber in a Disposable Cartridge.’’ Lab on a Chip, August 2016.

**Accepted / Published:**

1. S.R. Soomro, H. Urey, ‘’*Design, Fabrication and Characterization of Transparent Retro-reflective*

*Screen,* Submitted to Optics Express’’ ASO Publishing, Vol.24,Issue 21, pp 24232-24241, Oct.2016

1. U. Adiyan, F. Civitci, G. Yaralioglu, H. Urey, ‘’A Prism-Based Non-Linear Optical Readout Method for MEMS Cantilever Arrays,’’ Sensors and Actuators A: Physical, Vol.250, pp 219-228, Oct.2016
2. Aref Mostafazadeh, G. Yaralioglu, H. Urey, “Optical fiber array based simultaneous parallel monitoring of resonant cantilever sensors in liquid,” Sensors and Actuators, Volume 242, Pages 132–139, May 2016,
3. D. Mengu, E. Ulusoy, H. Urey, " Non-iterative phase hologram computation for low speckle holographic image projection," Optics Express, 24(5), 4462-4476 (2016)
4. S. Z. Lulec, U. Adiyan, G. Yaralioglu, Y. Leblebici, H. Urey, “MEMS Cantilever Sensor Array Oscillators: Theory And Experiments,” Sensors and Actuators A: Physical, Vol. 237, pp. 147-154, Jan. 2016
5. U. Adiyan, F. Civitci, O. Ferhanoglu, H. Torun, H. Urey, ‘’A Prism-Based Optical Readout Method for MEMS Bimaterial Infrared Sensors’’, IEEE Photonics Technology Letters, vol. 28, no. 17, pp. 1866-1869, Sept.1, 2016.
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8. U. Adiyan, F. Civitci, O. Ferhanoglu, H. Torun, H. Urey, “A 35 μm pitch IR Thermo-Mechanical MEMS Sensor with AC-coupled Optical Readout,” Journal Selected Topics in Quantum Electronics, IEEE Journal of 21, no.4, 1-6, 2015.
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***Thesis Directed:***

**PhD Thesis:**

1. Çağlar Ataman, “Comb Actuated MEMS Platforms for Spectroscopy and Laser Scanning Systems,” Koç University, 2008.
2. Onur Ferhanoğlu, “Design, Fabrication and Characterization of a MOEMS based Thermal Imaging System,” Koç Üniversitesi, Dec. 2010.
3. Kaan Akşit, “Next generation 3D Display Applications using Laser Scanning Pico Projectors,” June 2014.
4. Onur Çakmak, “Microcantilever Based Lab-on-a-Chip Sensor for Real-Time Mass, Viscosity, Density and Coagulation Measurements,” April 2015.
5. Aref Mostafazadeh, “Development of Resonance Tracking and Optical Readout Methods for MEMS Sensor Arrays,” Aug 2016
6. Ulaş Adıyan, “ ” Sep. 2016
7. Uğur Aygün, Photonics based biosensors, joined Jan. 2013
8. Shoaib Rehman Soomro, Head mounted projection displays, joined Sep. 2013
9. Mehmet Kıvanç Hedili, Wearable displays, joined Feb. 2014
10. Seyedmahdi Kazempourradi, Wearable Displays, joined Aug. 2014.
11. Nusrah Hussain, Trackers for wearable displays, joined Sep. 2015
12. Saeedeh Mokarian Zanjani, Novel spatial light modulators, joined Feb. 2016
13. Burak Soner, Real-time implementation for CGH algorithms, joined Sep. 2016

**MS Thesis:**

1. Çağlar Ataman, Design, modeling and characterization of electrostatically actuated microscanners. Master’s thesis, Koç University, December 2004.
2. Hamdi Torun, Design and fabrication of thermo-mechanical thermal detector arrays with optical readout. Master’s thesis, Koç University, 2005.
3. Olgaç Ergeneman, Design and fabrication of polymer magnetic actuators for scanning. Master’s thesis, Koç University, 2005.
4. Cihan Kan, Vibration mode fomulae for MEMS Scanners. Master’s thesis, Istanbul Technical University, 2005.
5. Ahmet Ata Akatay. Beam steering using microlens arrays. Master’s thesis, Koç University, 2006.
6. Murat Sayınta, 3D display system using scanning led array modules. Master’s thesis, Koç University, 2008.
7. Serhan Işıkman, Electromagnetically actuated optical micro-mechatronic systems integrated on pcb. Master’s thesis, Koç University, 2008.
8. Fatih Toy, Optical readout for infrared thermo-mechanical detector array. Master’s thesis, Koç University, 2008.
9. Aslıhan Arslan, MEMS scanners actuated with mechanical coupling and comb drives. Master’s thesis, Koç University, 2008.
10. Huseyin Rahmi Seren, MEMS Fourier transform spectrometers. Master’s thesis, Koç University, 2009.
11. Gökhan Hatipoğlu, FR4 based energy scavengers. Master’s thesis, Koç University, 2009.
12. Erdem Erden, Laser Scanning Based Autostereoscopic 3D Display, Master’s thesis, Koç University, 2010.
13. Sertan Kutal Gokce, Electrostatic MEMS Actuators for Endoscopic Imaging and High Resolution Displays Master’s thesis, Koç University, 2010.
14. Nadire Pelin Ayerden, MEMS Fourier Transform Spectrometers, Koç University, March 2012
15. Refik Burak Erarslan, Thermal imaging, Koç University, July 2012
16. Utku Baran, MEMS scanners, Koç University, July 2012
17. M. Kivanc Hedili, HUD screen design, Koc University, July 2013
18. Basarbatu Can, Optical Sensor Design and Development for Identification of Fluids Using Nanotags, Koç University, August 2014.
19. Amir H. Ghanbariniaki, Pinhole Imaging Based Solutions for Stereoscopic 3D and Head Worn Displays, July 2015
20. Osman Eldeş, Autostereoscopic Projection Display using Rotating Screen, January 2016
21. Yusuf Samet Yaras, J A Portable Blood Coagulation Time Measurement Platform with Fiber-Optic Based Disposable Cartridgeune 2016
22. Deniz Mengu, , Fast high quality speckle free phase computer generated holographic image projection July 2016

23. Hazal Er, Compact coherent backlight illuminator for wide field-of-view near to eye displays.

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24.Serhan Can, Fast tracker technologies, joined spring 2014

1. Ugur Yekta Basak, Pinhole wearable displays, joined fall 2016

***Invited and Plenary Presentations at International Conferences:***

* ***Invited Paper,“***Wearable and augmented reality displays using MEMS and SLMs,” in SPIE OPTO, pp. 976004-1 ,976004-6, California, March 2016
* ***Plenary Paper*** “3D and Wearable Laser Displays” Laser Display and Lighting Conference, April 2015, Yokohama, Japan <https://ldc.iis.u-tokyo.ac.jp/index.html>
* ***Invited*** “MEMS Scanners and Emerging Display Applications,” ICMEMSS Conference, Chennai, India, Dec 2014 <http://www.ee.iitm.ac.in/ICMEMSS2014/>
* ***Invited*** “3D Displays and micro-structured augmented reality screens” Photon 2014, London, UK
* ***Plenary Paper*** “Emerging Augmented Reality and 3D Displays,” 3DTV-Con, Budapest, Hungary, July 2014
* ***Invited*** Augmented reality and 3D displays using pico-projectors, Eurodisplay 33rd International Display Research Conference, Sep, 2013, London, UK
* ***Invited*** “MEMS Scanners and Emerging 3D and Interactive Display Applications” Transducers/Eurosensors, Barcelona, Spain, June 2013
* ***Invited*** “3D displays using MEMS and Micro-optics,” OSA Photonics 2012 Conference, Chennai, India, Dec 2012
* ***Invited*** “Novel 3D Displays,” 14th National Photonics Conference, Istanbul, Sep. 2012
* ***Invited*** “Biosensors for Narcotics,” International Academy for Legalized Medicine Congress, Istanbul, July 2012
* “MEMS Biosensors for POC Diagnostics (Invited presentation).” International NanoMedicine Congress, Ankara, Turkey, June 2012
* “SOI Based MEMS Displays, Spectrometers (Invited presentation),” EPFL CMI Workshop. Lausanne, May 2012
* “MEMS biosensor for POC diagnostics (Invited presentation),” JRC Biotechnology Workshop, Ispra, Italy, Nov. 2011
* “3D Laser Scanning Displays (Invited paper), 3DMR 3D Displays and Materials Research Conference, Jeju-Korea, June 2011
* “Optical MEMS Devices and Applications (Invited presentation), 1. National MEMS Workshop, ODTÜ-Ankara, Dec. 2010
* “MEMS Stages and Scanners for Display, Imaging, and Spectroscopy and Their Dynamic Characterization (Invited Presentation),” Asian Conference on Experimental Mechanics, ICEM 2009, Singapore, Nov. 2009.
* “MEMS and FR4 Scanners for Microdisplay and Imaging Applications (Invited Presentation),” ICMEMS Conference, Chennai, India, Jan 2009
* “MEMS Fourier Spectrometers (Invited Presentation),” OASIS Conference, Tel-Aviv, Israel, Mar. 2007
* “Electromagnetic Actuators for Scanners (Keynote Paper),” Eurosensors XX Conference, Göteborg, Sweden, Sep. 2006
* “MEMS for biosensing and endoscopic imaging (Invited paper),” International Workshop on Bio-Nano Technology, İTÜ-Istanbul-Turkey, Nov. 2006.
* “Micro-optics and MEMS: A powerful combination with many applications (Invited Lecture),” SPIE Photonics Expert Lectures, Warsaw, Poland, 2005
* “Two-axis MEMS Scanner for Display and Imaging Applications (Invited Paper)”, IEEE Optical MEMS 2005 Conference, Aug, 2005, Oulu, Finland.
* “High performance resonant MEMS scanners for display and imaging applications (Invited Paper),” in Optomechatronic micro/nano components, devices, and systems conference, Philadelphia, USA, October 2004.
* “Mikro-Elektro-Mekanik Sistem (MEMS) Teknolojisi Kullanan Displayler (Invited presentation)”, 3. Ulusal Elektro-Optik Calisma Toplantisi, Aselsan, Ankara, November, 2001.

***Invited University Lectures and Seminars:***

* “Akademik Bilgi Nasıl Ticarileşir?,” Global Girişimcilik Haftası, İzmir Ticaret Odası, November 2015, İzmir, Türkiye
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