

# MURAT KURT

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International Computer Institute,  
Ege University,  
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TURKEY

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## PROFESSIONAL EXPERIENCE

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NOV. 2005 - PRESENT | **Research and Teaching Assistant.**  
International Computer Institute, Ege University, İZMİR, TURKEY.

## EDUCATION

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SEPT. 2007 - JAN. 2014 | International Computer Institute, Ege University, İZMİR, TURKEY.  
**Ph.D. in Computer Science.**  
Thesis: "An Efficient Model for Subsurface Scattering in Translucent Materials".  
Advisor: Prof. Dr. Aydın ÖZTÜRK.  
GPA: 91.14/100.

SEPT. 2003 - AUG. 2007 | International Computer Institute, Ege University, İZMİR, TURKEY.  
**M.Sc. in Computer Science.**  
Thesis: "A New Illumination Model in Computer Graphics".  
Advisor: Prof. Dr. Aydın ÖZTÜRK.  
GPA: 88.25/100.

SEPT. 1998 - JUNE 2002 | Department of Civil Engineering, Dokuz Eylül University, İZMİR, TURKEY.  
**B.Sc. in Civil Engineering.**  
Thesis: "Self Compact Concrete and Experimental Studies on Self Compact Concrete".  
Advisor: Prof. Dr. Bülent BARADAN.  
GPA: 84.00/100 (3.40/4.00).

## RESEARCH INTERESTS

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Computer Graphics: Appearance Capture, Appearance Modeling, Realistic Rendering, Global Illumination Algorithms, Physically-Based Rendering, Real-Time Rendering, GPU-Based Rendering and Participating Media Rendering.

Image Processing: Licence Plate Recognition, Image Registration, Image Enhancement, Image Filtering and Pattern Recognition.

Scientific Computing: Monte Carlo Methods and Efficient Sampling, Factorization Techniques, Optimization, Compression Methods, Interpolation Techniques, Probability and Statistics, Linear and Non-Linear Fitting Techniques, Wavelets and Spherical Harmonics.

## GRANTS AND AWARDS

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2016 | Inclusion in the 12<sup>th</sup> Edition of Who's Who in Science and Engineering.

- 2009 - 2016 Figure 5 in “Linear approximation of Bidirectional Reflectance Distribution Functions” was selected for the front cover of Computers & Graphics.
- 2015 Computers & Graphics Valuable Reviewer Award 2013-2014.
- 2015 EBİLTEM (Ege University Science and Technology Center) Project Submission Award.
- 2014 Inclusion in the 32<sup>nd</sup> Edition of Who’s Who in the World.
- 2012 - 2014 Microsoft Hardware and Software Gifts.
- 2013 Inclusion in the 31<sup>st</sup> Edition of Who’s Who in the World.
- 2012 Inclusion in the 30<sup>th</sup> Edition of Who’s Who in the World.
- 2012 EBİLTEM (Ege University Science and Technology Center) Publication Award.
- 2008 - 2011 TÜBİTAK (The Scientific and Technological Research Council of Turkey) ULAKBİM International Scientific Publication Encouragement Award.
- 2010 The Best Paper Award was given to “Adaptive Sampling for Environment Mapping” in the 26<sup>th</sup> Spring Conference on Computer Graphics (SCCG ’10).
- 2007 TÜBİTAK (The Scientific and Technological Research Council of Turkey) Ph.D. Scholarship (program no: 2211) (for 5 years).
- 2002 Ranked 2<sup>nd</sup> in Graduation from Department of Civil Engineering, Dokuz Eylül University, İZMİR, TURKEY.
- 2000 - 2002 Honor Student at B.Sc. Program, Dokuz Eylül University, İZMİR, TURKEY.

## CURRENT PROJECTS

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- SEP. 2015 - SEP. 2017 TÜBİTAK Project, Ege University, İZMİR, TURKEY.  
 Project Name: “A Data-Driven BSDF Representation”.  
 Position: Project Advisor.  
 Project No - Project Budget: 115E203 - 32.500 \$.  
 Funded By: 3001-Start R&D Projects Support Program, TÜBİTAK, TURKEY.  
 Description: Interpolating and modeling sparsely measured BSDF data in translucent materials and rendering a data-driven BSDF representation using mainly C++, MATLAB, and RADIANCE.

## COMPLETED PROJECTS

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- MAY 2012 - MAY 2014 TÜBİTAK Project, Ege University, İZMİR, TURKEY.  
 Project Name: “An Efficient Model for Subsurface Scattering in Translucent Materials”.  
 Project Advisor: Prof. Dr. Aydın ÖZTÜRK.  
 Position: Researcher and Software Developer.  
 Project No - Project Budget: 111E208 - 65.200 \$.  
 Funded By: 1001-Scientific and Technological Research Projects Support Program, TÜBİTAK, TURKEY.

- Description: Modeled subsurface scattering in translucent materials and rendered a subsurface scattering model using mainly C++, MATLAB, and MITSUBA.
- SEP. 2011 - JUNE 2013 Scientific Research Project, Ege University, İZMİR, TURKEY.  
 Project Name: "Using of Android-Based Systems on Augmented Reality and Education".  
 Project Advisor: Asst. Prof. Dr. Cengiz GÜNGÖR.  
 Position: Researcher and Software Developer.  
 Project No - Project Budget: 2011/UBE/002 - 7.000 \$.  
 Funded By: Scientific Research Projects Directorate, Ege University, TURKEY.  
 Description: Designed and implemented an application working on Android operating system.
- OCT. 2010 - OCT. 2012 Scientific Research Project, Ege University, İZMİR, TURKEY.  
 Project Name: "Color Reduction of Bidirectional Reflectance Distribution Function (BRDF) Data with Neural Networks".  
 Project Advisor: Assoc. Prof. Dr. Muhammed CİNSDİKİCİ.  
 Position: Researcher and Software Developer.  
 Project No - Project Budget: 2010/UBE/002 - 7.500 \$.  
 Funded By: Scientific Research Projects Directorate, Ege University, TURKEY.  
 Description: Modeled measured BRDF data using mainly C++ and MATLAB.
- JUNE 2009 - JUNE 2012 Scientific Research Project, Ege University, İZMİR, TURKEY.  
 Project Name: "A Human Face Model Extraction Using New Technologies and Capturing of Body Motion which Belongs to the Model".  
 Project Advisor: Asst. Prof. Dr. Cengiz GÜNGÖR.  
 Position: Researcher and Software Developer.  
 Project No - Project Budget: 2009/UBE/001 - 4.000 \$.  
 Funded By: Scientific Research Projects Directorate, Ege University, TURKEY.  
 Description: Designed and implemented a GUI solution using mainly C++.
- FEB. 2010 - FEB. 2012 KOSGEB Project, Ege University, İZMİR, TURKEY.  
 Project Name: "Three-Dimensional Dies Design Program Development".  
 Project Manager: Mustafa BİNTAŞ.  
 Project Advisor: Prof. Dr. Aydın ÖZTÜRK and Asst. Prof. Dr. Cengiz GÜNGÖR.  
 Position: Volunteer Researcher and Software Developer.  
 Project No - Project Budget: 2010/03 - 370.000 \$.  
 Funded By: Technology Research and Development Support, KOSGEB, TURKEY.  
 Description: Designed and implemented a CAD solution using mainly C++ and QT.
- MARCH 2010 - AUG. 2011 TÜBİTAK Project, Ege University, İZMİR, TURKEY.  
 Project Name: "Process Innovation at Dies Design and Three-Dimensional Design Program Development".  
 Project Manager: Mustafa BİNTAŞ.

Project Advisor: Prof. Dr. Aydın ÖZTÜRK and Asst. Prof. Dr. Cengiz GÜNGÖR.

Position: Volunteer Researcher and Software Developer.

Project No - Project Budget: 7090852 - 260.000 \$.

Funded By: 1507-KOBİ R&D Start Support Program, TÜBİTAK, TURKEY.

Description: Designed and implemented a CAD solution using mainly C++ and QT.

SEP. 2007 - SEP. 2009

Scientific Research Project, Ege University, İZMİR, TURKEY.

Project Name: "A License Plate Recognition (LPR) System for Ege University Campus Car Entrance Control".

Project Advisor: Assoc. Prof. Dr. Muhammed CİNSDİKİCİ.

Position: Researcher and Software Developer.

Project No - Project Budget: 2007/UBE/002 - 7.000 \$.

Funded By: Scientific Research Projects Directorate, Ege University, TURKEY.

Description: Designed and implemented a GUI solution using mainly C++ and MATLAB.

SEP. 2007 - SEP. 2008

Scientific Research Project, Ege University, İZMİR, TURKEY.

Project Name: "Medical Image Registration for Radiological Images of the Same Patient Taken at Different Points in Time and Determination of the Abnormal Progress and Measurement of Areas of These Regions".

Project Advisor: Asst. Prof. Dr. Cengiz GÜNGÖR.

Position: Researcher and Software Developer.

Project No - Project Budget: 2007/UBE/003 - 7.000 \$.

Funded By: Scientific Research Projects Directorate, Ege University, TURKEY.

Description: Designed and implemented a GUI solution using mainly C++ and MATLAB.

SEP. 2005 - DEC. 2006

EU Sixth Framework Program Project, Ege University, İZMİR, TURKEY.

Project Name: "CAD Production Pipeline (CADPIPE)".

Project Manager: Hannu KUUKKANEN.

Project Advisor: Prof. Dr. Aydın ÖZTÜRK.

Position: Researcher and Software Developer.

Project No - Project Budget: 512897 - 1.200.000 €.

Funded By: EU Sixth Framework Program, European Union.

Description: Designed and implemented a CAD solution using mainly C++ and MFC.

## TEACHING EXPERIENCE

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Instructor, International Computer Institute, Ege University, İZMİR, TURKEY.

SPRING 2016 UBI 516 - Advanced Computer Graphics.

Teaching Assistant, International Computer Institute, Ege University, İZMİR, TURKEY.

SPRING 2016 UTİ 518 - Computer Graphics and Game Programming.

FALL 2015 UBI 545 - Distributed Algorithms.

UBI 509 - Network Science.

	UTİ 515 - Distributed Algorithms for Computer Networks.
SPRING 2015	UBI 530 - Mobile and Distributed Technologies. UBI 516 - Advanced Computer Graphics.
FALL 2014	UBI 545 - Distributed Algorithms. UBI 551 - Mobile Programming. UTİ 551 - Mobile Programming.
SPRING 2014	UBI 532 - Mobile Ad Hoc Networks and Wireless Sensor Networks. UTİ 522 - Wireless Sensor Networks. UBI 516 - Advanced Computer Graphics.
FALL 2013	UTİ 527 - Design and Analysis of Algorithms. OUBE 603 - Algorithm and Complexity. UBI 545 - Distributed Algorithms. OUBE 615 - Distributed Algorithms.
SPRING 2013	UBI 532 - Mobile Ad Hoc Networks and Wireless Sensor Networks. UTİ 522 - Wireless Sensor Networks. UBI 516 - Advanced Computer Graphics.
FALL 2012	OUBE 603 - Algorithm and Complexity. UBI 545 - Distributed Algorithms.
SPRING 2012	UBI 516 - Advanced Computer Graphics.
FALL 2011	UBI 621 - Image Processing.
SPRING 2011	UBI 516 - Advanced Computer Graphics.
FALL 2010	UBI 621 - Image Processing.
SPRING 2010	UBI 516 - Advanced Computer Graphics. UBI 532 - Wireless Sensor Networks.
FALL 2009	UBI 621 - Digital Image Processing.
SPRING 2009	UBI 516 - Advanced Computer Graphics. UBI 532 - Wireless Sensor Networks.
FALL 2008	UBI 621 - Digital Image Processing. UBI 503 - Data Structures and Algorithms (with C).
SPRING 2008	UBI 516 - Advanced Computer Graphics. UBI 504 - Programming Languages. UBI 612 - Digital Image Processing.
FALL 2007	UBI 503 - Data Structures and Algorithms (with C).
SPRING 2007	UBI 516 - Advanced Computer Graphics.
FALL 2006	UBI 503 - Data Structures and Algorithms (with C++).
SPRING 2006	UBI 516 - Advanced Computer Graphics.

## PUBLICATIONS

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### JOURNAL PAPERS

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- [1] Ahmet Bilgili, Aydın Öztürk, and Murat Kurt. A General BRDF Representation Based on Tensor Decomposition. *Computer Graphics Forum*, 30(8):2427–2439, December 2011. (Presented at Eurographics 2012).

- [2] László Szécsi, László Szirmay-Kalos, Murat Kurt, and Balázs Csébfalvi. Adaptive Sampling for Global Illumination Rendering. *Computer Graphics and Geometry*, 13(1):14–30, 2011.
- [3] Aydın Öztürk, Murat Kurt, and Ahmet Bilgili. A Copula-Based BRDF Model. *Computer Graphics Forum*, 29(6):1795–1806, September 2010.
- [4] Murat Kurt, László Szirmay-Kalos, and Jaroslav Křivánek. An Anisotropic BRDF Model for Fitting and Monte Carlo Rendering. *SIGGRAPH Computer Graphics*, 44(1):1–15, February 2010.
- [5] Murat Kurt and Dave Edwards. A Survey of BRDF Models for Computer Graphics. *SIGGRAPH Computer Graphics*, 43(2):1–7, May 2009.
- [6] Murat Kurt and Muhammed Gökhan Cinsdikici. Representing BRDFs Using SOMs and MANs. *SIGGRAPH Computer Graphics*, 42(3):1–18, August 2008.
- [7] Aydın Ozturk, Murat Kurt, Ahmet Bilgili, and Cengiz Gungor. Linear approximation of Bidirectional Reflectance Distribution Functions. *Computers & Graphics*, 32(2):149–158, April 2008.

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PEER-REVIEWED INTERNATIONAL CONFERENCE PAPERS

- [8] Sermet Önel, Murat Kurt, and Aydın Öztürk. An Efficient Plugin for Representing Heterogeneous Translucent Materials. In *Proceedings of the 2nd International Conference on Computer Graphics, Animation and Gaming Technologies*, Eurasia Graphics '14, pages 2:1–2:5, Ankara, Turkey, October 2014. Hacettepe University Press.
- [9] Greg Ward, Murat Kurt, and Nicolas Bonneel. Reducing Anisotropic BSDF Measurement to Common Practice. In Reinhard Klein and Holly Rushmeier, editors, *Proceedings of the 2nd Eurographics Workshop on Material Appearance Modeling: Issues and Acquisition*, MAM '14, pages 5–8, Lyon, France, 2014. Eurographics Association.
- [10] Murat Kurt, Aydın Öztürk, and Pieter Peers. A Compact Tucker-Based Factorization Model for Heterogeneous Subsurface Scattering. In Silvester Czanner and Wen Tang, editors, *Proceedings of the 11th Theory and Practice of Computer Graphics*, TPCG '13, pages 85–92, Bath, United Kingdom, 2013. Eurographics Association.
- [11] Serkan Ergun, Murat Kurt, and Aydın Öztürk. Real-time Kd-tree Based Importance Sampling of Environment Maps. In *Proceedings of the 28th Spring Conference on Computer Graphics*, SCCG '12, pages 77–84, New York, NY, USA, 2012. ACM.
- [12] Ahmet Bilgili, Aydın Öztürk, and Murat Kurt. Representing BRDF by Wavelet Transformation of Pair-Copula Constructions. In *Proceedings of the 28th Spring Conference on Computer Graphics*, SCCG '12, pages 63–69, New York, NY, USA, 2012. ACM.
- [13] Mustafa Bintas, Aydın Ozturk, Cengiz Gungor, Aycan Tutay, Ahmet Bilgili, Murat Kurt, Serkan Ergun, Tugce Kayitken, and Ercan Gercek. Development of a Computer Aided Die Design Software and Die Design Process Modeling. In Metin Kök, Erhan Budak, Mehmet Firat, and Bilgin Kaftanoğlu, editors, *Proceedings of the 6th International Conference and Exhibition on Design and Production of Machines and Dies/Molds*, pages 285–290, Ankara, Turkey, 2011. Atılım University Publications.
- [14] Aydın Öztürk, Murat Kurt, and Ahmet Bilgili. Modeling BRDF by a Probability Distribution. In *Proceedings of the 20th International Conference on Computer Graphics and Vision*, pages 57–63, St. Petersburg, Russia, 2010.
- [15] László Szécsi, László Szirmay-Kalos, Murat Kurt, and Balázs Csébfalvi. Adaptive Sampling for Environment Mapping. In *Proceedings of the 26th Spring Conference on Computer Graphics*, SCCG '10, pages 69–76, New York, NY, USA, 2010. ACM.
- [16] László Szécsi, László Szirmay-Kalos, and Murat Kurt. Adaptive Sampling with Error Control. In *Proceedings of the Fifth Hungarian Conference on Computer Graphics and Geometry*, pages 47–54, Budapest, Hungary, 2010.

- [17] Aydın Öztürk, Ahmet Bilgili, and Murat Kurt. Polynomial Approximation of Blinn-Phong Model. In Louise M. Lever and Mary McDerby, editors, *Proceedings of the 4th Theory and Practice of Computer Graphics*, TPCG '06, pages 55–61, Middlesbrough, United Kingdom, 2006. Eurographics Association.

#### PEER-REVIEWED NATIONAL CONFERENCE PAPERS

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- [18] Özkan Anıl Töral, Serkan Ergun, Murat Kurt, and Aydın Öztürk. Mobile GPU-Based Importance Sampling. In *Proceedings of the IEEE 22nd Signal Processing and Communications Applications Conference*, SIU '14, pages 510–513, Trabzon, Turkey, April 2014. IEEE.
- [19] Cengiz Güngör and Murat Kurt. Improving Visual Perception of Augmented Reality on Mobile Devices with 3D Red-Cyan Glasses. In *Proceedings of the IEEE 22nd Signal Processing and Communications Applications Conference*, SIU '14, pages 1706–1709, Trabzon, Turkey, April 2014. IEEE.

#### REFEREED ABSTRACTS

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- [20] Murat Kurt and Aydın Öztürk. A Heterogeneous Subsurface Scattering Representation Based on Compact and Efficient Matrix Factorization. In *Proceedings of the 24th Eurographics Symposium on Rendering, Posters*, EGSR '13, Zaragoza, Spain, June 2013. Eurographics Association.

#### TECHNICAL REPORTS

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- [21] Greg Ward, Murat Kurt, and Nicolas Bonneel. A Practical Framework for Sharing and Rendering Real-World Bidirectional Scattering Distribution Functions. Technical Report LBNL-5954E, Lawrence Berkeley National Laboratory, September 2012.

#### THESES

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- [22] Murat Kurt. *An Efficient Model for Subsurface Scattering in Translucent Materials*. International Computer Institute, Ege University, Izmir, Turkey, 2014. 122 pages, Ph.D. Dissertation.
- [23] Murat Kurt. *A New Illumination Model in Computer Graphics*. International Computer Institute, Ege University, Izmir, Turkey, 2007. 140 pages, M.Sc. Dissertation.

#### INVITED TALKS

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- [24] Murat Kurt. Grand Challenges in BSDF Measurement and Modeling. The Workshop on Light Redirection and Scatter: Measurement, Modeling, Simulation, Lucerne, Switzerland, August 2014. (Invited Talk).

#### PROFESSIONAL ACTIVITIES

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##### GUEST EDITOR

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2014 Turkish Journal of Electrical Engineering & Computer Sciences.

##### PROGRAM COMMITTEE MEMBER

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2015 Eurographics 2015 STARS (State of the Art Reports).  
2014 International Conference in Central Europe on Computer Graphics, Visualization and Computer Vision (WSCG) 2014 Full Papers.  
2014 Global Game Jam Ege 2014.

## REVIEWER FOR JOURNALS

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2014 - PRESENT	ACM Transactions on Graphics.
2010 - PRESENT	Computer Graphics Forum.
2011 - PRESENT	Computers & Graphics.
2015 - PRESENT	The Visual Computer.
2014 - PRESENT	Turkish Journal of Electrical Engineering & Computer Sciences.
2014 - PRESENT	Signal, Image and Video Processing.

## REVIEWER FOR CONFERENCES

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2016	SIGGRAPH 2016.
2015	International Conference in Central Europe on Computer Graphics, Visualization and Computer Vision (WSCG) 2015.
2015	Eurographics 2015.
2014	Pacific Graphics 2014.
2014	International Conference in Central Europe on Computer Graphics, Visualization and Computer Vision (WSCG) 2014.
2013	Pacific Graphics 2013.
2013	International Conference in Central Europe on Computer Graphics, Visualization and Computer Vision (WSCG) 2013.
2013	Eurographics Symposium on Parallel Graphics and Visualization (EGPGV) 2013.
2012	Pacific Graphics 2012.
2012	International Conference in Central Europe on Computer Graphics, Visualization and Computer Vision (WSCG) 2012.

## RESEARCH VISITS

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OCT. 2014	Lucerne University of Applied Sciences and Arts, LUCERNE, SWITZERLAND. Host: Prof. Dr. Stephen Wittkopf. Description: Goniophotometer training and transmissive material modeling.
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## AFFILIATIONS

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JAN. 2010 - PRESENT	EUROGRAPHICS (The European Association for Computer Graphics).
SEP. 2012 - PRESENT	ACM SIGGRAPH.

## LANGUAGES

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TURKISH:	Native.
ENGLISH:	Fluent.

## REFERENCES

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AVAILABLE IF REQUESTED.