Prof. GÖKHAN BORA ESMER

Personal Information

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Education Information

Doctorate, Ihsan Dogramaci Bilkent University, Institute Of Engineering And Natural Sciences, Elektrik-Elektronik Mühendisliği (Dr), Turkey 2004 - 2010
Postgraduate, Ihsan Dogramaci Bilkent University, Institute Of Engineering And Natural Sciences, Elektrik Ve Elektronik Mühendisliği (Yl) (Tezli), Turkey 2001 - 2004
Undergraduate, Hacettepe University, Mühendislik Fakültesi, Elektrik-Elektronik Mühendisliği Bölümü, Turkey 1996 - 2001

Biography

Gökhan Bora Esmer received the Ph.D. degree in Electrical and Electronics Engineering in 2010 from Bilkent University, Turkey. He worked as an instructor in Bilkent University for the following semester. In 2011, he joined the faculty of Engineering at Marmara University in Istanbul, Turkey. He is currently a full-time Professor in the Department of Electrical and Electronics Engineering at Marmara University. His research interests are in the areas of 3D visualization techniques, digital holography and computer-generated holography.

Certificates, Courses and Trainings

IT, Çevik Proje Yönetimi, İstanbul Kurumsal Gelişim, 2020
Education Management and Planning, PMP Sınav Hazırlık Eğitimi, İstanbul Kurumsal Gelişim, 2020

Dissertations

Doctorate, Calculation of scalar optical diffraction field from its distributed samples over the space, İhsan Doğramacı Bilkent Üniversitesi, Mühendislik Ve Fen Bilimleri Enstitüsü, Elektrik-Elektronik Mühendisliği (Dr), 2010
Postgraduate, Computation of holographic patterns between tilted planes, İhsan Doğramacı Bilkent Üniversitesi, Mühendislik Ve Fen Bilimleri Enstitüsü, Elektrik Ve Elektronik Mühendisliği (Yl) (Tezli), 2004

Research Areas

3D Impressions, Computer Vision, Electrical and Electronics Engineering, Optics and Photonics, Engineering and Technology

Academic Titles / Tasks

Academic Titles / Tasks

Professor, Marmara University, Faculty Of Engineering, Electrical And Electronics Engineering, 2021 - Continues
Associate Professor, Marmara University, Faculty Of Engineering, Electrical And Electronics Engineering, 2014 - 2021
Assistant Professor, Marmara University, Faculty Of Engineering, Electrical And Electronics Engineering, 2011 - 2014
Assistant Professor, Beykent University, Faculty Of Engıneerıng-Archıtecture, Department Of Electronıcs And Communıcatıons Engıneerıng, 2010 - 2011
Lecturer, Ihsan Dogramaci Bilkent University, Faculty Of Engıneerıng, Department Of Electrıcal And Electronıcs Engıneerıng, 2010 - 2010
Research Assistant, Ihsan Dogramaci Bilkent University, Faculty Of Engıneerıng, Department Of Electrıcal And Electronıcs Engıneerıng, 2001 - 2010

Academic and Administrative Experience

Marmara University, Faculty of Engineering, Elektrik-Elektronik Mühendisliği Bölümü, 2014 - 2017
Head of Department, Marmara University, Faculty of Engineering, Elektrik-Elektronik Mühendisliği Bölümü, 2011 - 2017

Courses

Optics, Postgraduate, 2018 - 2019
Engineering Project II, Undergraduate, 2018 - 2019
Circuit Theory II, Undergraduate, 2018 - 2019
Introduction to Image Processing, Undergraduate, 2018 - 2019
Signals and Systems, Undergraduate, 2018 - 2019
Engineering Project I, Undergraduate, 2018 - 2019
Advanced Signal Processing, Postgraduate, 2018 - 2019

Articles Published in Journals That Entered SCI, SSCI and AHCI Indexes

I. **Interferometric Measurement of TGF-beta Induced Epithelial-Mesenchymal Transition of Tumor Cells**
Varol R., ESMER G. B. , ÜVET H.
APPLIED SCIENCES-BASEL, vol.10, no.24, 2020 (Journal Indexed in SCI)

II. **Accurate diffraction field calculation method based on L-1-norm minimization from three-dimensional objects**
ESMER G. B.
APPLIED OPTICS, vol.58, no.5, 2019 (Journal Indexed in SCI)

III. **Real-time computation of diffraction fields for pixelated spatial light modulators**
Esmer G. B.
OPTICS EXPRESS, vol.23, no.10, pp.12636-12647, 2015 (Journal Indexed in SCI)

IV. **An algorithm for resolution enhancement of low-resolution patterns captured by a sensor array**
Esmer G. B.
OPTICS COMMUNICATIONS, vol.313, pp.421-429, 2014 (Journal Indexed in SCI)

V. **Fast computation of Fresnel diffraction field of a three-dimensional object for a pixelated optical device**
Esmer G. B.
APPLIED OPTICS, vol.52, no.1, 2013 (Journal Indexed in SCI)

VI. **Exact diffraction calculation from fields specified over arbitrary curved surfaces**
ESMER G. B. , ONURAL L., ÖZAKTAŞ M. H.
OPTICS COMMUNICATIONS, vol.284, no.24, pp.5537-5548, 2011 (Journal Indexed in SCI)

VII. **Diffraction field computation from arbitrarily distributed data points in space**

ESMER G. B. , Uzunov V., ONURAL L., ÖZAKTAŞ M. H. , Gotchev A.
SIGNAL PROCESSING-IMAGE COMMUNICATION, vol.22, no.2, pp.178-187, 2007 (Journal Indexed in SCI)

Articles Published in Other Journals

I. **Performance Assessment of a Fast and Accurate Scalar Optical Diffraction Field Computation Algorithm**
ESMER G. B.
3D-Research, vol.4, 2013 (Refereed Journals of Other Institutions)

Books & Book Chapters

I. **Real-Time Diffraction Field Calculation Methods for Computer-Generated Holograms**
ESMER G. B.
in: Holographic Materials and Applications, Manoj Kumar, Editor, InTech Open Limited, Londrina, pp.109-126, 2019

II. **Yapay Zeka ve Girişimsel İşlemler**
ESMER G. B.
in: Sağlık Bilimlerinde Yapay Zeka, Melih Bulut, Nevit Dilmen, Gökhan Bora Esmer, Murat Gezer, Çiğdem Selçukcan Erol, Leyla Türket Şener, Editor, Çağlayan Kitapevi ve Eğitim Çözümleri Ticaret A.Ş., İstanbul, pp.113-124, 2019

III. **Holographic 3DTV Displays Using Spatial Light Modulators**
metodi k., rositza i., philip b., ESMER G. B. , ONURAL L., john w., REYHAN T.
in: Three Dimensional Television Capture Transmission Display, Haldun M. Ozaktas, Levent Onural, Editor, Springer, Berlin, pp.529-555, 2008

Refereed Congress / Symposium Publications in Proceedings

I. **Measurement of Mechanical Response of Cell Membrane to High-Frequency Periodic Stimuli**
Varol R., Ömeroğlu S., Demircali A., ÜVET H., ESMER G. B.
Digital Holography and Three-Dimensional Imaging, 22 - 26 June 2020

II. **Interferometric Measurement of Refractive Index Change of Tumor Cells Under Electrical Fields**
Varol R., Ömeroğlu S., Yılmaz A., ORUÇ M. E. , ESMER G. B. , ÜVET H.
Digital Holography and Three-Dimensional Imaging, 22 - 26 June 2020

III. **Holographic imaging of tumor cells during epithelial-mesenchymal transition**
Varol R., ESMER G. B. , Efe O., Ömeroğlu S., Aydemir G., Karadağ A., Meço E., ORUÇ M. E. , BAŞBINAR Y., ÜVET H.
Photonics Europe 2020, 6 - 08 April 2020

IV. **Holographic Imaging of Cancer Cell Proliferation**
Ömeroğlu S., Meço E., Karadağ A., Aydemir G., Varol R., ORUÇ M. E. , BAŞBINAR Y., ESMER G. B. , ÜVET H.
2nd International Cancer Ion Channels Congress, İzmir, Turkey, 22 - 24 September 2019

V. **Immobilization of CTCs on Silane-Modified Surfaces**
Ömeroğlu S., Meço E., Karadağ A., Aydemir G., Varol R., ORUÇ M. E. , BAŞBINAR Y., ESMER G. B. , ÜVET H.
2nd International Cancer Ion Channels Congress, İzmir, Turkey, 22 - 24 September 2019

VI. **HOLOGRAPHIC IMAGING OF CELL PROLIFERATION**
VAROL R., AYDEMİR G., KARADAĞ A., MEÇO E., ÖMEROĞLU S., ORUÇ M. E. , BAŞBINAR Y., ESMER G. B. , ÜVET H.
2nd International Cancer And Ion Channels Congress 2019, İzmir, Turkey, 22 - 24 September 2019, vol.44, pp.28-30

VII. **Volumetric extraction of pulmonary blood vessels from computerized tomography scans**
ARIBAŞ K., ESMER G. B. , ŞİŞMAN A., LAÇİN T., SARIGÜL N., AYVACIKLI B.

2018 26th Signal Processing and Communications Applications Conference (SIU), İzmir, Turkey, 2 - 05 May 2018, vol.1, pp.1-4

VIII. **L1-norm minimization-based accurate diffraction field calculation method emitted by three-dimensional objects**
ESMER G. B.
Conference on Unconventional Optical Imaging, Strasbourg, France, 22 - 26 April 2018, vol.10677

IX. **Computation of exact diffraction field from its distributed samples**
ESMER G. B.
SPIE Conference on Practical Holography XXXI - Materials and Applications, San-Francisco, Costa Rica, 30 January - 01 February 2017, vol.10127

X. **Performance assessment of LUT based diffractionfield calculation method for pixelated SLMs**
ESMER G. B.
Digital Holography and 3D Imaging, Heidelberg, Germany, 25 - 28 July 2016

XI. **Real-Time Diffraction Field Calculation Method for Spatial Light Modulators with Pixelated Structure**
ESMER G. B.
24th Signal Processing and Communication Application Conference (SIU), Zonguldak, Turkey, 16 - 19 May 2016, pp.1557-1560

XII. **Pikselli Yapıya Sahip Uzamsal I sık Kipleyicileri içinGerçek Zamanlı Kırınım Deseni Hesaplama Yöntemi**
ESMER G. B.
Sinyal İşleme ve Uygulamaları Kurultayı 2016, Turkey, 16 - 19 May 2016

XIII. **Reconstruction of Diffraction Field From Its Samples Distributed Over Space**
ESMER G. B. , otilia p., popescu d.
Digital Holography & 3-D Imaging Meeting, Shanghai, China, 24 - 28 May 2015

XIV. **An Iterative Algorithm for Improving Resolution and Signal to Noise Ratio of Captured Noisy Low Resolution Diffraction Fields**
ESMER G. B.
Digital Holography and 3D Imaging, 13 - 17 July 2014

XV. **Fast Computation Of Scalar Optical Diffraction Pattern For Pixelated Spatial Light Modulators**
Esmer G. B.
22nd IEEE Signal Processing and Communications Applications Conference (SIU), Trabzon, Turkey, 23 - 25 April 2014, pp.224-227

XVI. **Pikselli Uzamsal Işık Kipleyicileri için Skalar Optik Kırınım Deseninin Hızlı Hesaplanması**
ESMER G. B.
22. Sinyal I˙,sleme ve Uygulamaları Kurultayı, Trabzon, Turkey, 23 - 25 April 2014

XVII. **Algorithms for Fast Calculation of Scalar Optical Diffraction Field on a Pixelated Display Device**
ESMER G. B.
IEEE-Africon2013, 9 - 12 September 2013

XVIII. **Performance Assessment of a Fast and Accurate Scalar Optical Diffraction Field Computation Algorithm**
ESMER G. B.
Collaborative Conference on 3D Research 2013, 24 - 28 June 2013

XIX. **Örnekleme Yerlerinin Skalar Kırınım Deseninin Doğru Hesaplanmasındaki Etkisi**
ESMER G. B. , ONURAL L., ÖZAKTAŞ M. H.
20. Sinyal İşleme ve Uygulamaları Kurultayı, Muğla, Turkey, 18 - 20 April 2012

XX. **Performance Assessment of A Diffraction Field Computation Method Based on Source Model**
ESMER G. B. , ONURAL L., ÖZAKTAŞ M. H. , vladislav u., atanas g.
IEEE-3DTVCon 2008, 28 - 30 May 2008

XXI. **Bessel Functions Based Reconstruction of Non Uniformly Sampled Diffraction Fields**
vladislav u., ESMER G. B. , atanas g., ONURAL L., ÖZAKTAŞ M. H.
IEEE-3DTVCon 2007, 7 - 09 May 2007

XXII. **Reconstruction of Scalar Diffraction Field from Distributed Data Points Over 3D Space**
ESMER G. B. , ONURAL L., vladislav u., atanas g., ÖZAKTAŞ M. H.
IEEE-3DTVCon 2007, 7 - 09 May 2007

XXIII. **An algorithm for calculation of scalar optical diffraction due to distributed data over 3D space**
ESMER G. B. , ONURAL L., ÖZAKTAŞ M. H. , atanas g.
Proceedings of the 2nd Workshop on Immersive Communication and Broadcast Systems, ICOB 2005, Berlin, Germany, 27 October 2005 - 28 October 2006

XXIV. **Signal Processing Problems and Algorithms in Display Side of 3DTV**
ULUSOY E., ESMER G. B. , ÖZAKTAŞ M. H. , ONURAL L., atanas g., vladislav u.
ICIP 2006, 8 - 11 October 2006

XXV. **Reconstruction of Computer Generated Holograms by Spatial Light Modulators**
metodi k., rossitza i., ONURAL L., ESMER G. B. , REYHAN T., john w., philip b.
International Workshop, MRCS 2006, 11 - 13 September 2006

XXVI. **Non uniform sampling and reconstruction of diffraction field**
vladislav u., atanas g., ESMER G. B. , ÖZAKTAŞ M. H. , ONURAL L.
Workshop on SMMSP'06, 2 - 03 September 2006

XXVII. **Computation of holographic patterns between tilted planes**
ESMER G. B. , ONURAL L.
Holography 2005: International Conference on Holography, Optical Recording, and Processing of Information, Varna, Bulgaria, 21 - 25 May 2005

XXVIII. **Simulation of scalar optical diffraction between arbitrarily oriented planes**
ESMER G. B. , ONURAL L.
Control, Communications and Signal Processing, 2004. First International Symposium on, Hammamet, Tunisia, 21 - 24 March 2004

XXIX. **Hologram Simülatörü**
ESMER G. B. , ONURAL L.
11. Sinyal İşleme ve İletişim Uyugulamaları Kurultayı, İstanbul, Turkey, 18 - 20 June 2003, pp.487-490

Supported Projects

Esmer G. B. , Laçin T., TUBITAK Project, Yaşayan Anatomi, 2018 - 2020
Esmer G. B. , TUBITAK Project, Dolaşımdaki kanserli hücrelerin mekanik sertlik yapısındaki değişimini kantitatif faz görüntüleme yöntemi kullanarak ölçen holografik tek hücre görüntüleme tekniği, 2017 - 2020
Laçin T., Esmer G. B. , TUBITAK Project, Volümetrik 3 Boyutlu Navigasyon, 2017 - 2018
Esmer G. B. , Project Supported by Higher Education Institutions, Bilgisayarla Üretilmiş Hologramlarda Görüntü Kalitesinin İyileştirilmesi, 2015 - 2017
Esmer G. B. , TUBITAK Project, Gerçek Zamanlı Üç Boyutlu Holografik Görüntüleme İçin Yeni Yöntemler, 2013 - 2015
Esmer G. B. , Project Supported by Higher Education Institutions, Stereo Görüntülerden Üç Boyutlu Nesnelerin Bilgisayar Ortamında Oluşturulması, 2012 - 2013
Esmer G. B. , Onural L., FP7 Project, Real 3D Digital holography for 3D and 4D real world objects capture processing and display, 2008 - 2011
Esmer G. B. , Onural L., FP6 Project, Integrated Three Dimensional Television Capture Transmission and Display, 2004 - 2008

Patent

Üvet H., Baskın Y., Esmer G. B. , Oruç M. E. , Akustik Modül İçeren Bir Dijital Hologram Görüntüleme Cihazı, Patent, CHAPTER G Physics, The Invention Recourse Number: 2020/20477 , Initial Registration, 2020
Laçin T., Esmer G. B. , Arıbaş M. K. , A method and an algorithm to conduct a safe biopsy on lung airways, Patent,

CHAPTER A Human Needs, The Invention Recourse Number: WO2019245506 , Initial Registration, 2019