

Prof. MUHAMMED FATİH DEMİRCİ

Personal Information

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Education Information

Doctorate, Drexel University, Engineering, Computer Science, United States Of America 2002 - 2005

Postgraduate, Drexel University, Engineering, Computer Science, United States Of America 2000 - 2002

Undergraduate, Selcuk University, Faculty Of Engineering, Department Of Computer Engineering, Turkey 1995 - 1999

Research Areas

Computer Vision, Artificial Intelligence, Computer Learning and Pattern Recognition

Academic Titles / Tasks

Professor, Ankara Yildirim Beyazit University, Mühendislik Ve Doğa Bilimleri Fakültesi, Bilgisayar Mühendisliği, 2022 - Continues

Associate Professor, Tobb University Of Economics And Technology, Faculty Of Engineering, Department Of Computer Engineering, 2013 - 2022

Associate Professor, Nazarbayev University, School of Engineering and Digital Sciences, Computer Science, 2018 - 2021

Assistant Professor, Tobb University Of Economics And Technology, Faculty Of Engineering, Department Of Computer Engineering, 2007 - 2013

Expert PhD, Universiteit Utrecht, Department of Information and Computing Sciences, 2006 - 2007

Research Assistant, Drexel University, Engineering, Department of Computer Science, 2001 - 2005

Published journal articles indexed by SCI, SSCI, and AHCI

- I. **Fully automatic CNN design with inception and ResNet blocks**
Barakbayeva T., Demirci F. M.
Neural Computing and Applications, 2022 (SCI-Expanded)
- II. **Toward efficient and intelligent video analytics with visual privacy protection for large-scale surveillance**
Tu N. A. , Huynh-The T., Wong K., Demirci M. F. , Lee Y.
Journal of Supercomputing, vol.77, no.12, pp.14374-14404, 2021 (SCI-Expanded)
- III. **Deep learning-based investment strategy: technical indicator clustering and residual blocks**
Maratkhan A., Ilyassov I., Aitzhanov M., Demirci M. F. , Ozbayoglu A. M.
Soft Computing, vol.25, no.7, pp.5151-5161, 2021 (SCI-Expanded)
- IV. **Speech emotion recognition with deep convolutional neural networks**
Issa D., Fatih Demirci M. F. , YAZICI A.
Biomedical Signal Processing and Control, vol.59, 2020 (SCI-Expanded)
- V. **Object recognition based on critical nodes**
Boluk A., Demirci M. F.

- Pattern Analysis and Applications, vol.22, no.1, pp.147-163, 2019 (SCI-Expanded)
- VI. **2D and 3D shape retrieval using skeleton filling rate**
Sirin Y., Demirci M. F.
Multimedia Tools and Applications, vol.76, no.6, pp.7823-7848, 2017 (SCI-Expanded)
- VII. **Improving skeletal shape abstraction using multiple optimal solutions**
Akimaliev M., Demirci M. F.
Pattern Recognition, vol.48, no.11, pp.3504-3515, 2015 (SCI-Expanded)
- VIII. **Retrieving 2D shapes using caterpillar decomposition**
Demirci M. F.
Machine Vision and Applications, vol.24, no.2, pp.435-445, 2013 (SCI-Expanded)
- IX. **Graph-based shape indexing**
Demirci M. F.
Machine Vision and Applications, vol.23, no.3, pp.541-555, 2012 (SCI-Expanded)
- X. **Efficient many-to-many feature matching under the l1 norm**
Demirci M. F. , Osmanlioglu Y., Shokoufandeh A., Dickinson S.
Computer Vision and Image Understanding, vol.115, no.7, pp.976-983, 2011 (SCI-Expanded)
- XI. **The representation and matching of images using top points**
Demirci M. F. , Platel B., Shokoufandeh A., Florack L. L. M. J. , Dickinson S. J.
Journal of Mathematical Imaging and Vision, vol.35, no.2, pp.103-116, 2009 (SCI-Expanded)
- XII. **Skeletal shape abstraction from examples**
Demirci M. F. , Shokoufandeh A., Dickinson S. J.
IEEE Transactions on Pattern Analysis and Machine Intelligence, vol.31, no.5, pp.944-952, 2009 (SCI-Expanded)
- XIII. **Indexing through laplacian spectra**
Demirci M. F. , van Leuken R. H. , Veltkamp R. C.
Computer Vision and Image Understanding, vol.110, no.3, pp.312-325, 2008 (SCI-Expanded)
- XIV. **The representation and matching of categorical shape**
Shokoufandeh A., Bretzner L., Macrini D., Fatih Demirci M. F. , Jönsson C., Dickinson S.
Computer Vision and Image Understanding, vol.103, no.2, pp.139-154, 2006 (SCI-Expanded)
- XV. **Object recognition as many-to-many feature matching**
Demirci M. F. , Shokoufandeh A., Keselman Y., Bretzner L., Dickinson S.
International Journal of Computer Vision, vol.69, no.2, pp.203-222, 2006 (SCI-Expanded)
- XVI. **Many-to-many feature matching using spherical coding of directed graphs**
Fatih Demirci M. F. , Shokoufandeh A., Dickinson S., Keselman Y., Bretzner L.
Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics), vol.3021, pp.322-335, 2004 (SCI-Expanded)

Articles Published in Other Journals

- I. **Deep learning-based object classification and position estimation pipeline for potential use in robotized pick-and-place operations**
Soltan S., Oleinikov A., Demirci M. F. , Shintemirov A.
Robotics, vol.9, no.3, 2020 (ESCI)
- II. **Many-to-many feature matching in object recognition**
Shokoufandeh A., Keselman Y., Demirci F., Macrini D., Dickinson S.
Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics), vol.3948 LNCS, pp.107-125, 2006 (Scopus)
- III. **Many-to-many matching of scale-space feature hierarchies using metric embedding**
Demirci M. F. , Shokoufandeh A., Keselman Y., Dickinson S., Bretzner L.
Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics), vol.2695, pp.17-32, 2003 (Scopus)

Refereed Congress / Symposium Publications in Proceedings

- I. **Blockchain-Based Multi-fogcloud Authentication System**
Kwon J. H. , Kim Y. K. , Temir A., Artykbayev K., Demirci M. F. , Kim M. H.
11th International Conference on Computer Science and its Applications, CSA 2019 and 14th KIPS International Conference on Ubiquitous Information Technologies and Applications, CUTE 2019, Macao, China, 18 - 20 December 2019, vol.715, pp.521-528
- II. **Blockchain Based Authentication Method for ThingsBoard**
Jang S. I. , Kim J. Y. , Iskakov A., Fatih Demirci M. F. , Wong K. S. , Kim Y. J. , Kim M. H.
11th International Conference on Computer Science and its Applications, CSA 2019 and 14th KIPS International Conference on Ubiquitous Information Technologies and Applications, CUTE 2019, Macao, China, 18 - 20 December 2019, vol.715, pp.471-479
- III. **Breast cancer histopathology image classification using CNN**
Karatayev M., Khalyk S., Adai S., Lee M., Demirci M. F.
16th International Conference on Electronics Computer and Computation, ICECCO 2021, Kaskelen, Kazakhstan, 25 - 26 November 2021
- IV. **Optimization of CNN Model for Breast Cancer Classification**
Mikhailov N., Shakeel M., Urmanov A., Lee M., Demirci M. F.
16th International Conference on Electronics Computer and Computation, ICECCO 2021, Kaskelen, Kazakhstan, 25 - 26 November 2021
- V. **Fully Automatic CNN Design with Inception Blocks**
Barakbayeva T., Demirci M. F.
13th International Conference on Digital Image Processing, ICDIP 2021, Singapore, Singapore, 20 - 23 May 2021, vol.11878
- VI. **News2Image: Automated System of Image Recommendation to News Articles**
Darimbekov Z., Ubingazhibov A., Serikbulatova Z., Demirci M. F.
4th IEEE International Conference on Image Processing, Applications and Systems, IPAS 2020, Virtual, Genova, Italy, 9 - 11 December 2020, pp.125-130
- VII. **A privacy-preserving framework for surveillance systems**
Wong K., Tu N. A. , Maratkhan A., Demirci M. F.
10th International Conference on Communication and Network Security, ICCNS 2020, Virtual, Online, Japan, 27 - 29 November 2020, pp.91-98
- VIII. **Alzheimer's disease classification using capsule networks on structural MRI**
Nagashbayev A., Fatih Demirci M. F.
5th International Conference on Biomedical Imaging, Signal Processing, ICBSIP 2020, Virtual, Online, Japan, 27 - 29 September 2020, pp.7-11
- IX. **Image classification by Distortion-Free Graph Embedding and KNN-Random forest**
Temir A., Artykbayev K., Demirci M. F.
17th Conference on Computer and Robot Vision, CRV 2020, Ottawa, Canada, 13 - 15 May 2020, pp.33-38
- X. **Reducing Triangle Inequality Violations with Deep Learning and Its Application to Image Retrieval**
Khamiyev I., Gabidolla M., Iskakov A., Demirci M. F.
15th International Symposium on Visual Computing, ISVC 2020, San Diego, United States Of America, 5 - 07 October 2020, vol.12510 LNCS, pp.310-318
- XI. **Selecting the best optimal feature correspondence with deep learning**
Artykbayev K., Temir A., Fatih Demirci M. F.
16th ACS/IEEE International Conference on Computer Systems and Applications, AICCSA 2019, Abu Dhabi, United Arab Emirates, 3 - 07 November 2019, vol.2019-November
- XII. **Financial Forecasting using Deep Learning with an Optimized Trading Strategy**
Maratkhan A., Ilyassov I., Aitzhanov M., Demirci M. F. , Ozbayoglu M.
2019 IEEE Congress on Evolutionary Computation, CEC 2019, Wellington, New Zealand, 10 - 13 June 2019, pp.838-844

- XIII. **Cifar-10 Image Classification with Convolutional Neural Networks for Embedded Systems**
Calik R. C. , Demirci M. F.
15th IEEE/ACS International Conference on Computer Systems and Applications, AICCSA 2018, Aqaba, Jordan, 28 October - 01 November 2018, vol.2018-November
- XIV. **On Approximating Metric Nearness Through Deep Learning**
Gabidolla M., Iskakov A., Demirci M. F. , YAZICI A.
18th International Conference on Artificial Intelligence and Soft Computing, ICAISC 2019, Zakopane, Poland, 16 - 20 June 2019, vol.11508 LNAI, pp.62-72
- XV. **In embedded systems image classification with convolutional Neural Network Evrisimsel Sinir Ağları(CNN) ile Gömülü Sistemlerde Görüntü Sınıflandırması**
Calik R. C. , Demirci M. F.
26th IEEE Signal Processing and Communications Applications Conference, SIU 2018, İzmir, Turkey, 2 - 05 May 2018, pp.1-4
- XVI. **Automatic image selection from images with similar contents Benzer İçeriklere Sahip Görüntüler arasından Otomatik Görüntü Seçimi**
Bardak B., Demirci M. F.
25th Signal Processing and Communications Applications Conference, SIU 2017, Antalya, Turkey, 15 - 18 May 2017
- XVII. **Fast cloud detection using low-frequency components of satellite imagery Uydu Görüntülerinin Düşük Frekanslı Bileşenlerinden Yüksek Hızlı Bulut Tespiti**
Ufuk D. U. , Demirpolat C., Demirci M. F.
25th Signal Processing and Communications Applications Conference, SIU 2017, Antalya, Turkey, 15 - 18 May 2017
- XVIII. **Age classification using an optimized CNN architecture**
Aydogdu M. F. , Demirci M. F.
2017 International Conference on Compute and Data Analysis, ICCDA 2017, Florida, United States Of America, 19 - 23 May 2017, vol.Part F130280, pp.233-239
- XIX. **Comparison of Three Different CNN Architectures for Age Classification**
Aydogdu M. F. , Celik V., Demirci M. F.
11th IEEE International Conference on Semantic Computing, ICSC 2017, California, United States Of America, 30 January - 01 February 2017, pp.372-377
- XX. **Analysis of the effect of image resolution on automatic face gender and age classification Görüntü Çözünürlüğünün Otomatik Cinsiyet ve Yaş Sınıflandırmasındaki Etkisinin Analizi**
Cerit B., Bölük S. A. , Demirci M. F.
24th Signal Processing and Communication Application Conference, SIU 2016, Zonguldak, Turkey, 16 - 19 May 2016, pp.853-856
- XXI. **Efficient near-duplicate image detection with created feature subset Olusturulan Öznitelik Alt Kümesiyle Verimli Neredeyse Özdes Görüntü Tespiti**
Yildiz B., Demirci M. F.
24th Signal Processing and Communication Application Conference, SIU 2016, Zonguldak, Turkey, 16 - 19 May 2016, pp.1901-1904
- XXII. **Measuring of displacement with image processing methods by using digital camera and laser pointer Dijital Kamera ve Lazer İşaretçi Kullanılarak Görüntü İşleme Yöntemiyle Yer Değiştirmenin Ölçülmesi**
Mortaş C., Demirci M. F. , Gürbüz S. Z. , Eroğul O.
24th Signal Processing and Communication Application Conference, SIU 2016, Zonguldak, Turkey, 16 - 19 May 2016, pp.841-844
- XXIII. **Distance measure functions with enhanced skeletal points for 2D and 3D 2B ve 3B için Zenginleştirilmiş İskelet Noktaları ile Uzaklık Ölçüm Fonksiyonları**
Sirin Y., Demirci M. F.
24th Signal Processing and Communication Application Conference, SIU 2016, Zonguldak, Turkey, 16 - 19 May 2016, pp.1253-1256
- XXIV. **Skeleton critical points for shape matching İskelet Kritik Noktaları ile Şekil Sınıflandırma**
Bölük S. A. , Demirci M. F.

24th Signal Processing and Communication Application Conference, SIU 2016, Zonguldak, Turkey, 16 - 19 May 2016, pp.177-180

- XXV. **Distinctive interest point selection for efficient near-duplicate image retrieval**
Yildiz B., Demirci M. F.
IEEE Southwest Symposium on Image Analysis and Interpretation, SSIAl 2016, New Mexico, United States Of America, 6 - 08 March 2016, vol.2016-April, pp.49-52
- XXVI. **Object Recognition by Distortion-Free Graph Embedding and Random Forest**
Demirci M. F. , Kacka S.
10th IEEE International Conference on Semantic Computing, ICSC 2016, California, United States Of America, 3 - 05 February 2016, pp.17-23
- XXVII. **A graph-based pattern recognition for chemical molecule matching**
Gökçer Y., Demirci M. F. , Tan M.
6th International Conference on Bioinformatics Models, Methods and Algorithms, BIOINFORMATICS 2015, Lisbon, Portugal, 12 - 15 January 2015, pp.158-162
- XXVIII. **Shape classification based on skeleton-branch distances**
Boluk S. A. , Demirci M. F.
10th International Conference on Computer Vision Theory and Applications, VISAPP 2015, Berlin, Germany, 11 - 14 March 2015, vol.2, pp.353-359
- XXIX. **Skeleton filling rate for shape recognition**
Sirin Y., Demirci M. F.
22nd International Conference on Pattern Recognition, ICPR 2014, Stockholm, Sweden, 24 - 28 August 2014, pp.4005-4009
- XXX. **Pedagogical analysis and multifaceted evaluation of an engineering co-op program**
Uludag S., Demirci M. F. , Dogdu E., Aydos F.
43rd IEEE Annual Frontiers in Education Conference, FIE 2013, Oklahoma, United States Of America, 23 - 26 October 2013, pp.438-444
- XXXI. **Class representative computation using graph embedding**
Aydos F., Soran A., Demirci M. F.
17th International Conference on Image Analysis and Processing, ICIAP 2013, Naples, Italy, 9 - 13 September 2013, vol.8156 LNCS, pp.452-461
- XXXII. **Pipelining Harris corner detection with a tiny FPGA for a mobile robot**
Aydogdu M. F. , Demirci M. F. , Kasnakoglu C.
2013 IEEE International Conference on Robotics and Biomimetics, ROBIO 2013, Shenzhen, China, 12 - 14 December 2013, pp.2177-2184
- XXXIII. **An adaptive smoothing method for sensor noise in augmented reality applications on smartphones**
Ozcan R., Orhan F., Demirci M. F. , Abul O.
4th International ICST Conference on Mobile Wireless Middleware, Operating Systems, and Applications, MobilWare 2011, London, England, 22 - 24 June 2011, vol.93 LNICS, pp.209-218
- XXXIV. **Shape abstraction through multiple optimal solutions**
Akimaliev M., Demirci M. F.
7th International Symposium on Visual Computing, ISVC 2011, Las Vegas, NV, United States Of America, 26 - 28 September 2011, vol.6939 LNCS, pp.588-596
- XXXV. **Indexing tree structures through caterpillar decomposition**
YILMAZ F., Demirci M. F.
17th Scandinavian Conference on Image Analysis, SCIA 2011, Ystad, Sweden, 23 - 27 May 2011, vol.6688 LNCS, pp.687-696
- XXXVI. **Efficient shape retrieval under partial matching**
Demirci M. F.
2010 20th International Conference on Pattern Recognition, ICPR 2010, İstanbul, Turkey, 23 - 26 August 2010, pp.3057-3060
- XXXVII. **Many-to-many matching under the l1 norm**

Demirci M. F. , Osmanlıoğlu Y.

15th International Conference on Image Analysis and Processing - ICIAP 2009, Proceedings, Vietri sul Mare, Italy, 8 - 11 September 2009, vol.5716 LNCS, pp.787-796

XXXVIII. Discrete representation of top points via scale space tessellation

Platel B., Demirci M. F. , Shokoufandeh A., Florack L., Kanters F., Ter Haar Romeny B., Dickinson S.

5th International Conference on Scale Space and PDE Methods in Computer Vision, Scale-Space 2005, Hofgeismar, Germany, 7 - 09 April 2005, vol.3459, pp.73-84

XXXIX. Unit cell analysis and characterization of three-dimensional two-phase tissue scaffolds

Gomez C., Demirci M. F. , Sun W., Shokoufandeh A.

Proceedings of the 2005 IEEE 31st Annual Northeast Bioengineering Conference, Hoboken, NJ, United States Of America, 2 - 03 April 2005, pp.166-167

XL. Connectivity for mass and fluid transport in three-dimensional two-phase structures

Demirci M. F. , Gomez C., Shokoufandeh A., Sun W.

Proceedings of the 2005 IEEE 31st Annual Northeast Bioengineering Conference, Hoboken, NJ, United States Of America, 2 - 03 April 2005, pp.178-179

XLII. 3D object retrieval using many-to-many matching of curve skeletons

Cornea N. D. , Fatih Demirci M. F. , Silver D., Shokoufandeh A., Dickinson S. J. , Kantor P. B.

International Conference on Shape Modeling and Applications, SMI'05, Cambridge, MA, United States Of America, 13 - 17 June 2005, vol.2005, pp.366-371

XLIII. Object categorization and the need for many-to-many matching

Dickinson S., Shokoufandeh A., Keselman Y., Demirci F., Macrini D.

27th DAGM (German Association for Pattern Recognition) Symposium, DAGM 2005, Vienna, Austria, 31 August - 02 September 2005, vol.3663, pp.501-510

XLIV. Selecting canonical views for view-based 3-D object recognition

Denton T., Demirci M. F. , Abrahamson J., Shokoufandeh A., Dickinson S.

Proceedings of the 17th International Conference on Pattern Recognition, ICPR 2004, Cambridge, England, 23 - 26 August 2004, vol.2, pp.273-276

XLV. Tissue engineered constructs: Connectivity study for three dimensional two-phase structures

Gomez C., Demirci M. F. , Shokoufandeh A., Sun W., Regli W.

Proceedings of the IEEE 30th Annual Northeast Bioengineering Conference, Springfield, MA, United States Of America, 17 - 18 April 2004, vol.30, pp.132-133

XLVI. Many-to-many feature matching using spherical coding of directed graphs

Fatili Demirci M. F. , Shokoufandeh A., Dickinson S., Keselman Y., Bretzner L.

8th European Conference on Computer Vision, ECCV 2004, Prague, Czech Republic, 11 - 14 May 2004, vol.3021, pp.325-332

XLVII. Many-to-many graph matching via metric embedding

Keselman Y., Shokoufandeh A., Demirci M. F. , Dickinson S.

2003 IEEE Computer Society Conference on Computer Vision and Pattern Recognition, Madison, WI, United States Of America, 18 - 20 June 2003, vol.1

Supported Projects

Bıçakçı K., Demirci M. F. , Project Supported by Higher Education Institutions, Ulusal Düzeyde Yüz Veritabanı Oluşturulması ve Bu Veritabanı Kullanılarak Çeşitli Yüz Tanıma ve Yüz Tespit Etme Algoritmalarının Başarım Ölçümü, 2022 - 2023

Demirci M. F. , TUBITAK Project, Error-tolerant Feature Matching, 2014 - 2016

Demirci M. F. , TUBITAK Project, Sekil Tanıma Problemi için Cizge Tabanlı İndeksleme ve Eşleme, 2010 - 2012

Demirci M. F. , TUBITAK Project, İskeletsel Sekil Özeti Oluşturma ve Sınıf Prototipi Öğrenme, 2007 - 2008

Activities in Scientific Journals

Gazi Üniversitesi Mühendislik Mimarlık Fakültesi Dergisi, Editor, 2016 - Continues

Metrics

Publication: 65

Citation (Scopus): 698

H-Index (Scopus): 12