

# M. Emre Celebi

*Professor and Chair*

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## Education

- 2003–2006 **Ph.D. in Computer Science and Engineering**, *University of Texas, Arlington, TX.*  
Dissertation Title: *Development of Algorithms for Dermoscopy Image Analysis*
- 2002–2003 **M.Sc. in Computer Science and Engineering**, *University of Texas, Arlington, TX.*  
Thesis Title: *Content Based Image Retrieval Incorporating Models of Human Perception*
- 1998–2002 **B.Sc. in Computer Engineering**, *Middle East Technical University, Ankara, Turkey.*

## Appointments

- 9/16–Present **Professor and Chair**, *Department of Computer Science and Engineering, University of Central Arkansas, Conway, AR.*
- 8/11–5/16 **Associate Professor**, *Department of Computer Science, Louisiana State University, Shreveport, LA.*
- 8/07–8/11 **Assistant Professor**, *Department of Computer Science, Louisiana State University, Shreveport, LA.*
- 1/07–5/07 **Visiting Assistant Professor**, *Department of Computer Science and Engineering, University of Bridgeport, Bridgeport, CT.*
- 8/06–1/07 **Post-Doctoral Fellow**, *Department of Electrical and Computer Engineering, University of Missouri, Rolla, MO.*
- 8/02–8/06 **Teaching Associate**, *Department of Computer Science and Engineering, University of Texas, Arlington, TX.*

## Research Interests

Medical Image Analysis, Color Image Processing, Data Clustering

## Grants (PI: \$650,245, Co-PI: \$45,795)

- Title: Data Analytics that are Robust and Trusted (DART): From Smart Curation to Socially Aware Decision Making  
Sponsor: National Science Foundation (NSF)  
Program: EPSCoR Research Infrastructure  
Role: Thrust Colead  
Dates: 7/20 – 6/25  
Amount: \$24,000,000
- Title: Acquisition of a High-Performance Computing System for University of Central Arkansas  
Sponsor: National Science Foundation (NSF)  
Program: Major Research Instrumentation  
Role: Principal Investigator  
Dates: 10/17 – 09/20  
Amount: \$105,084

- Title: Novel Enhancements to the K-Means Clustering Algorithm  
Sponsor: National Science Foundation (NSF)  
Program: Robust Intelligence  
Role: Principal Investigator  
Dates: 07/11 – 07/14  
Amount: \$155,895
- Title: Acquisition of High Performance Computational Infrastructure for Image Analysis, Visualization, and Game Development  
Sponsor: National Science Foundation (NSF)  
Program: Major Research Instrumentation  
Role: Principal Investigator  
Dates: 05/10 – 04/12  
Amount: \$154,901
- Title: Fast, Accurate, and Robust Methods for Lesion Border Detection in Dermoscopy Images  
Sponsor: National Natural Science Foundation of China (NSFC)  
Program: Research Fellowship for International Young Scientists  
Role: Principal Investigator  
Dates: 01/11 – 12/11  
Amount: 200,000 CNY
- Title: Enhancing Computer Science Education Using CGI Technology  
Sponsor: Louisiana Board of Regents  
Program: Traditional Enhancement  
Role: Principal Investigator  
Dates: 06/09 – 06/10  
Amount: \$90,300
- Title: Advanced 3D Computer-Based Modeling and Prototyping Enhancement  
Sponsor: Louisiana Board of Regents  
Program: Traditional Enhancement  
Role: Co-Principal Investigator  
Dates: 06/09 – 06/10  
Amount: \$45,795
- Title: Development of Image Analysis Techniques for the Early Diagnosis of Melanoma  
Sponsor: Louisiana Board of Regents  
Program: Research Competitiveness  
Role: Principal Investigator  
Dates: 06/08 – 06/11  
Amount: \$110,619

## Publications (Total: 178 – Books: 8, Journals: 91, Conference Proceedings: 75, Unpublished: 4)

### Books

- [1] M. Kawulok, M. E. Celebi, and B. Smolka, eds., *Advances in Face Detection and Facial Image Analysis*. Springer, 2016. ISBN: 9783319259567.
- [2] M. E. Celebi and K. Aydin, eds., *Unsupervised Learning Algorithms*. Springer, 2015. ISBN: 9783319242095.
- [3] M. E. Celebi, M. Lecca, and B. Smolka, eds., *Color Image and Video Enhancement*. Springer, 2015. ISBN: 9783319093628.
- [4] M. E. Celebi, T. Mendonça, and J. S. Marques, eds., *Dermoscopy Image Analysis*. CRC Press, 2015. ISBN: 9781482253269.
- [5] M. E. Celebi, ed., *Partitional Clustering Algorithms*. Springer, 2014. ISBN: 9783319092584.

- [6] M. E. Celebi and B. Smolka, eds., *Advances in Low-Level Color Image Processing*. Springer, 2014. ISBN: 9789400775831.
- [7] J. Scharcanski and M. E. Celebi, eds., *Computer Vision Techniques for the Diagnosis of Skin Cancer*. Springer, 2013. ISBN: 9783642396076.
- [8] M. E. Celebi and G. Schaefer, eds., *Color Medical Image Analysis*. Springer, 2012. ISBN: 9789400753884.

### Journal Articles/Book Chapters

- [1] S. Wang, M. E. Celebi, Y. D. Zhang, X. Yu, S. Lu, X. Yao, Q. Zhou, M. Martinez-Garcia, Y. Tian, J. M. Gorriz, and I. Tyukin, “Advances in Data Preprocessing for Biomedical Data Fusion: An Overview of the Methods, Challenges, and Prospects,” *Information Fusion*, vol. 76, pp. 376–421, 2021.
- [2] R. Rastghalam, H. Danyali, M. S. Helfroush, M. E. Celebi, and M. Mokhtari, “Skin Melanoma Detection in Microscopic Images Using HMM-Based Asymmetric Analysis and Expectation Maximization,” *IEEE Journal of Biomedical and Health Informatics*, vol. 25, no. 9, pp. 3486–3497, 2021.
- [3] P. Shamsolmoali, S. Garcia, H. Zhou, and M. E. Celebi, “Advances in Domain Adaptation for Computer Vision,” *Image and Vision Computing*, vol. 114, p. 104268, 2021.
- [4] P. Shamsolmoali, M. Zareapoor, E. Granger, H. Zhou, R. Wang, M. E. Celebi, and J. Yang, “Image Synthesis with Adversarial Networks: A Comprehensive Survey and Case Studies,” *Information Fusion*, vol. 72, pp. 126–146, 2021.
- [5] C. Barata, M. E. Celebi, and J. S. Marques, “Explainable Skin Lesion Diagnosis Using Taxonomies,” *Pattern Recognition*, vol. 110, p. 107413, 2021.
- [6] P. Shamsolmoali, M. E. Celebi, and R. Wang, “Deep Learning Approaches for Real-Time Image Super-Resolution,” *Neural Computing and Applications*, vol. 32, pp. 14519–14520, 2020.
- [7] P. Shamsolmoali, M. E. Celebi, and R. Wang, “Advances in Deep Learning for Real-Time Image and Video Reconstruction and Processing,” *Journal of Real-Time Image Processing*, vol. 17, no. 6, pp. 1883–1884, 2020.
- [8] S. Zhang, H. Zhou, D. Xu, M. E. Celebi, and T. Bouwmans, “Introduction to the Special Issue on Multimodal Machine Learning for Human Behavior Analysis,” *ACM Transactions on Multimedia Computing, Communications, and Applications*, vol. 16, no. 1s, 2020. Article 19.
- [9] A. R. Sadri, M. E. Celebi, N. Rahnavard, and S. E. Viswanath, “Sparse Wavelet Networks,” *IEEE Signal Processing Letters*, vol. 27, pp. 111–115, 2020.
- [10] S. Thompson, M. E. Celebi, and K. H. Buck, “Fast Color Quantization Using MacQueen’s K-Means Algorithm,” *Journal of Real-Time Image Processing*, vol. 17, no. 5, pp. 1609–1624, 2020.
- [11] C. Curiel-Lewandrowski, R. A. Novoa, E. Berry, M. E. Celebi, N. Codella, F. Giuste, D. Gutman, A. Halpern, S. Leachman, Y. Liu, Y. Liu, O. Reiter, and P. Tschandl, “Artificial Intelligence Approach in Melanoma,” in *Melanoma* (D. E. Fisher and B. C. Bastian, eds.), pp. 599–628, Springer, 2019.
- [12] Z. Jiang, P. Chazot, M. E. Celebi, D. Crookes, and R. Jiang, “Social Behavioral Phenotyping of *Drosophila* with a 2D-3D Hybrid CNN Framework,” *IEEE Access*, vol. 7, pp. 67972–67982, 2019.

- [13] M. E. Celebi, N. Codella, A. Halpern, and D. Shen, "Guest Editorial: Skin Lesion Image Analysis for Melanoma Detection," *IEEE Journal of Biomedical and Health Informatics*, vol. 23, no. 2, pp. 479–480, 2019.
- [14] M. E. Celebi, N. Codella, and A. Halpern, "Dermoscopy Image Analysis: Overview and Future Directions," *IEEE Journal of Biomedical and Health Informatics*, vol. 23, no. 2, pp. 474–478, 2019.
- [15] C. Barata, M. E. Celebi, and J. S. Marques, "A Survey of Feature Extraction in Dermoscopy Image Analysis of Skin Cancer," *IEEE Journal of Biomedical and Health Informatics*, vol. 23, no. 3, pp. 1096–1109, 2019.
- [16] M. Zareapoor, M. E. Celebi, and J. Yang, "Diverse Adversarial Network for Image Super-Resolution," *Signal Processing: Image Communication*, vol. 74, pp. 191–200, 2019.
- [17] Q. Abbas and M. E. Celebi, "Dermodeep - A Classification of Melanoma-Nevus Skin Lesions Using Multi-Feature Fusion of Visual Features and Deep Neural Network," *Multimedia Tools and Applications*, vol. 78, no. 16, pp. 23559–23580, 2019.
- [18] E. Ardizzone and M. E. Celebi, "Image and Video Analysis, Detection and Recognition," *Journal of Electronic Imaging*, vol. 27, no. 5, p. 051201, 2018.
- [19] M. A. Marchetti, N. C. F. Codella, S. W. Dusza, D. A. Gutman, B. Helba, A. Kalloo, N. Mishra, C. Carrera, M. E. Celebi, J. L. DeFazio, N. Jaimes, A. A. Marghoob, E. Quigley, A. Scope, O. Yelamos, and A. C. Halpern, "Results of the 2016 International Skin Imaging Collaboration International Symposium on Biomedical Imaging Challenge: Comparison of the Accuracy of Computer Algorithms to Dermatologists for the Diagnosis of Melanoma from Dermoscopic Images," *Journal of the American Academy of Dermatology*, vol. 78, no. 2, pp. 270–277, 2018.
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- [21] C. Barata, M. E. Celebi, and J. S. Marques, "Development of a Clinically Oriented System for Melanoma Diagnosis," *Pattern Recognition*, vol. 69, pp. 270–285, 2017.
- [22] A. R. Sadri, S. Azarianpour, M. Zekri, M. E. Celebi, and S. Sadri, "WN Based Approach to Melanoma Diagnosis from Dermoscopy Images," *IET Image Processing*, vol. 11, no. 7, pp. 475–482, 2017.
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## Teaching Experience

### University of Central Arkansas

**CSCI 1300 (Introduction to Computing)**, *Undergraduate*.

**CSCI 4372/5372/6397 (Special Topics: Data Clustering)**, *Undergraduate/Graduate*.

**CSCI 4360 (Special Topics: Discrete Mathematics for Computer Science)**, *Undergraduate*.

### Louisiana State University in Shreveport

**CSC 101 (Introduction to the Internet)**, *Undergraduate*.

**CSC 111 (Introduction to Computing)**, *Undergraduate*.

**CSC 115 (Computer Literacy)**, *Undergraduate*.

**CSC 135 (Object-Oriented Programming I)**, *Undergraduate*.

**CSC 145 (Object-Oriented Programming II)**, *Undergraduate*.

**CSC 242 (Computer Organization and Architecture)**, *Undergraduate*.

**CSC 315 (Introduction to Database Systems)**, *Undergraduate*.

**CSC 490/690 (Digital Image Processing and Analysis)**, *Undergraduate/Graduate*.

**CSC 490/690 (Data Clustering)**, *Undergraduate/Graduate*.

**CSC 490/690 (Algorithms)**, *Undergraduate/Graduate*.

**CSC 495 (Independent Study)**, *Undergraduate*.

**CSC 695 (Independent Study)**, *Graduate*.

**CST 707 (Data Modeling and Database Design)**, *Graduate*.

**CST 725 (Digital Multimedia)**, *Graduate*.

**CST 790 (Digital Image Processing and Analysis)**, *Graduate*.

**CST 790 (Algorithms)**, *Graduate*.

**CST 796 (Business Systems Project)**, *Graduate*.

**CST 798 (Computer Science Project)**, *Graduate*.

University of Bridgeport

CPSC 502 (Analysis of Algorithms), Graduate.

CPSC 503 (Operating Systems), Graduate.

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## Professional Activities

### Book Series Editor (3)

- Signals and Communication Technology, Springer [2019 – Present]
- Unsupervised and Semi-Supervised Learning, Springer [2017 – Present]
- Signal Processing for Security Technologies, Springer [2015 – 2019]

### Journal Editorial Board Member (8)

- Computers in Biology and Medicine (Elsevier) [2020 – Present]
- Journal of Medical Imaging (SPIE) [2020 – Present]
- IEEE Journal of Biomedical and Health Informatics (IEEE) [2020 – Present]
- IEEE Access (IEEE) [2019 – Present]
- Journal of Electronic Imaging (SPIE) [2019 – Present]
- Journal of Real-Time Image Processing (Springer) [2013 – Present]
- Computer Methods in Biomechanics and Biomedical Engineering: Imaging & Visualization (Taylor & Francis) [2012 – Present]
- Imaging Science Journal (Taylor & Francis) [2009 – Present]

### Journal Guest Editor (13)

- Information Processing & Management special issue on *Multi-Modal Computing for Biomedical Diagnosis and Analysis* (2022)
- IEEE Journal of Biomedical and Health Informatics special issue on *Skin Image Analysis in the Age of Deep Learning* (2022)
- Medical Image Analysis special issue on *Image Analysis in Dermatology* (2021)
- IEEE Journal of Biomedical and Health Informatics special issue on *Emerging Challenges for Deep Learning* (2020)
- ACM Transactions on Multimedia Computing, Communications, and Applications special issue on *Multimodal Machine Learning for Human Behavior Analysis* (2020)
- Journal of Real-Time Image Processing special issue on *Advances in Deep Learning for Real-Time Image Reconstruction* (2020)
- Neural Computing and Applications special issue on *Deep Learning Approaches for Real-Time Image Super-Resolution* (2020)
- IEEE Journal of Biomedical and Health Informatics special issue on *Skin Lesion Image Analysis for Melanoma Detection* (2019)
- Journal of Electronic Imaging special issue on *Image and Video Analysis, Detection, and Recognition* (2018)
- Journal of Electronic Imaging special issue on *Superpixels for Image Processing and Computer Vision* (2017)
- Journal of Real-Time Image Processing special issue on *Real-Time Color Image Processing* (2013)
- EURASIP Journal on Advances in Signal Processing special issue on *Multispectral and Hyperspectral Image and Video Processing* (2012)
- Computerized Medical Imaging and Graphics special issue on *Skin Cancer Image Analysis* (2011)

### Tutorial Presenter (3)

- “Early Color Image Processing,” 14th IASTED Int. Conf. on Signal and Image Processing (*SIP 2012*)



- “A Whirlwind Tour of Color Image Processing,” The 2012 IAENG Int. Conf. on Imaging Engineering (*ICIE 2012*)
- “Fundamentals of Color Image Processing,” 13th IASTED Int. Conf. on Signal and Image Processing (*SIP 2011*)

### Challenge Organizer (5)

- Skin Lesion Analysis Towards Melanoma Detection, 23rd Int. Conf. on Medical Image Computing & Computer Assisted Intervention (*MICCAI 2020*)
- Skin Lesion Analysis Towards Melanoma Detection, 22nd Int. Conf. on Medical Image Computing & Computer Assisted Intervention (*MICCAI 2019*)
- Skin Lesion Analysis Towards Melanoma Detection, 21st Int. Conf. on Medical Image Computing & Computer Assisted Intervention (*MICCAI 2018*)
- Skin Lesion Analysis Towards Melanoma Detection, 2017 IEEE 14th Int. Symp. on Biomedical Imaging (*ISBI 2017*)
- Skin Lesion Analysis Towards Melanoma Detection, 2016 IEEE 13th Int. Symp. on Biomedical Imaging (*ISBI 2016*)

### Special Session/Workshop Organizer (16)

- Skin Image Analysis, 2021 IEEE/CVF Conf. on Computer Vision and Pattern Recognition (*CVPR 2021*)
- Skin Image Analysis, 2020 IEEE/CVF Conf. on Computer Vision and Pattern Recognition (*CVPR 2020*)
- Skin Image Analysis, 2019 IEEE/CVF Conf. on Computer Vision and Pattern Recognition (*CVPR 2019*)
- Skin Image Analysis, 21st Int. Conf. on Medical Image Computing & Computer Assisted Intervention (*MICCAI 2018*)
- Computer Vision Based Measurements, 2016 IEEE Int. Conf. on Imaging Systems (*IST 2016*)
- Third IEEE Int. Ph.D. Workshop on Multimedia Computing Research, IEEE Int. Symp. on Multimedia (*ISM 2014*)
- Second IEEE Int. Ph.D. Workshop on Multimedia Computing Research, IEEE Int. Symp. on Multimedia (*ISM 2013*)
- Digital Imaging in Cultural Heritage, 8th Int. Symp. on Image and Signal Processing and Analysis (*ISPA 2013*)
- Ph.D. Workshop on Multimedia Computing Research, IEEE Int. Symp. on Multimedia (*ISM 2012*)
- 3rd Int. Workshop on Soft Computing in Image Processing and Computer Vision, 2011 Int. Conf. on Image Processing, Computer Vision, and Pattern Recognition (*IPCV 2011*)
- Special Session on Low-Level Color Image Processing, 16th Int. Conf. on Image Analysis and Processing (*ICIAP 2011*)
- Special Session on Low-Level Color Image Processing, 6th Int. Symp. on Visual Computing (*ISVC 2010*)
- Special Session on Low-Level Color Image Processing, 2009 APSIPA Ann. Summit and Conf. (*APSIPA ASC 2009*)
- Special Session on Digital Imaging in Cultural Heritage, 16th IEEE Int. Conf. on Image Processing (*ICIP 2009*)
- 2nd Int. Workshop on Computational Intelligence in Medical Imaging, 9th Int. Conf. on Information Technology and Applications in Biomedicine (*ITAB 2009*)
- 1st Int. Workshop on Computational Intelligence in Medical Imaging, 5th Int. Conf. on Soft Computing as Transdisciplinary Science and Technology (*CSTST 2008*)

### Program Committee Member (selected from 130+)

- Real-Time Image Processing and Deep Learning 2020
- 32nd Int. FLAIRS Conf. (*FLAIRS-32*)
- Real-Time Image Processing and Deep Learning 2019
- IEEE Int. Symp. on Multimedia (*ISM 2018*)

- 31st Int. FLAIRS Conf. (*FLAIRS-31*)
- 32nd Ann. ACM Symp. on Applied Computing (*ACM SAC 2017*)
- 30th Int. FLAIRS Conf. (*FLAIRS-30*)
- Advanced Concepts for Intelligent Vision Systems (*ACIVS 2016*)
- IEEE Int. Conf. on Systems, Man, and Cybernetics (*IEEE SMC 2016*)
- 12th World Cong. on Intelligent Control and Automation (*WCICA 2016*)
- 10th Int. Conf. on Semantic Computing (*ICSC 2016*)
- 2nd IEEE Int. Conf. on Multimedia Big Data (*BigMM 2016*)
- 29th Int. FLAIRS Conf. (*FLAIRS-29*)
- 31st Ann. ACM Symp. on Applied Computing (*ACM SAC 2016*)
- 11th Int. Conf. on Computer Vision Theory and Applications (*VISAPP 2016*)
- 11th Int. Conf. on Signal Image Technology and Internet Based Systems (*SITIS 2015*)
- 2nd MICCAI Workshop on Bio-Imaging and Visualization for Patient-Customized Simulations (*MW-BIVPCS 2015*)
- 1st MICCAI Workshop on Deep Learning in Medical Image Analysis (*DLMIA 2015*)
- Computer Methods in Biomechanics and Biomedical Engineering (*CMBBE 2015*)
- Advanced Concepts for Intelligent Vision Systems (*ACIVS 2015*)
- 1st IEEE Int. Conf. on Multimedia Big Data (*BigMM 2015*)
- 28th Int. FLAIRS Conf. (*FLAIRS-28*)
- 30th Ann. ACM Symp. on Applied Computing (*ACM SAC 2015*)
- 10th Int. Conf. on Computer Vision Theory and Applications (*VISAPP 2015*)
- 10th Int. Conf. on Signal Image Technology and Internet Based Systems (*SITIS 2014*)
- IEEE Int. Symp. on Multimedia (*ISM 2014*)
- Int. Conf. on Computer Vision and Graphics (*ICCVG 2014*)
- IEEE Int. Conf. on Systems, Man, and Cybernetics (*IEEE SMC 2014*)
- 2014 Int. Conf. on Brain Informatics and Health (*BIH 2014*)
- 27th Int. FLAIRS Conf. (*FLAIRS-27*)
- 29th Ann. ACM Symp. on Applied Computing (*ACM SAC 2014*)
- 9th Int. Conf. on Computer Vision Theory and Applications (*VISAPP 2014*)
- Int. Conf. on Computational and Experimental Biomedical Sciences (*ICCEBS 2013*)
- 9th Int. Conf. on Signal Image Technology and Internet Based Systems (*SITIS 2013*)
- MICCAI 2013 Workshop on Bio-Imaging and Visualization for Patient-Customized Simulations (*MW-BIVPCS 2013*)
- 4th Int. Conf. on Intelligent Control and Information Processing (*ICICIP 2013*)
- Int. Conf. on Medical Imaging Using Bio-Inspired and Soft Computing (*MIBISOC 2013*)
- 26th Int. FLAIRS Conf. (*FLAIRS-26*)
- 8th Int. Conf. on Computer Vision Theory and Applications (*VISAPP 2013*)
- 28th Ann. ACM Symp. on Applied Computing (*ACM SAC 2013*)
- SPIE 2013 Conf. on Real-Time Image and Video Processing (*RTIVP 2013*)
- 8th Int. Conf. on Signal Image Technology and Internet Based Systems (*SITIS 2012*)
- 7th Iberian Conf. on Information Systems and Technologies (*CISTI 2012*)
- 9th Int. Symp. on Neural Networks (*ISNN 2012*)
- IET Image Processing Conf. 2012 (*IPR 2012*)
- 7th Int. Conf. on Computer Vision Theory and Applications (*VISAPP 2012*)

- 27th Ann. ACM Symp. on Applied Computing (*ACM SAC 2012*)
- 5th Int. Conf. on Image and Signal Processing (*ICISP 2012*)
- 7th Int. Conf. on Signal Image Technology and Internet Based Systems (*SITIS 2011*)
- IEEE Int. Workshop on Video Panorama (*IWVP 2011*)
- 6th Int. Conf. on Computer Vision Theory and Applications (*VISAPP 2011*)
- 8th Int. Symp. on Neural Networks (*ISNN 2011*)
- 16th Int. Conf. on Image Analysis and Processing (*ICIAP 2011*)
- 26th Ann. ACM Symp. on Applied Computing (*ACM SAC 2011*)
- 6th Int. Conf. on Signal-Image Technology and Internet-Based Systems (*SITIS 2010*)
- 6th Int. Conf. on Technology and Medical Sciences (*TMSi 2010*)
- 2010 IEEE Int. Conf. on Fuzzy Systems (*FUZZ-IEEE 2010*)
- 2010 IEEE Cong. on Evolutionary Computation (*IEEE CEC 2010*)
- 4th Int. Conf. on Image and Signal Processing (*ICISP 2010*)
- 5th Int. Conf. on Computer Vision Theory and Applications (*VISAPP 2010*)
- 5th Int. Conf. on Signal-Image Technology and Internet-Based Systems (*SITIS 2009*)
- 13th Int. Fuzzy Systems Association World Cong. (*IFSA 2009*)
- 6th Int. Symp. on Neural Networks (*ISNN 2009*)
- 4th Int. Conf. on Computer Vision Theory and Applications (*VISAPP 2009*)
- 4th Int. Symp. on Visual Computing (*ISVC 2008*)
- 2nd IEEE Int. Conf. on Semantic Computing (*ICSC 2008*)

### Journal Reviewer (selected from 120+)

- ACM Transactions on Multimedia Computing, Communications, and Applications (ACM)
- Advances in Knowledge Discovery and Management (Springer)
- Applied Optics (OSA)
- Applied Soft Computing (Elsevier)
- Applied Computing and Informatics (Elsevier)
- Artificial Intelligence in Medicine (Elsevier)
- Artificial Intelligence Review (Springer)
- Biocybernetics and Biomedical Engineering (Elsevier)
- BioMedical Engineering OnLine (Springer)
- Biomedical Optics Express (OSA)
- Biomedical Signal Processing and Control (Elsevier)
- BMC Bioinformatics (BMC)
- Computer Methods and Programs in Biomedicine (Elsevier)
- Computer Vision and Image Understanding (Elsevier)
- Computerized Medical Imaging and Graphics (Elsevier)
- Computers and Electrical Engineering (Elsevier)
- Computers in Biology and Medicine (Elsevier)
- Data Mining and Knowledge Discovery (Springer)
- Digital Signal Processing (Elsevier)
- Displays (Elsevier)
- EBioMedicine (The Lancet)
- Engineering Applications of Artificial Intelligence (Elsevier)

- EURASIP Journal on Advances in Signal Processing (Springer)
- EURASIP Journal on Image and Video Processing (Springer)
- Expert Systems with Applications (Elsevier)
- IBM Journal of Research and Development (IBM)
- IEEE Access (IEEE)
- IEEE Journal of Biomedical and Health Informatics (IEEE)
- IEEE Journal of Translational Engineering in Health and Medicine (IEEE)
- IEEE Signal Processing Letters (IEEE)
- IEEE Transactions on Biomedical Engineering (IEEE)
- IEEE Transactions on Circuits and Systems for Video Technology (IEEE)
- IEEE Transactions on Cybernetics (IEEE)
- IEEE Transactions on Image Processing (IEEE)
- IEEE Transactions on Information Technology in Biomedicine (IEEE)
- IEEE Transactions on Instrumentation and Measurement (IEEE)
- IEEE Transactions on Knowledge and Data Engineering (IEEE)
- IEEE Transactions on Medical Imaging (IEEE)
- IEEE Transactions on Multimedia (IEEE)
- IEEE Transactions on Signal Processing (IEEE)
- IEEE Transactions on Systems, Man, and Cybernetics Part A (IEEE)
- IEEE Transactions on Systems, Man, and Cybernetics Part B (IEEE)
- IET Computer Vision (IET)
- IET Image Processing (IET)
- Image and Vision Computing (Elsevier)
- Informatics in Medicine Unlocked (Elsevier)
- Information Sciences (Elsevier)
- Int. Journal of Computer Mathematics (Taylor & Francis)
- Int. Journal of Computers and Applications (Taylor & Francis)
- Int. Journal of Image and Graphics (World Scientific)
- Int. Journal of Imaging Systems and Technology (Wiley)
- Int. Journal of Information Technology and Decision Making (World Scientific)
- Int. Journal of Pattern Recognition and Artificial Intelligence (World Scientific)
- Int. Journal on Artificial Intelligence Tools (World Scientific)
- Inverse Problems in Science and Engineering (Taylor & Francis)
- Journal of Digital Imaging (Springer)
- Journal of Electronic Imaging (SPIE)
- Journal of Food Process Engineering (Wiley)
- Journal of Machine Learning Research
- Journal of Mathematical Imaging and Vision (Springer)
- Journal of Medical Imaging (SPIE)
- Journal of Medical Systems (Springer)
- Journal of Real-Time Image Processing (Springer)
- Journal of the Optical Society of America A (OSA)
- Journal of Visual Communication and Image Representation (Elsevier)

- Knowledge-Based Systems (Elsevier)
- Machine Vision and Applications (Springer)
- Medical & Biological Engineering & Computing (Springer)
- Medical Engineering & Physics (Elsevier)
- Medical Image Analysis (Elsevier)
- Melanoma Research (Wolters Kluwer)
- Multidimensional Systems and Signal Processing (Springer)
- Multimedia Tools and Applications (Springer)
- Neural Computing and Applications (Springer)
- Neurocomputing (Elsevier)
- New England Journal of Medicine
- Optical Engineering (SPIE)
- Optics Letters (OSA)
- Opto-Electronics Review (Elsevier)
- Pattern Recognition (Elsevier)
- Pattern Recognition Letters (Elsevier)
- PLOS ONE (PLOS)
- Progress in Artificial Intelligence (Springer)
- Scientific Reports (Nature)
- Sensing and Imaging (Springer)
- Signal, Image and Video Processing (Springer)
- Signal Processing: Image Communication (Elsevier)
- Skin Health and Disease (Wiley)
- Skin Research and Technology (Wiley)
- Soft Computing (Springer)
- Statistical Analysis and Data Mining (Wiley)
- Statistical Methods and Applications (Springer)
- The Imaging Science Journal (Taylor & Francis)

### Conference Reviewer (selected from 120+)

- 2019 IEEE Conf. on Computer Vision and Pattern Recognition (*CVPR 2019*)
- 14th Asian Conf. on Computer Vision (*ACCV 2018*)
- 15th European Conf. on Computer Vision (*ECCV 2018*)
- 24th Int. Conf. on Pattern Recognition (*ICPR 2018*)
- 2018 IEEE Conf. on Computer Vision and Pattern Recognition (*CVPR 2018*)
- 19th Int. Conf. on Image Analysis and Processing (*ICIAP 2017*)
- 23rd IEEE Int. Conf. on Image Processing (*ICIP 2016*)
- 14th European Conf. on Computer Vision (*ECCV 2016*)
- 23rd Int. Conf. on Pattern Recognition (*ICPR 2016*)
- 2016 IEEE Int. Conf. on Robotics and Automation (*ICRA 2016*)
- 2016 IEEE Conf. on Computer Vision and Pattern Recognition (*CVPR 2016*)
- 2016 IEEE Int. Conf. on Fuzzy Systems (*FUZZ-IEEE 2016*)
- 22nd IEEE Int. Conf. on Image Processing (*ICIP 2015*)
- 2015 IEEE Int. Conf. on Computer Vision (*ICCV 2015*)

- 37th Ann. Int. Conf. of the IEEE EMBS (*EMBC 2015*)
- 2015 IEEE Int. Conf. on Fuzzy Systems (*FUZZ-IEEE 2015*)
- Int. Symp. on Intelligent Systems Technologies and Applications (*ISTA 2015*)
- 2015 IEEE Conf. on Computer Vision and Pattern Recognition (*CVPR 2015*)
- 2014 IEEE Symp. Series on Computational Intelligence (*SSCI 2014*)
- 36th Ann. Int. Conf. of the IEEE EMBS (*EMBC 2014*)
- IEEE EMBS Int. Conf. on Biomedical and Health Informatics (*BHI 2014*)
- 21st IEEE Int. Conf. on Image Processing (*ICIP 2014*)
- 27th IEEE Conf. on Computer Vision and Pattern Recognition (*CVPR 2014*)
- IEEE EMBS Special Topic Conf. on Healthcare Innovation and Point-of-Care Technologies (*HIC-POCT 2014*)
- 22nd Int. Conf. on Pattern Recognition (*ICPR 2014*)
- 20th IEEE Int. Conf. on Image Processing (*ICIP 2013*)
- 39th Ann. Conf. of the IEEE Industrial Electronics Society (*IECON 2013*)
- 16th Int. Conf. on Medical Image Computing and Computer Assisted Intervention (*MICCAI 2013*)
- 35th Ann. Int. Conf. of the IEEE EMBS (*EMBC 2013*)
- 2013 IEEE Int. Conf. on Fuzzy Systems (*FUZZ-IEEE 2013*)
- 2012 IEEE Student Conf. on Research and Development (*SCORED 2012*)
- 15th Int. Conf. on Medical Image Computing and Computer Assisted Intervention (*MICCAI 2012*)
- 34th Ann. Int. Conf. of the IEEE EMBS (*EMBC 2012*)
- 2012 IEEE Int. Conf. on Fuzzy Systems (*FUZZ-IEEE 2012*)
- 19th Int. Conf. on Systems, Signals and Image Processing (*IWSSIP 2012*)
- 2012 IEEE Int. Conf. on Robotics and Automation (*ICRA 2012*)
- 19th IEEE Int. Conf. on Image Processing (*ICIP 2012*)
- ACM Multimedia 2011 (*ACM MM 2011*)
- 6th Int. Conf. on Image and Graphics (*ICIG 2011*)
- 7th Int. Symp. on Visual Computing (*ISVC 2011*)
- 33rd Ann. Int. Conf. of the IEEE EMBS (*EMBC 2011*)
- 19th European Signal Processing Conf. (*EUSIPCO 2011*)
- 2011 IEEE Cong. on Evolutionary Computation (*IEEE CEC 2011*)
- 18th IEEE Int. Conf. on Image Processing (*ICIP 2011*)
- 2011 IEEE Int. Conf. on Fuzzy Systems (*FUZZ-IEEE 2011*)
- 17th IEEE Int. Conf. on Image Processing (*ICIP 2010*)
- 32nd Ann. Int. Conf. of the IEEE EMBS (*EMBC 2010*)
- 25th Ann. ACM Symp. on Applied Computing (*ACM SAC 2010*)
- 16th IEEE Int. Conf. on Image Processing (*ICIP 2009*)
- 9th Int. Conf. on Intelligence Systems Design and Applications (*ISDA 2009*)
- 19th Int. Conf. on Artificial Neural Networks (*ICANN 2009*)
- 31st Ann. Int. IEEE EMBS Conf. (*EMBC 2009*)
- 2009 Int. Conf. on Advances in Social Networks Analysis and Mining (*ASONAM 2009*)
- 13th Pacific-Asia Conf. on Knowledge Discovery and Data Mining (*PAKDD 2009*)
- 23rd Ann. ACM Symp. on Applied Computing (*ACM SAC 2008*)
- 15th European Signal Processing Conf. (*EUSIPCO 2007*)

## External Examiner (Ph.D.)

- Sami Sieranoja, Clustering with K-NN Graph and K-Means, University of Eastern Finland, Finland (2020)
- Jeremy Kawahara, Diagnosing Skin Lesions from Images with Convolutional Neural Networks, Simon Fraser University, Canada (2019)
- Pegah Kharazmi, Automated Analysis of Vascular Structures of Skin Lesions: Segmentation, Pattern Recognition and Computer-Aided Diagnosis, University of British Columbia, Canada (2018)
- Catarina Barata, Automatic Detection of Melanomas Using Dermoscopy Images, Instituto Superior Técnico, Portugal (2017) [co-supervisor]
- Mohammed Ali Eltaher, Social User Mining: User Profiling of Social Media Network Based on Multimedia Data Mining, University of Bridgeport, USA (2015)
- Francesco Peruch, (Semi)-Automated Analysis of Melanocytic Lesions, University of Padova, Italy (2015)
- Hengameh Mirzaalian, Computational Techniques for Skin Lesion Tracking and Classification, Simon Fraser University, Canada (2014)
- Mantosh Biswas, Study and Development of Image Denoising Techniques, Indian School of Mines, India (2013)
- Pablo Gauterio Cavalcanti, Automated Prescreening of Melanocytic Skin Lesions Using Standard Camera Images, Universidade Federal do Rio Grande do Sul, Brazil (2013)
- Maryam Sadeghi, Towards Prevention and Early Diagnosis of Skin Cancer: Computer-Aided Analysis of Dermoscopy Images, Simon Fraser University, Canada (2012)
- Radi Jarrar, On the Use of Visual Conceptual Information for the Indexing and Retrieval of the Image Regions, Monash University, Malaysia (2012)
- Paul Wighton, Towards Automated Skin Lesion Diagnosis, Simon Fraser University, Canada (2011)

## Miscellaneous

- Keynote Speaker, “Two Decades of Research in Dermoscopy Image Analysis,” 25th Iberoamerican Cong. on Pattern Recognition (*CIARP 2021*)
- Keynote Speaker, “Data Clustering and the K-Means Algorithm,” Workshop on Machine Learning, Deep Learning, and Computational Intelligence for Wireless Communication (*MDCWC 2020*)
- Area Chair, “Image Formation and Preprocessing,” 14th Int. Conf. on Computer Vision Theory and Applications (*VISAPP 2019*)
- Area Chair, “Image Analysis, Detection and Recognition,” 19th Int. Conf. on Image Analysis and Processing (*ICIAP 2017*)
- Area Chair, “Image Formation and Preprocessing,” 12th Int. Conf. on Computer Vision Theory and Applications (*VISAPP 2017*)
- Lecturer, 1st AIDPATH Summer School on Stereology and Image Processing in Digital Pathology, Vilnius, Lithuania, Sep. 7–11 2015
- Area Chair, “Image Formation and Preprocessing,” 10th Int. Conf. on Computer Vision Theory and Applications (*VISAPP 2015*)
- Judge (Poster Session), 27th Int. FLAIRS Conf. (*FLAIRS-27*)
- Session Chair (General Track, Algorithms), 27th Int. FLAIRS Conf. (*FLAIRS-27*)
- Session Chair (Computer Vision I), 10th Int. Conf. on Electronics, Computer and Computation (*ICECCO 2013*)
- Publicity Chair, 10th IASTED Int. Conf. on Signal Processing, Pattern Recognition and Applications (*SPPRA 2013*)
- Keynote Speaker, “Dermoscopy Image Analysis: Advances and Prospects,” 14th IASTED Int. Conf. on Signal and Image Processing (*SIP 2012*)
- Session Chair (IMECS Keynote Speech I & II), 2012 IAENG Int. Conf. on Imaging Engineering (*ICIE 2012*)

- Session Chair (Multi-Frame Image Registration), 17th IEEE Int. Conf. on Image Processing (*ICIP 2010*)
- Session Chair (Color Acquisition and Processing II), 16th IEEE Int. Conf. on Image Processing (*ICIP 2009*)

## Member

- Institute of Electrical and Electronics Engineers (IEEE) [Senior Member, 2011]
- International Society for Optics and Photonics (SPIE) [Fellow, 2021; Senior Member, 2011]
- Technology Working Group of the International Skin Imaging Collaboration (ISIC) [Member, 2016]

## Invited Speaker

- “What Does Deep Learning Promise for Dermoscopy Image Analysis?,” 16th Graduate/Computing Workshop (WPOS/WCOMP 2021), Dept. of Computer Science, University of Brasilia, Brasilia, Brazil, Sep 2021 (Virtual)
- “Dermoscopy Image Analysis in the Age of Deep Learning,” Photonics in Dermatology and Plastic Surgery 2021, San Francisco, CA, Mar 2021
- “Threshold Fusion for Lesion Border Detection in Dermoscopy Images,” Dept. of Systems Design Engineering, University of Waterloo, Waterloo, ON, Canada, May 2018
- “Lesion Border Detection in Dermoscopy Images,” Third Annual Southern Dermatology Research Consortium, University of Arkansas for Medical Sciences, Little Rock, AR, Apr 2018
- “Hierarchical Initialization for K-Means Clustering,” Dept. of Signal Processing and Communications, University of Seville, Seville, Spain, Sep 2017
- “Efficient, Effective, and Reliable Lesion Border Detection in Dermoscopy Images,” Dept. of Signal Processing and Communications, University of Seville, Seville, Spain, Sep 2017
- “Eluding Local Minima in K-Means Clustering Using Hierarchical Initialization,” Dept. of Computer Science, Baylor University, Waco, TX, Mar 2017
- “Dermoscopy Image Analysis,” Dept. of Computer Science and Information Systems, Bradley University, Peoria, IL, Jun 2015
- “Dermoscopy Image Analysis,” Dept. of Computer Science and Information Systems, Texas A&M University, Commerce, TX, Apr 2015
- “An Introduction to Dermoscopy Image Analysis,” Dept. of Computer Science and Media Technology, Gjøvik University College, Gjøvik, Norway, Feb 2015
- “An Introduction to Color Image Filtering,” Dept. of Computer Science and Media Technology, Gjøvik University College, Gjøvik, Norway, Feb 2015
- “Dermoscopy Image Analysis,” Dept. of Computer Science & Engineering Technology, University of Houston-Downtown, Houston, TX, Feb 2015
- “Algorithms for Dermoscopy Image Analysis,” Dept. of Computer Science, Sonoma State University, Rohnert Park, CA, Dec 2014
- “Progress in Melanoma Diagnosis Based on Dermoscopy Image Analysis,” Dept. of Dermatology and Skin Science, University of British Columbia, Vancouver, BC, Canada, Nov 2014
- “Advances in the Computer-Aided Diagnosis of Melanoma Based on Dermoscopy Image Analysis,” School of Computing Science, Simon Fraser University, Burnaby, BC, Canada, Nov 2014
- “Computer-Aided Diagnosis of Melanoma Using Dermoscopy Image Analysis,” School of Engineering, University of Bridgeport, Bridgeport, CT, Oct 2014
- “Progress in Dermoscopy Image Analysis,” Dept. of Applied Mathematics, University of Porto, Porto, Portugal, Sep 2013
- “Border Detection: What Is New? How Close Are We to Solving This Problem?,” Third Quadrennial Automatic Skin Cancer Detection Symposium, Missouri University of Science and Technology, Rolla, MO, Aug 2013
- “Lesion Border Detection in Dermoscopy Images,” Dept. of Computer Science and Engineering, University of Bridgeport, Bridgeport, CT, Apr 2013
- “Academic Job Search 101,” IEEE International Symposium on Multimedia (*ISM 2012*), Irvine, CA, Dec 2012



- “The Joy of Image Processing and Industrial Vision,” Pilot Preview Day, Louisiana State University, Shreveport, LA, Apr 2012
- “Advances in Dermoscopy Image Analysis,” School of Computer Science and Engineering, University of Electronic Science and Technology of China, Chengdu, P.R. China, May 2011
- “Enhancing Teaching Performance,” Dept. of Computer Science, North American College, Houston, TX, Apr 2011
- “Discovering Image Processing and Machine Vision,” Pilot Preview Day, Louisiana State University, Shreveport, LA, Nov 2010
- “Skin Lesion Localization and Contrast Enhancement in Dermoscopy Images,” Faculty of Computers and Information, Cairo University, Cairo, Egypt, Nov 2009
- “Approximate Lesion Localization in Dermoscopy Images,” Second Quadrennial Cutaneous S&T Imaging Conference, Missouri University of Science and Technology, Rolla, MO, Aug 2009
- “Fast and Effective Color Reduction Using K-Means Clustering,” College of Sciences Symposium Series, Louisiana State University, Shreveport, LA, Apr 2009
- “Computer-Aided Diagnosis of Melanoma,” Dept. of Dermatology, Ege University, Izmir, Turkey, Mar 2009
- “Numerical Approximations in Color Image Processing,” Dept. of Mathematics, Wayne State University, Detroit, MI, Nov 2008
- “Dermoscopy Image Analysis,” Louisiana Board of Regents, Louisiana State University, Shreveport, LA, Mar 2008
- “Insight into Academic Job Search,” The Institute of Academic Studies, Dallas, TX, Nov 2007
- “Development of Algorithms for Dermoscopy Image Analysis,” Bioinformatics Affinity Group, Louisiana State University Health Sciences Center, Shreveport, LA, Oct 2007
- “Visual Computing 101,” CSI-LSUS Program for High School Students, Louisiana State University, Shreveport, LA, Jul 2007
- “Development of Algorithms for Dermoscopy Image Analysis,” Dept. of Computer Science and Engineering, University of Bridgeport, Bridgeport, CT, Mar 2007
- “Automatic Border Detection in Dermoscopy Images,” Dept. of Electrical and Computer Engineering, The University of Missouri, Rolla, MO, Jul 2005

## Honors, Awards, Certificates

- *Outstanding Reviewer*, Computers in Biology and Medicine (Mar 2017)
- *Outstanding Reviewer*, Pattern Recognition (Jan 2017)
- *Best Track Paper Award* at the 10th International Conference on Electronics, Computer and Computation (ICECCO 2013), Ankara, Turkey (Nov 2013)
- Travel grant to attend the 6th Biennial CRA Career Mentoring Workshop (Feb 2010)
- LSUS *Learn to Teach Online Program Certificate* (May 2008)
- Oracle Certified Associate Database Administrator (Feb 2004)
- *Outstanding Research by a Masters Student* award from Lockheed Martin Aeronautics (Feb 2004)
- Silver medal in National Mathematics Competition, Ankara, Turkey (Jan 1997)

## Software Development

- Software Page for NSF Award #1117457. Available at <http://code.google.com/p/nsf1117457/>
- Fourier: An open-source image processing and analysis library written in ANSI C. Available at <http://sourceforge.net/projects/fourier-ipal/>