CURRICULUM VITAE

Name and surname: TUDOR BARBU
Birthplace: Iași, ROMANIA
Affiliation: Institute of Computer Science of the Romanian Academy, Iași Branch
Position: Senior Researcher I, Dr. habil., Research Compartment Coordinator, Scientific Council Member

STUDIES AND DEGREES:

- **1988 – 1992:** High school studies at National College of Iași, Romania.
- **1992 – 1997:** Faculty of Computer Science of University *Al. I. Cuza* of Iași, finalized with a Bachelor degree in Computer Science.
- **1998 – 1999:** Master program in *Information Technology* at the University of Jyvaskyla, Finland, finalized with a *EXIMIA CUM LAUDAE APROBATUR* Master of Science (MSc) degree.
- **2000 - 2005:** Doctoral studies at Faculty of Automatic Control and Computers of University *Politehnica* of Bucharest, finalized with a *CUM LAUDAE* PhD degree in Computer Science on January 17, 2005.
- **2014 - 2015:** Habilitation in Computer Science at Romanian Academy, Bucharest, the Habilitated PhD degree being achieved in April 2015.

PROFESSIONAL EXPERIENCE:

- **1997 - 2004:** Assistant Researcher at the Institute of Computer Science of the Romanian Academy, Iași
- **2004 - 2006:** Scientific Researcher at the same institute, coordinating a signal processing and analysis team
- **2006 - 2009:** Senior Researcher III, coordinator of the *Image and Video Processing and Analysis* compartment of the institute
- **2009 - 2013**: Senior Researcher II, leader of the same research collective, member of the leading Scientific Council of Institute of Computer Science
- **2013 - present:** Senior Researcher I, research compartment coordinator and member of the board of the leading council
- **2015 -** present: PhD Coordinator at the *School of Advanced Studies of the Romanian Academy* (SCOSAAR)
- **2016 - 2020:** Member of the *Comission for Informatics* of the *National Council for Titles, Diplomas and Certificates* (CNATDCU).

ACADEMIC VISITS AND TEACHING ACTIVITY:

- **May 2012:** Academic Visitor at the Department of Automatic Control and Systems Engineering of the University of Sheffield, UK.
- **April 2013:** Visiting Professor at the Department of Mathematics of Bologna University, Italy.

- **August – September 2014:** Senior Researcher at the Department of Mathematics of the University of Bielefeld, Germany, with a post-doc DAAD fellowship.
- **June - July 2015:** Associate Professor at the Department of Mathematics of the Bologna University, Italy.
- **August 2016:** Visiting Academic at the Department of Scientific Computing of the Florida State University, Florida, United States of America.
- **August – September 2016:** Visiting Professor at the Department of Mathematics of the Pittsburgh University, Pennsylvania, United States of America.
- **August – September 2017:** Visiting Professor at the Faculty of Science, University of Monastir, Tunisia.
- **2014-2020:** Invited Professor, for graduate courses, at Faculty of Medical Bioengineering, "Grigore T. Popa" University of Medicine and Pharmacy of Iaşi, Romania.
- **June - July 2023:** Invited Professor at the Department of Computer Science of the University of Verona, Italy.

<u>RESEARCH ACTIVITY RESULTS:</u> disseminated in more than 300 authored research works

- **Books and chapters:** 4 books and 14 book chapters, with recognized publishers
- **Articles published in recognized international journals:** 90 articles published in ISI journals with impact factor and journals indexed by major international databases
- **Articles published in volumes of recognized international scientific events:** 81 articles published in volumes of international conferences, symposiums and workshops
- **Research works at national conferences:** 36 papers presented at national scientific events, many of them published in volumes
- **Scientific reports:** 42 research reports elaborated at institute, as compartment coordinator, and 20 scientific reports related to various contract-based projects
- **Plenary Talks:** 22 keynote addresses at international scientific events and talks at several top universities
- **4 Theses:** Graduation, Master, PhD and Habilitation theses
- **Some edited Special Issues of high impact factor journals**
- **Impact of the results:** 1510 citations of the published works, according to Google-Academic
- **Hirsch index:** H-index = 23.

<u>RESEARCH-DEVELOPMENT PROJECTS BASED ON CONTRACT:</u>

- **2023 - 2025:** SIMPATIA - *Soluţii inteligente de monitorizare a participanţilor la trafic utilizând instrumente avansate de viziune artificială şi modelare matematică riguroasă*, GAR – 2023: *Cercetări avansate trans- şi inter-disciplinare – baza a noi dezvoltări tehnologice* Director: Dr. habil. **Tudor Barbu**.
- **2022 - 2024:** *Generalized nonlinear Fokker-Planck equations*; Code PN-III-P4-PCE-2021-0006; Dr. habil. **Tudor Barbu** – Senior Researcher I.
- **2021 –** SIPOCA project 592/08.2021, Contract Nr. 55, Ministry of Research, Innovation and Digitization; Dr. habil. **Tudor Barbu** – Expert Evaluator in Panel 4.

- **01.10.2017 - 31.12.2019:** *Analysis and Control of Schrodinger Stochastic Equations and Nonlinear Diffusion Models*; Code PN-III-P4-ID-PCE2016-0011; Dr. habil. **Tudor Barbu** – Senior Researcher I.
- **01.10.2015 – 30.11.2017:** Project ARHIMEDES – *Hybrid Image Restoration Algorithms based on Diffusion and Stochastic Equation Models*; Code: PN-II-RU-TE-2014-4-0083; Contract Number: 126/01.10.2015; Contractor: Romanian Academy, Iasi Branch; 26 months; Director: Dr. habil. **Tudor Barbu**.
- **June – July 2015:** Grant NADIR - *Nonlinear Anisotropic Diffusion Image Restoration*, GNAMPA / InDAM Project conducted at the Department of Mathematics of the Bologna University, Italy; Coordinator – Dr. habil. **Tudor Barbu**.
- **2015:** Interdisciplinary Project 4 of Romanian Academy– *Siguranţa Informatică, Protecţia Cibernetică, Protecţia proprietăţii intelectuale în proiecte şi publicarea electronică*, Development strategy of Romania for the next 20 years; Dr. habil. **Tudor Barbu** – Senior Researcher I.
- **Aug. - Sept. 2014:** Project VANDIRES – *Variational and Anisotropic Diffusion based Image Restoration System*, conducted at the Department of Mathematics of the Bielefeld University, Germany, as part of a DAAD scholarship for university professors and senior researchers; Coordinator – Dr. **Tudor Barbu**.
- **2011 - 2015:** Project PN-II-ID-PCE-2011-3-0027 - *Analysis and control of deterministic and stochastic diffusion equations*, Director - Prof. V. Barbu, Institute of Mathematics of the Romanian Academy, *Octav Mayer*, Iaşi; Dr. **Tudor Barbu** – Senior Researcher I.
- **2008 - 2011:** Project IDEI, CNCSIS Code 70/2008, *Ecuaţii neliniare de difuzie în teoria mediilor poroase, biometrie şi restaurarea imaginilo*r, Director - Prof. Gabriela Marinoschi, Institute of Mathematical Statistics and Applied Mathematics of the Romanian Academy, Bucharest; Dr. **Tudor Barbu** – Experienced Researcher.
- **2008 - 2011:** *ADBIOSONAR - Adaptive Bio-mimetic Sonar Heads for Autonomous Vehicles*, Program 4, 2007-2013, Code 1286, Contract number 12079/2008, Director – Prof. Dorel Aiordachioaiei, *Dunărea de Jos* University of Galaţi; ICS Supervisor – Prof. H. N. Teodorescu; *Video processing and analysis* section coordinator – Dr. **Tudor Barbu.**
- **2006 - 2009:** *PERSIDENT: Informatic biometric system for person identification and access authorizing*, CNCSIS Code 835/2006, Director - Prof. Hariton Costin, University of Medicine and Pharmacy; Dr. **Tudor Barbu** – voice recognition section coordinator.

AWARDS FOR SCIENTIFIC ACTIVITY:

- **Romanian Academy Prize "GHEORGHE CARTIANU"** in *Information Technology and Science*, awarded on December 18, 2008, for the book entitled *Modelling Multimedia Information Systems*, published by Romanian Academy Publishing House in 2006
- **Academy of Romanian Scientists Prize "CORNELIU PENESCU"** *Information Technology and Science*, awarded in May, 2021, for the book *Novel Diffusion-Based Models for Image Restoration and Interpolation*, Book Series: Signals and Communication Technology, Springer International Publishing, 2019
- **Best Paper Award** at *20th International Conference on System Theory, Control and Computing, ICSTCC 2016*, Sinaia, Romania, October 13-15, 2016, IEEE
- **Best Paper Award** at *ICDIP 2016: 18th International Conference on Digital Image Processing*, Amsterdam, Netherlands, August 4-5, 2016

- **Best Paper Award** at *World Congress on Electrical Engineering and Computer Systems and Science, EECSS '15*, Barcelona, Spain, 13-14 July 2015
- **Diploma of Excellence** awarded by City Hall of Iași on May 22, 2019, for organizing the *International Symposium DiMoGeCH 2019*
- **Award for obtaining the habilitation certificate**: PN-II-RU-ABIL-2015-2-0054, 2015
- **2 Awards for Research Results in 2021**: PN-III-P1-1.1-PRECISI-2021-53568, 2021-54117
- **2 Awards for Research Results in 2020**: PN-III-P1-1.1-PRECISI-2020-44573, 2020-43766
- **1 Award for Research Results in 2019:** PN-III-P1-1.1-PRECISI-2019-34779
- **1 Award for Research Results in 2018:** PN-III-P1-1.1PRECISI-2018-26145
- **2 Awards for Research Results in 2017**: PN-III-P1-1.1PRECISI-2017-16480; PN-III-P1-1.1PRECISI-2017-14266
- **1 Award for Research Results in 2015:** PN-II-RU-PRECISI-2015-9-8817
- **1 Award for Research Results in 2013:** PN-II-RU-PRECISI-2013-7-4176
- **CNCSIS Prize for research results of 2008**, Code 789
- **CNCSIS Prize for research results of 2007**, Code 119

OTHER IMPORTANT INFORMATION:

- Member of the **Academy of Romanian Scientists (AOSR)**:
  - Corresponding Member since May 2022
  - Associate Member in the period 2020 - 2022
- Member of the leading Council of the Mathematical Sciences Doctoral School of SCOSAAR
- **Expert Evaluator of UEFISCDI** since 2018
- **Expert Evaluator of Ministry of Research, Innovation and Digitization –** fixed-term employment contract - 2021
- Titular member of the *Romanian Society for Industrial and Applied Mathematics* (ROMAI) since 2015
- **Editorial activity:**
  - Member of the Editorial Board of the *ROMAI Journal*, indexed IDB
  - Member of the Editorial Topics Board of *Mathematics*, MDPI, IF = 2.592
  - Member of the Editorial Board of *Mathematical Problems in Engineering*, IF = 1.430
  - Member of the Editorial Board of *Journal of Applied Mathematics*, Hindawi, indexed IDB
  - Member of the Editorial Board of *Frontiers in Applied Mathematics and Statistics*, Frontiers, indexed IDB
  - Member of the Editorial Board of *Journal of Image Processing Theory and Applications*
  - Member of the Editorial Board of *Journal of Image and Graphics*, indexed IDB
  - Member of the Editorial Board of *Journal of Intelligent Communication*, UK Scientific Publishing Limited
  - Member of the Editorial Board of *Journal of Information Analysis*, Innovation Forever Publishing Group Limited
  - Associated Editor of *Annals of the Academy of Romanian Scientists, Series on Science and Technology and Information*
  - Lead Guest Editor of *Advances in Variational and Partial Differential Equation-Based Models for Image Processing and Computer Vision*, Special Issue of *Mathematical Problems in Engineering*, Hindawi, IF = 1.430, April 2018.

- o Lead Guest Editor of *Advanced Image Processing and Analysis Solutions using PDE-based Modeling of the Physics Phenomena*, Special Issue of *Advances in Mathematical Physics*, Hindawi, IF=1.128, 2019.
  - o Lead Guest Editor of *Advances in PDE-based Methods for Image Processing*, Special Issue of *Mathematics*, MDPI, IF = 2.592, 2020-2021.
  - o Guest Editor of *Image and Video Processing and Analysis Techniques Using Variational and PDE-based Approaches,* Research Topic of *Frontiers in Applied Mathematics and Statistics*, Frontiers, 2021.
  - o Lead Guest Editor of *Advances in PDE-based Models, Artificial Intelligence and Deep Learning*, Special Issue of *Mathematics*, MDPI, IF = 2.592, 2022-2023.
- **Important conference roles:**
  - o Main Organizer of the *International Symposium on Differential Models in Geometry, Computer Science and Hydrotechnics DiMoGeCH*, 22-25 May 2019, Iasi, Romania
  - o Vice-President of the Organizing Comittee of *25th Conference on Applied and Industrial Mathematics - CAIM 2017, Iasi, Romania, 14-17 sept. 2017*
  - o Member of organizing, scientific and technical comittees of the international conferences: *ICSTCC 2014*, *CAIM 2017*, *EHB 2017*, *CAIM 2018*, *ISCBI 2018*, *ICSTCC 2019*, *DGDS 2019*, *CAIM 2019*, *EHB 2019*, *ICPAM 2019*, *ICPAM 2020*, *ESCC 2020*, *EHB 2020*, *CAIM 2020*, *DGDS 2020*, *ICSTCC 2020*, *EHB 2021*, *ESCC 2021*, *IMPROVE 2021*, *AMMCS 2021*, *DGDS 2021*, *ICABDE 2021*, *ICMACS 2021*, *IMPROVE 2022*, *GCMSE 2022*, *DGDS 2022*, *CAIM 2022*, *EHB 2022*, *IMPROVE 2023*, *ROBOTICS 2023*, *CAIM 2023*, *EHB 2023*, *IMPROVE 2024*, *AMMCS 2024*, *CAIM 2024*, *EHB 2024*
  - o Invited Keynote Plenary Speaker at 15 international conferences

- Programming languages: MATLAB, Octave, C/C++, Python etc.
- Foreign languages: English – high level.

MAJOR RESEARCH AREAS:

- Image and Video Processing and Analysis
- Pattern Recognition and Machine / Deep Learning
- Artificial Intelligence
- Biometrics
- Computer Vision
- Graph Theory
- Numerical Analysis

RESEARCH PROFILES:

- **Research Gate:** https://www.researchgate.net/profile/Tudor_Barbu
- **Google-Academic:** https://scholar.google.com/citations?user=FWpmDEgAAAAJ
- **Web of Science:** https://www.webofscience.com/wos/author/record/1197775
- **Scopus:** https://www.scopus.com/authid/detail.uri?authorId=55969625500
- **Brainmap:** https://www.brainmap.ro/tudor-barbu
- **ORCID:** http://orcid.org/0000-0002-9919-7776
- **Romanian Academy – Iasi Branch:** https://acadiasi.org/cercetatori/barbu-tudor

TUDOR BARBU - LIST OF PUBLICATIONS

1. PhD Thesis:

Tudor Barbu, *Multimedia Information System Modeling Techniques*, PhD Thesis, Faculty of Automatic Control and Computers of University *Politehnica* of Bucharest, 204 pages, January 17, 2005.

2. Habilitation Thesis:

Tudor Barbu, *Speech and Image Processing and Analysis Models Applied to Biometrics and Computer Vision*, Habilitation Thesis, Romanian Academy, Bucharest, April 2015.

3. Books and book chapters:

1. **T. Barbu**, *Novel Diffusion-Based Models for Image Restoration and Interpolation*, Book Series: Signals and Communication Technology, Springer International Publishing, 126 pages, 2019 (online August 2018), Hardcover ISBN: 978-3-319-93005-3, eBook ISBN 978-3-319-93006-0.

2. **T. Barbu**, *Biometric Authentication Techniques* (in Romanian), edited by Romanian Academy Publishing House, Bucharest, 110 pages, 2012, ISBN 978-973-27-2144-5.

3. **T. Barbu,** *Face Analysis, Modeling and Recognition Systems*, Editor-in-chief, published by InTech, 212 pages, September 2011, ISBN: 978-953-307-738-3.

4. **T. Barbu**, *Modelling Multimedia Information Systems* (in Romanian), edited by Romanian Academy Publishing House, Bucharest, 225 pages, 2006, ISBN (10)973-27-1352-6; ISBN (13)978-973-27-13526.

5. **T. Barbu**, Multimodal Magnetic Resonance Image Restoration using a Vector-valued Anisotropic Diffusion-based Mixed Noise Filtering Technique, *Advances in Digital Health and Medical Bioengineering*, Springer book series IFMBE Proceedings, Springer Nature Switzerland AG, to appear in 2024.

6. M. Luca, A. Ciobanu, **T. Barbu**, V. Drug, Artificial Intelligence and Deep Learning, Important Tools in Assisting Gastroenterologists, *Handbook of Artificial Intelligence in Healthcare*, Book Series *Intelligent Systems Reference Library*, pp. 197-213, Springer Cham, 2022.

7. **T. Barbu**, V. Apopei, *Înțelegerea şi interpretarea imaginilor şi filmelor (video),* in *Inteligență Artificială în Romania*, chapter in *Istoria Informaticii în România*, coord. Acad. F. Filip, seria Civilizația Românească, Editura Academiei Române, 2018.

8. **T. Barbu**, Nonlinear Fourth-order Diffusion-based Model for Image Denoising, *Soft Computing Applications. Advances in Intelligent Systems and Computing*, vol. 633, Balas V., Jain L., Balas M. (eds), Springer, Cham, pp. 423-429, 2018.

9. D. Tufiş, A. Ioniţă, A. Vlad, N. Ţăpuş, H. Dragomirescu, **T. Barbu**, C. Niculescu, A. Baciu, V. Gaftea, I. Niţu, Ş. Dumitrescu, T. Boroş, A. Munteanu, H. N. Teodorescu, Ş. Iancu, C. Burdun, F. Negru, S. Bănică, M. Oancea, M. Sorin Rusu, A. Minc, *Strategia de dezvoltare a României în următorii 20 de ani*, Vol. I., Proiect 4: *Siguranţa Informatică*, Editura Academiei Române, 2015.

10. **T. Barbu**, M. Costin, A. Ciobanu, An Unsupervised Content-based Image Recognition Technique, *New Concepts and Applications in Soft Computing*, *Series: Studies in Computational Intelligence*, Springer-Verlag, Vol. 417, pp. 157-164, Berlin, Eds. V. E. Balas, A. V. Koczy, J. Fodor, 2013.

11. **T. Barbu**, M. Costin, A. Ciobanu, Color-based Image Retrieval Approaches Using a Relevance Feedback Scheme, *New Concepts and Applications in Soft Computing*, *Series: Studies in Computational Intelligence*, Springer-Verlag, Vol. 417, pp. 47-55, Berlin, Eds. V. E. Balas, A. V. Koczy, J. Fodor, 2013.

12. A. Ciobanu, M. Costin, **T. Barbu**, Image Categorization Based on Computationally Economic Lab Colour Features, *Soft Computing Applications, Series: Advances in Intelligent Systems and Computing*, 195, pp. 585-593, V. E. Balas et al. (Eds.), Springer-Verlag, Berlin Heidelberg, 2013, ISBN 978-3-642-33941-7.

13. **T. Barbu**, *Two Novel Face Recognition Approaches,* Chapter 2 of *Face Analysis, Modelling and Recognition Systems*, published by InTech, pp. 19-32, Sept. 2011, ISBN: 978-953-307-738-3.

14. **T. Barbu**, *Preface* chapter of *Face Analysis, Modelling and Recognition Systems*, published by InTech, pp. IX-XII, Sept. 2011, ISBN: 978-953-307-738-3.

4. <u>Articles published in recognized international journals:</u>

1. **T. Barbu**, Deep Learning-based Multiple Moving Vehicle Detection and Tracking using a Nonlinear Fourth-order Reaction-Diffusion based Multi-scale Video Object Analysis, *Discrete & Continuous Dynamical Systems - Series S*, AIMS Journals, Volume 16, Issue 1, pp. 6-32, January 2023, http://dx.doi.org/10.3934/dcdss.2022083. **IF = 2.425**

2. **T. Barbu**, CNN-based Temporal Video Segmentation using a Nonlinear Hyperbolic PDE-based Multi-scale Analysis, *Mathematics*, MDPI, pp. 1-12, 2023. **IF = 2.592**

3. T. M. Mortazavi, E. O. M. Ebadati, D. N. Thanh, **T. Barbu**, Detecting Images with Adult Content Using SURF and Haar Wavelet, *Romanian Journal of Information Science and Technology* (*ROMJIST*), Volume 26, Number 2, pp. 137–150, 2023. **IF = 0.852**

4. **T. Barbu**, Multispectral Image Restoration using a Vector-valued Reaction-diffusion based Mixed Noise Removal Technique, *ISPRS Annals of the Photogrammetry, Remote Sensing and Spatial Information Sciences* X - 1 / W1 - 2023, pp. 351–356, 2023, https://doi.org/10.5194/isprs-annals-X-1-W1-2023-351-2023.

5. **T. Barbu**, Edge Detection Techniques using Nonlinear Diffusion – based Models, *Bulletin of the Transilvania University of Brasov. Series III: Mathematics and Computer Science,* Vol. 3 (65), No. 1, pp. 199-210, 2023.

6. **T. Barbu**, Moving Object Detection and Tracking using Nonlinear PDE-based and Energy-based Schemes, *ROMAI Journal*, ed. ROMAI Society, Vol. 19, Number 1, pp. 35-51, 2023.

7. **T. Barbu**, Mixed Noise Reduction Techniques using Nonlinear Partial Differential Equations, *ROMAI Journal*, ed. ROMAI Society, Vol. 18, Number 2, pp. 45-56, 2022.

8. **T. Barbu**, Content-based Image Retrieval Framework using Multi-scale Deep Learning – based Feature Extraction and Graph-based Clustering, *Proceedings of the Romanian Academy,* Series A: Mathematics, Physics, Technical Sciences, Information Science, Volume 23, Number 3, pp. 287–296, July-September 2022. **IF = 1.752**

9. **T. Barbu**, Parametric and geometric PDE-based models for automatic image segmentation, *Applied Sciences*, Volume 24, pp. 1 - 11, June 2022.

10. **T. Barbu**, A Novel Automatic Voice Recognition System using a Graph-Based Clustering Algorithm, *International Journal of Advanced Computational Engineering and Networking – IJACEN*, Volume 10, Issue 9, pp. 1-6, 2022.

11. **T. Barbu**, Mixed Noise Removal Framework using a Nonlinear Fourth-order PDE-based Model, *Applied Mathematics & Optimization*, 84, pp. 1865–1876, Springer US, August 17 2021. https://doi.org/10.1007/s00245-021-09813-4. **IF = 3.582**

12. **T. Barbu,** Automatic Edge Detection Solution using Anisotropic Diffusion-based Multi-scale Image Analysis and Fine-to-coarse Tracking, *Proceedings of the Romanian Academy,* Series A: Mathematics, Physics, Technical Sciences, Information Science, Volume 22, Issue 3, pp. 267-274, July-September 2021. **IF = 1.752**

13. **T. Barbu**, Automatic Unsupervised Texture Recognition Framework Using Anisotropic Diffusion-Based Multi-Scale Analysis and Weight-Connected Graph Clustering, *Symmetry*, 13, 925, May 2021. **IF = 2.940**

14. **T. Barbu**, Nonlinear PDE-based models for photon-limited image restoration, *Applied Sciences*, Volume 23, pp. 5-16, 2021.

15. **T. Barbu,** P. Ungureanu, L. Goraş, Multiscale Texture Recognition using Anisotropic Diffusion-based Scale Space and Combined Rotation-invariant Feature Descriptors, *Proceedings of the Romanian Academy,* Series A: Mathematics, Physics, Technical Sciences, Information Science, Volume 21, Issue 4, pp. 385-393, September – December 2020. **IF = 1.752**

16. **T. Barbu,** Feature Keypoint-Based Image Compression Technique Using a Well-Posed Nonlinear Fourth-Order PDE-Based Model, *Mathematics*, 8, 930, June 2020. **IF = 2.592**

17. **T. Barbu**, A Nonlinear Second-order Hyperbolic PDE-based Photon-limited Medical Microscopy Image Restoration Technique, *Romanian Journal of Information Science and Technology* (*ROMJIST*), Volume 23, Number S, pp. S67-S76, 2020. **IF = 0.852**

18. **T. Barbu**, Photon-limited Image Restoration Using a Well-posed Nonlinear Fourth-order Hyperbolic PDE-based Model, *Proceedings of the Romanian Academy,* Series A:

Mathematics, Physics, Technical Sciences, Information Science, Volume 21, Issue 3, pp. 205-212, June – September 2020. **IF = 1.752**

19. **T. Barbu**, Detail-preserving Fourth-order Nonlinear PDE-based Image Restoration Framework, *Journal of Image and Graphics*, Vol. 8, No. 1, pp. 5-8, March 2020.

20. **T. Barbu**, Partial Differential Equation-based Digital Image Compression Models, *Applied Sciences*, Volume 22, pp. 17-32, August 2020.

21. **T. Barbu**, Structural Inpainting Techniques Using Equations of Engineering Physics, *Physica Scripta*, IOP Publishing Ltd., Vol. 95, No. 4, February 11, 2020. **IF = 2.487**

22. **T. Barbu**, A Survey on Nonlinear Second-Order Diffusion-Based Techniques for Additive Denoising, *Soft Computing Applications. SOFA 2018. Advances in Intelligent Systems and Computing*, Balas V., Jain L., Balas M., Shahbazova S. (eds), vol. 1221, pp. 177-185, Springer, Cham, 2021 (online August 2020).

23. M. Luca, **T. Barbu**, A. Ciobanu, An Overview on Computer Processing for Endoscopy and Colonoscopy Videos, *Soft Computing Applications. SOFA 2018. Advances in Intelligent Systems and Computing*, Balas V., Jain L., Balas M., Shahbazova S. (eds), vol. 1222, pp. 3-22, Springer, Cham, 2021 (online August 2020).

24. **T. Barbu**, Variational PDE-based models for image filtering and inpainting, *Annals of the Academy of Romanian Scientists, Series on Science and Technology of Information*, Volume 13, Number 1, pp. 5 – 15, 2020.

25. **T. Barbu**, Second-Order Anisotropic Diffusion-Based Technique for Poisson Noise Removal, *IFAC PapersOnLine*, Elsevier Ltd., Volume 52, Issue 18, pp. 174-178, 2019.

26. **T. Barbu**, The International Symposium on Differential Models in Geometry, Computer Science and Hydrotechnics, DiMoGeCH 2019 - Preface, *Memoirs of the Scientific Sections of the Romanian Academy*, Series IV, Tome XLII, pp. 7-8, 2019.

27. **T. Barbu**, A Survey of Nonlinear PDE-based Structural Image Interpolation Models, *Memoirs of the Scientific Sections of the Romanian Academy*, Tome XLII, Series IV, pp. 33-46, 2019.

28. **T. Barbu**, Segmentation-Based Non-Texture Image Compression Framework Using Anisotropic Diffusion Models, *Proceedings of the Romanian Academy,* Series A: Mathematics, Physics, Technical Sciences, Information Science, Volume 20, Issue 2, pp. 122-130, April - June 2019. **IF = 1.752**

29. **T. Barbu**, A. Miranville, C. Moroșanu, A Qualitative Analysis and Numerical Simulations of a Nonlinear Second-order Anisotropic Diffusion Problem with Non-homogeneous Cauchy-Neumann boundary conditions, *Applied Mathematics and Computation*, Elsevier, 350, pp. 170-180, June 2019. **IF = 4.091**

30. **T. Barbu**, C. Moroșanu, Compound PDE-based Additive Denoising Solution Combining an Improved Anisotropic Diffusion Model to a 2D Gaussian Filter Kernel, *East Asian Journal on Applied Mathematics*, Vol. 9, Issue 1, pp. 1-12, February 2019. **IF = 1.660**

31. **T. Barbu**, Compound Second-order Hyperbolic Partial Differential Equation-based structural interpolation model, *Applied Sciences*, Vol. 21, pp. 27-33, 2019.

32. **T. Barbu**, Second-order anisotropic diffusion-based framework for structural inpainting, *Proceedings of the Romanian Academy,* Series A: Mathematics, Physics, Technical Sciences, Information Science, Volume 19, Number 2, pp. 329-336, April - June 2018. **IF = 1.752**

33. **T. Barbu**, G. Marinoschi, C. Moroşanu, I. Munteanu, Advances in Variational and Partial Differential Equation-Based Models for Image Processing and Computer Vision, *Mathematical Problems in Engineering,* Hindawi Publishing Corporation, Article ID 1701052, Volume 2018, 2 pages, 2018. **IF = 1.430**

34. **T. Barbu**, A Nonlinear Second-order Partial Differential Equation-based Algorithm for Additive Noise Reduction, *Bulletin of the Transilvania University of Braşov*, Series III: Mathematics, Informatics, Physics, Vol. 11 (60), Issue 2, pp. 49-56, 2018.

35. **T. Barbu**, I. Munteanu, A Nonlinear Fourth-order Diffusion-based Model for Image Denoising and Restoration, *Proceedings of the Romanian Academy,* Series A: Mathematics, Physics, Technical Sciences, Information Science, Volume 18, Issue 2, pp. 108 - 115, April – June 2017. **IF = 1.752**

36. **T. Barbu**, I. Munteanu, A well-posed second-order anisotropic diffusion-based structural inpainting scheme, *ROMAI Journal*, ROMAI Society, Vol. 13, No. 1, pp. 1-9, 2017.

37. **T. Barbu**, C. Morosanu, Image Restoration using a Nonlinear Second-order Parabolic PDE-based Scheme*, Analele Stiintifice ale Universitatii Ovidius Constanta, Seria Matematică*, Volume XXV, Fasc. 1, pp. 33-48, 2017. **IF = 1.045**

38. **T. Barbu**, G. Marinoschi, Image denoising by a nonlinear control technique, *International Journal of Control*, Taylor & Francis, Vol. 90, Issue 5, pp. 1005-1017, 2017. **IF = 2.930**

39. **T. Barbu**, Book review of "Carola-Bibiane Schonlieb, Partial Differential Equation Methods for Image Inpainting, Cambridge University Press, 2015", *Memoirs of the Scientific Sections of the Romanian Academy*, Tome XL, pp. 2-4, 2017.

40. **T. Barbu**, Book review of "Dan Simovici. Linear Algebra Tools for Data Mining, World Scientific Publishing Company, 2012", *Memoirs of the Scientific Sections of the Romanian Academy*, Tome XL, pp. 4-5, 2017.

41. **T. Barbu**, Variational image inpainting technique based on nonlinear second-order diffusions, *Computers & Electrical Engineering*, Volume 54, pp. 345–353, August 2016. **IF = 3.818**

42. **T. Barbu**, A Nonlinear Parabolic Partial Differential Equation Model for Image Enhancement, *International Journal of Computer and Information Engineering*, Vol. 3, No. 8, 2016.

43. **T. Barbu**, Nonlinear Fourth-order Diffusion-based Image Restoration Scheme, *ROMAI Journal*, ROMAI Society, Vol. 12, No. 1, pp. 45-52, 2016.

44. **T. Barbu**, A. Ciobanu, C. Niţă, Nonlinear second-order partial differential equation-based image smoothing technique, *Memoirs of the Scientific Sections of the Romanian Academy*, pp. 7-14, Tome XXXIX, 2016.

45. A. Ciobanu, **T. Barbu**, M. Luca, Image Resolution related Behavior for Iris Identification based on Color Features, *Memoirs of the Scientific Sections of the Romanian Academy*, pp. 47-52, Tome XXXIX, 2016.

46. **T. Barbu**, A. Favini, Novel stochastic differential model for image restoration, *Proceedings of the Romanian Academy*, Series A: Mathematics, Physics, Technical Sciences, Information Science, Volume 17, Number 2, pp. 109-116, April-June 2016. **IF = 1.752**

47. **T. Barbu**, A nonlinear second-order hyperbolic diffusion scheme for image noise reduction, *U.P.B. Scientific Bulletin*, Series C, Vol. 78, Issue 2, pp. 89-98, 2016. **IF = 0.34**

48. **T. Barbu**, Nonlinear Parabolic PDE-based Image Filtering, *Advances in Mathematics and Computer Science and their Applications*, pp. 276-280, 2016.

49. **T. Barbu**, Nonlinear PDE Model for Image Restoration using Second-Order Hyperbolic Equations, *Numerical Functional Analysis and Optimization*, Vol. 36, Issue 11, Taylor & Francis, pp. 1375-1387, nov. 2015. **IF = 1.042**

50. **T. Barbu,** PDE-based Restoration Model using Nonlinear Second and Fourth Order Diffusions, *Proceedings of the Romanian Academy*, Series A: Mathematics, Physics, Technical Sciences, Information Science, Volume 16, Number 2, pp. 138-146, April-June 2015. **IF = 1.752**

51. **T. Barbu**, A Linear Diffusion-based Image Restoration Approach, *ROMAI Journal*, ROMAI Society, Vol. 11, No. 2, pp. 133-139, 2015.

52. **T. Barbu**, A. Favini, Rigorous mathematical investigation of a nonlinear anisotropic diffusion-based image restoration model, *Electronic Journal of Differential Equations*, Vol. 2014, No. 129, pp. 1-9, 2014. **IF = 1.282**

53. **T. Barbu**, Pedestrian detection and tracking using temporal differencing and HOG features, *Computers & Electrical Engineering*, Volume 40, Issue 4, pp. 1072–1079, May 2014. **IF=3.818**

54. **T. Barbu**, Robust contour tracking model using a variational level-set algorithm, *Numerical Functional Analysis and Optimization*, Taylor & Francis, Vol. 35, Issue 3, pp. 263-274, 2014. **IF = 1.042**

55. A. Ciobanu, M. Luca, I. Păvăloi, **T. Barbu**, Iris Identification based on Optimized LAB Histograms Applied to Iris Partitions, *Bulletin of the Polytechnic Institute of Iasi, Automatic Control and Computer Science Section*, Tom LX (LXIV), Fasc. 3, pp. 37-48, published by "Gheorghe Asachi" Technical University of Iaşi, 2014.

56. **T. Barbu**, Variational Image Denoising Approach with Diffusion Porous Media Flow, *Abstract and Applied Analysis*, Volume 2013, Article ID 856876, 8 pages, Hindawi Publishing Corporation, 2013. **IF = 1.442**

57. **T. Barbu**, Automatic Moment Based Texture Segmentation, *International Journal of Computer, Information Science and Engineering*, Vol. 7, No. 12, pp. 813-818, 2013.

58. **T. Barbu**, Novel Approach for Moving Human Detection and Tracking in Static Camera Video Sequences, *Proceedings of the Romanian Academy*, Series A: Mathematics, Physics,

Technical Sciences, Information Science, Vol. 13, No. 3, pp. 269-277, July-September 2012. **IF = 1.752**

59. **T. Barbu**, Novel linear image denoising approach based on a modified Gaussian filter kernel, *Numerical Functional Analysis and Optimization*, Vol. 33, Issue 11, pp. 1269-1279, Taylor & Francis Group, LLC, 2012. **IF = 1.042**

60. **T. Barbu**, Multiple Object Detection and Tracking in Sonar Movies using an Improved Temporal Differencing Approach and Texture Analysis, *U.P.B. Scientific Bulletin*, Series A, Vol. 74, Issue 2, pp. 27-40, 2012. **IF = 0.903**

61. **T. Barbu,** V. Barbu, A PDE approach to image restoration problem with observation on a meager domain, *Nonlinear Analysis: Real World Applications*, Vol. 13, Issue 3, pp. 1206-1215, June 2012. **IF = 2.763**

62. **T. Barbu**, Book review of Origami 5: Fifth International Meeting of Origami, Science, Mathematics, and Education, CRC Press; Taylor & Francis Group, 2011, *Memoirs of the Scientific Sections of the Romanian Academy*, Tome XXXV, 2012.

63. **T. Barbu**, A. Ciobanu, M. Costin, Unsupervised Color-based Image Recognition based on a LAB Feature Extraction Technique, *Bulletin of the Polytechnic Institute of Iasi, Automatic Control and Computer Science Section*, published by "Gheorghe Asachi" Technical University of Iași, Tome LVII (LXI), Fasc. 3, pp. 33-41, 2011.

64. **T. Barbu**, Fingerprint Matching Approach Using a Novel Metric, *U.P.B. Scientific Bulletin*, Series A, Issue 2, Vol. 73, pp. 119-128, 2011. **IF = 0.903**

65. **T. Barbu**, A PDE based Model for Sonar Image and Video Denoising, *Analele Stiintifice ale Universitatii Ovidius Constanta, Seria Matematică*, Vol. 19, Fasc. 3, pp. 51-58, 2011. **IF = 1.045**

66. **T. Barbu**, An Automatic Face Detection System for RGB Images, *International Journal of Computers, Communications & Control*, Vol. 6, No. 1, pp. 21-32, 2011. **IF = 2.293**

67. **T. Barbu**, Gabor filter-based face recognition technique, *Proceedings of the Romanian Academy*, Series A: Mathematics, Physics, Technical Sciences, Information Science, Volume 11, Number 3, pp. 277 - 283, July-September 2010. **IF = 1.752**

68. **T. Barbu**, Novel automatic video cut detection technique using Gabor filtering, *Computers & Electrical Engineering*, Volume 35, Issue 5, pp. 712-721, September 2009. **IF = 3.818**

69. **T. Barbu**, V. Barbu, V. Biga, D. Coca, A PDE variational approach to image denoising and restoration, *Nonlinear Analysis: Real World Applications*, Vol. 10, Issue 3, pp. 1351-1361, June 2009. **IF = 2.763**

70. **T. Barbu**, M. Costin, A Human Person Recognition System using Face and Voice Biometrics, *Scientific Bulletin of the Politehnic University of Timisoara*, Romania, Transactions on Electronics and Communications, Tom (53) 67, Fasc. 2, pp. 5-10, 2008.

71. L. Alboaie, **T. Barbu**, An Automatic User Recognition Approach within a Reputation System Using a Nonlinear Hausdorff Derived Metric, *Numerical Functional Analysis and Optimization*, pub. Taylor & Francis, Vol. 29, Issue 11 & 12, pp. 1240 – 1251, Nov. 2008. **IF= 1.042**

72. H. Costin, I. Ciocoiu, **T. Barbu**, C. Rotariu, Through Biometric Card in Romania: Person Identification by Face, Fingerprint and Voice Recognition, *International Journal of Computer, Information, Systems and Control Engineering*, Vol. 2, No. 5, 2008.

73. **T. Barbu**, A supervised text-independent speaker recognition approach, *International Journal of Computer, Information, Systems and Control Engineering*, Vol. 1, No. 9, pp. 2710-2714, World Acad. Sci. Eng. Technol., 2007.

74. **T. Barbu**, An automatic image recognition approach, *Computer Science Journal of Moldova*, Vol. 15, No. 2 (44), pp. 202-211, 2007.

75. **T. Barbu**, Eigenimage-based face recognition approach using gradient covariance, *Numerical Functional Analysis and Optimization*, published by Taylor & Francis, Vol. 28, pp. 591 – 601, Issue 5 & 6, May 2007. **IF = 1.042**

76. **T. Barbu**, An Automatic Graphical Recognition System using Area Moments, *The WSEAS Transactions on Computers*, Issue 9, Vol. 5, pp. 2142-2147, Sept. 2006.

77. H. Costin, I. Ciocoiu, **T. Barbu**, C. Rotariu, A Complex Biometric System for Person Verification and Identification through Face, Fingerprint and Voice Recognition, *Scientific Studies and Research*, Mathematics Series, Number 16, Supplement, Univ. Bacău, pp. 361-393, September 2006.

78. **T. Barbu**, An Automatic Unsupervised Pattern Recognition Approach, *Proceedings of the Romanian Academy*, Series A: Mathematics, Physics, Technical Sciences, Information Science, Volume 7, Number 1, pp. 73-78, January-April 2006. **IF = 1.752**

79. M. Costin, **T. Barbu**, M. Zbancioc, G. Constantinescu, Techniques for static visual object detection within a video scene, *Bulletin of the Politehnic Institute of Iasi, Automatic Control and Computer Science Section*, Tom LI (LV), Fasc.1-4, pp.75-85, Iaşi, 2005.

80. **T. Barbu**, Speech-dependent voice recognition system using a nonlinear metric, *International Journal of Applied Mathematics*, Volume 18, No. 4, pp. 501-514, 2005.

81. M. Costin, **T. Barbu**, A. Grichnik, Automatic Speaker Recognition Decision Tools, *Fuzzy Systems and Artificial Intelligence - Reports and Letters*, Vol. 10, No. 3, pp. 167-181, 2004.

82. A. Tudosă, M. Costin, **T. Barbu**, Fingerprint Recognition using Gabor filters and Wavelet Features, *Scientific Bulletin of the Politehnic University of Timisoara*, Romania, Transactions on Electronics and Communications, Tom (49) 63, Fasc. 1, pp. 328-332, 2004.

83. **T. Barbu**, M. Costin, Comparing Various Automatic Speaker Recognition Approaches, *Scientific Bulletin of the Polytechnic University of Timisoara*, Romania, Transactions on Electronics and Communications, Tom (49) 63, Fasc. 1, pp. 291-296, 2004.

84. **T. Barbu**, A Computer Vision System for Graphical Object Recognition, *The WSEAS Transactions on Circuits and Systems*, Issue 2, Volume 3, pp. 288-294, April 2004.

85. **T. Barbu**, Approximations of the filtering problem via fractional steps method, *Communications in Applied Analysis*, Vol. 8, No. 2, Dynamic Publishers, USA, pp. 263-278, April 2004.

86. **T. Barbu**, An Approach to Image Object Recognition and Interpretation, *Proceedings of the Romanian Academy*, Series A: Mathematics, Physics, Technical Sciences, Information Science, Volume 4, Number 3, pp. 217-223, Sept-Dec. 2003. **IF = 1.752**

87. **T. Barbu**, A Pattern Recognition Approach to Image Segmentation, *Proceedings of the Romanian Academy*, Series A: Mathematics, Physics, Technical Sciences, Information Science, Volume 4, Number 2, pp. 143-148, May-August 2003. **IF = 1.752**

88. **T. Barbu**, C. Moroşanu, Numerical Approximation of the Riccati Equation via Fractional Steps Method, *Differential Equations and Control Theory*, Series *Lecture Notes in Pure and Applied Mathematics*, vol. 225, pp. 55-62, Marcel Dekker, Inc., New York, 2001.

5. Articles published in international conference volumes:

1. **T. Barbu**, Multimodal Magnetic Resonance Image Restoration using a Vector-valued Anisotropic Diffusion-based Mixed Noise Filtering Technique, *The 11th International Conference on e-Health and Bioengineering, EHB 2023*, București, Romania, pp. 1-4, 9-10 Nov. 2023.

2. **T. Barbu**, Mathematical Models for Object Detection and Tracking, *The 30th Conference on Applied and Industrial Mathematics*, *CAIM 2023*, Iasi, Romania, pp. 33-34, September 14-17, 2023.

3. **T. Barbu**, Spectral Vector-valued Image Restoration using a Hyperbolic Partial Differential Equation-based Filter, *12th Mediterranean Conference on Embedded Computing, MECO 2023*, Budva, Montenegro, June 6-10, 2023. IEEE

4. **T. Barbu**, Vector-valued Fourth-order Reaction-diffusion based Photon-limited Multi-channel Image Filtering, *The 16th International Symposium on Signals, Circuits and Systems, ISSCS 2023*, Iasi, Romania, pp. 1-4, July 13 - 14, 2023, IEEE.

5. **T. Barbu**, Nonlinear Hyperbolic PDE-based Filter for Mixed Poisson-Gaussian Noise Removal from X-ray Images, *The 10th IEEE International Conference on e-Health and Bioengineering, EHB 2022*, Iaşi, Romania, pp. 1-4, 17-18 Nov. 2022, IEEE.

6. **T. Barbu**, Multiple Pedestrian Tracking Framework using Deep Learning-based Multiscale Image Analysis for Stationary-camera Video Surveillance, *8th IEEE International Smart Cities Conference 2022, ISC2 2022*, Paphos, Cyprus, pp. 1-7, 26 - 29 september 2022. IEEE

7. **T. Barbu**, Nonlinear Diffusion-based Image Edge Detection Solutions, *4th International Conference on Mathematics and Computer Science - MACOS 2022*, September 15-17, 2022, Braşov, Romania.

8. **T. Barbu,** Variational and PDE-based Mixed Poisson-Gaussian Noise Removal Techniques, *29th International Conference on Applied and Industrial Mathematics, CAIM 2022*, Chișinău, Republic of Moldova, August 25-28, 2022.

9. **T. Barbu**, A Novel Automatic Voice Recognition System using a Graph-Based Clustering Algorithm, *Proceedings of World Research Society International Conference*, pp. 59 - 64, Malmö, Sweden, August 1 – 2, 2022. ISBN: 978-93-90150-32-8

10. **T. Barbu**, M. Luca, A. Ciobanu, Anisotropic Diffusion-based Multiscale Medical Image Analysis Technique for COVID-19 Detection, *The 9ᵗʰ IEEE International Conference on e-Health and Bioengineering, EHB 2021*, Iași, Romania, pp. 1-4, 18-19 Nov. 2021, IEEE.

11. A. Ciobanu, M. Luca, **T. Barbu**, V. Drug, A. Oltean, R. Vulpoi, Experimental Deep Learning Object Detection in Real-time Colonoscopies, *The 9ᵗʰ IEEE International Conference on e-Health and Bioengineering, EHB 2021*, Iași, Romania, pp. 1-4, 18-19 Nov. 2021, IEEE.

12. **T. Barbu**, Novel variational technique for mixed Poisson-Gaussian noise filtering, *The 15ᵗʰ International Symposium on Signals, Circuits and Systems, ISSCS'21*, Iasi, Romania, pp. 1-4, July 15 - 16, 2021, IEEE.

13. **T. Barbu**, Automatic Deep Learning-based Temporal Video Segmentation Framework, *The 15ᵗʰ International Symposium on Signals, Circuits and Systems, ISSCS'21*, Iasi, Romania, pp. 1-4, July 15 - 16, 2021, IEEE.

14. **T. Barbu**, Variational Quantum Denoising Technique for Medical Images, *The 8ᵗʰ IEEE International Conference on e-Health and Bioengineering, EHB 2020*, Iași, Romania, pp. 1-4, 29-30 Oct. 2020, IEEE.

15. **T. Barbu**, Inpainting of Medical Images using a Novel Fourth-order PDE-based Interpolation Technique, *The 7ᵗʰ IEEE International Conference on e-Health and Bioengineering, EHB 2019*, Iași, Romania, 21-23 Nov. 2019, IEEE.

16. **T. Barbu**, Anisotropic Diffusion-based Enhancement of Old Historical Photos related to Romanian Centenary, *The 14ᵗʰ International Symposium on Signals, Circuits and Systems, ISSCS'19*, Iasi, Romania, pp. 1-4, July 11 - 12, 2019, IEEE.

17. **T. Barbu**, Additive noise removal using a nonlinear hyperbolic PDE-based model, *The International Conference on Development and Application Systems, DAS 2018,* Suceava, Romania, pp. 1-5, 24-26 May 2018, IEEE.

18. A. Ciobanu, M. Luca, **T. Barbu**, C. T. Teodorescu-Soare, Tube center detection in SEM images of Titania Nanotube Arrays, *The International Conference on Development and Application Systems, DAS 2018*, Suceava, Romania, pp. 190-193, 24-26 May 2018, IEEE.

19. **T. Barbu**, Compound Hyperbolic PDE-based Additive Gaussian Noise Removal Solution combining Second- and Fourth-order Diffusions, *The 10ᵗʰ International Conference on Electronics, Computers and Artificial Intelligence, ECAI 2018,* Iași, Romania, pp. 1-4, June 28–30, 2018, IEEE.

20. A. Ciobanu, **T. Barbu**, M. Luca, Image Restoration for Halftone Pattern Printed Pictures in Old Books, *The 10ᵗʰ International Conference on Electronics, Computers and Artificial Intelligence, ECAI 2018,* pp. 1-6, Iași, Romania, June 28–30, 2018, IEEE.

21. **T. Barbu**, Novel Hybrid Fourth-order Anisotropic Diffusion Model for Additive Noise Filtering, *The International Conference on the Science of Electrical Engineering*, *ICSEE 2018*, pp. 1-5, Eilat, Israel, December 12-14, 2018, IEEE.

22. **T. Barbu**, Nonlinear Anisotropic Diffusion-based Structural Inpainting Framework, *The 13ᵗʰ International Conference on Advanced Technologies, Systems and Services in Telecommunications, TELSIKS '17,* Nis, Serbia, pp. 207-210, 18-20 October 2017, IEEE.

23. **T. Barbu,** Hybrid Image Interpolation Technique based on Nonlinear Second and Fourth-order Diffusions, *The 13th International Symposium on Signals, Circuits and Systems, ISSCS'17*, Iasi, Romania, pp. 1-5, July 13 - 14, 2017, IEEE.

24. **T. Barbu**, A Nonlinear Anisotropic Diffusion-based Edge Detection Scheme, *The 17th International Multidisciplinary Scientific GeoConference, SGEM 2017*, Albena, Bulgaria, pp. 21-28, 27 June - 6 July 2017.

25. **T. Barbu**, Structural Image Interpolation using a Nonlinear Second-order Hyperbolic PDE-based Model, *The 6th IEEE International Conference on e-Health and Bioengineering, EHB 2017*, Sinaia, Romania, pp. 5-8, 22-24 June 2017.

26. A. Ciobanu, **T. Barbu**, C. Niță, Novel Image Similarity Metric for Evaluating Denoising and Restoration Techniques, *The 6th IEEE International Conference on e-Health and Bioengineering, EHB 2017*, Sinaia, Romania, pp. 470-473, 22-24 June 2017.

27. **T. Barbu,** A Novel Variational Framework for Structural Image Completion, *Proceedings of Joint International Conference OPTIM-ACEMP 2017*, Brasov, Romania, pp. 815-820, 25-27 May 2017, IEEE.

28. **T. Barbu**, Compound PDE-based Image Restoration Algorithm using Second-order and Fourth-order Diffusions, *Lecture Notes in Computer Science*, vol. 9948 (*Proc. of the 23th International Conference on Neural Information Processing, ICONIP 2016*, Kyoto, Japan, Oct. 16-21), pp. 699 - 706, Springer, Cham, 2016.

29. **T. Barbu**, A Hybrid Nonlinear Fourth-order PDE-based Image Restoration Approach, *The 20th International Conference on System Theory, Control and Computing ICSTCC 2016*, Sinaia, Romania, pp. 761-765, October 13-15 2016, IEEE.

30. **T. Barbu**, Hybrid Variational Restoration Technique based on Second- and Fourth-order Diffusions, *The 13th International Conference on Development and Application Systems*, *DAS 2016*, pp. 1-5, Suceava-Scheia, Romania, May 19-21, 2016, IEEE.

31. **T. Barbu**, A Nonlinear Fourth-order PDE-based Image Denoising Technique, *The 23rd International Conference on Systems, Signals and Image Processing, IWSSIP 2016*, pp. 177-180, Bratislava, Slovakia, 23-25 May, 2016, IEEE.

32. **T. Barbu**, Linear Hyperbolic Diffusion-based Image Denoising Technique, *Lecture Notes in Computer Science* (*Proc. of the 22th International Conference on Neural Information Processing, ICONIP 2015*, Part III, Istanbul, Turkey, Nov. 9-12), Vol. 9491, pp. 471-478, Springer, S. Arik et. al (Eds.), 2015.

33. **T. Barbu**, Nonlinear Fourth-order Hyperbolic PDE-based Image Restoration Scheme, *The 5th International Conference on e-Health and Bioengineering*, *EHB* 2015, 19-21 November 2015, Iaşi, Romania, IEEE.

34. **T. Barbu**, A. Ciobanu, M. Luca, Multimodal Biometric Authentication based on Voice, Face and Iris, *The 5th IEEE International Conference on e-Health and Bioengineering, EHB 2015*, Iasi, Romania, 19-21 Nov. 2015.

35. **T. Barbu,** Second-order Nonlinear PDE-based Image Restoration Scheme, *Proceedings of the World Congress on Electrical Engineering and Computer Systems and Science, EECSS 2015,* pp. 342-1 - 342-4, Barcelona, Spain, July 13 – 14, 2015.

36. **T. Barbu**, M. Luca, Content-based Iris Indexing and Retrieval Model using Spatial Acces Methods, *The 12ᵗʰ International Symposium on Signals, Circuits and Systems, ISSCS 2015*, Iasi, Romania; 9-11 July 2015, IEEE.

37. M. Luca, R. Luca, S. Bejinariu, A. Ciobanu, O. Paduraru, M. Zbancioc, **T. Barbu**, An Overview of Several Researches on Fuzzy Logic in Intelligent Systems, *The 12ᵗʰ International Symposium on Signals, Circuits and Systems, ISSCS 2015*, Iasi, Romania, 9-11 July 2015, IEEE.

38. **T. Barbu**, Robust anisotropic diffusion scheme for image noise removal, *Procedia Computer Science (Proceedings of 18ᵗʰ International Conference in Knowledge Based and Intelligent Information & Engineering Systems, KES 2014*, Sept. 15-17, Gdynia, Poland), published by Elsevier, Vol. 35, pp. 522-530, September 2014.

39. **T. Barbu**, PDE-based Image Restoration using Variational Denoising and Inpainting Models, *The 18ᵗʰ International Conference on System Theory, Control and Computing*, *ICSTCC 2014*, pp. 694-697, Sinaia, Romania, October 17-19, 2014, IEEE.

40. I. Pavaloi, A. Ciobanu, M. Luca, E. Musca, A. Ignat, **T. Barbu**, A Study on Positive and Negative Emotion Automatic Recognition in Speech, *The 18ᵗʰ International Conference on System Theory, Control and Computing*, *ICSTCC 2014*, Sinaia, Romania, pp. 221-225, October 17-19, 2014, IEEE.

41. L. Alboaie, S. Alboaie, **T. Barbu**, Extending swarm communication to unify choreography and long-lived processes, *The 23ʳᵈ International Conference on Information Systems Development, ISD 2014,* pp. 375-382, Varazdin, Croatia**,** 2-4 Sept. 2014.

42. **T. Barbu**, Nonlinear Diffusion-based Image Restoration Model, *Latest Trends in Circuits, Systems, Signal Processing and Automatic Control (Proc. of the 5ᵗʰ Intl. Conf. on Circuits, Systems, Control, Signals, CSCS'14*), Salerno, Italy, June 3-5, pp. 122-125, 2014.

43. **T. Barbu**, A. Ciobanu, M. Luca, SAM-based Image Indexing and Retrieval System using LAB Color Characteristics, *Latest Trends in Circuits, Systems, Signal Processing and Automatic Control (Proc. of the 5ᵗʰ Intl. Conf. on Circuits, Systems, Control, Signals, CSCS'14*), Salerno, Italy, June 3-5, pp. 266-270, 2014.

44. **T. Barbu**, A Novel Variational PDE Technique for Image Denoising, *Lecture Notes in Computer Science (Proc. of the 20ᵗʰ International Conference on Neural Information Processing, ICONIP 2013*, part III, Daegu, Korea, Nov. 3-7, 2013), Vol. 8228, pp. 501-508, Springer-Verlag Berlin Heidelberg, M. Lee et al. (Eds.), 2013.

45. **T. Barbu**, Unsupervised SIFT-based Face Recognition Using an Automatic Hierarchical Agglomerative Clustering Solution, *Procedia Computer Science (Proceedings of 17ᵗʰ International Conference in Knowledge Based and Intelligent Information and Engineering Systems, KES 2013*, Sept. 9-11, Kitakyushu, Japan), Vol. 22, pp. 385-394, pub. Elsevier, 2013, ISSN: 1877-0509.

46. **T. Barbu,** Unsupervised Speaker Recognition Approach using an Automatic Clustering Algorithm, *Proceedings of the 7ᵗʰ Conference on Speech Technology and Human-Computer Dialogue, SpeD 2013*, Cluj-Napoca, Romania, pp. 215-220, 16-19 October 2013, ISBN: 978-1-4799-1063-2.

47. **T. Barbu**, A Novel Image Similarity Metric using SIFT-based Characteristics, *Mathematical Models in Engineering and Computer Science: Proceedings of the 2nd International Conference on Computers, Digital Communications and Computing, ICDCC '13*, Brasov, Romania, pp. 15-18, June 1-3, 2013.

48. A. Ciobanu, **T. Barbu**, M. Costin, S. Bejinariu, P. Radu, A Novel Iris Clustering Approach Using LAB Color Features, *The 4th International Symposium on Electrical and Electronic Engineering, ISEEE 2013*, Galaţi, Romania, 11-13 October 2013, ISBN 978-1-4799-2441-7, IEEE.

49. **T. Barbu**, SVM-based Human Cell Detection Technique using Histograms of Oriented Gradients, *Mathematical Methods for Information Science & Economics: Proceedings of the 3rd International Conference for the Applied Mathematics and Informatics, AMATHI '12*, Montreux, Switzerland, pp. 156-160, Dec. 29-31, 2012.

50. **T. Barbu**, Novel Pattern-based Fingerprint Recognition Technique Using 2D Wavelet Decomposition, *Mathematical Methods for Information Science & Economics: Proceedings of the 3rd International Conference for the Applied Mathematics and Informatics, AMATHI '12*, Montreux, Switzerland, pp. 145-149, Dec. 29-31, 2012, ISBN: 978-1-61804-148-7.

51. **T. Barbu**, Template Matching based Video Tracking System using a Novel N-Step Search Algorithm and HOG Features, *Lecture Notes in Computer Science* (*Proceedings of the 19th International Conference on Neural Information Processing ICONIP 2012*, part V, Doha, Qatar, Nov. 12-15, 2012), Vol. 7667, pp. 328-336, Springer, Heidelberg, T. Huang et al. (Eds.), 2012, ISBN: 978-3-642-34500-5.

52. **T. Barbu**, A. Ciobanu, M. Costin, Automatic Color-based Image Recognition Technique using LAB Features and a Robust Unsupervised Clustering Algorithm, *Latest Advances in Information Science, Circuits & Systems* (*Proc. of 13th International Conference on Automation & Information*, *ICAI'12*), pp. 140-143, June 2012, ISBN:978-1-61804-099-2.

53. **T. Barbu**, Automatic Unsupervised Shape Recognition Technique using Moment Invariants, *The 15th International Conference on System Theory, Control and Computing, ICSTCC 2011*, pp. 93-96, Sinaia, Romania, 14-16 Oct. 2011, ISBN: 978-1-4577-1173-2, IEEE.

54. **T. Barbu**, M. Costin, A. Ciobanu, Pattern-based Fingerprint Matching Approach*, Proceedings of International Workshop on Intelligent Information Systems, IIS 2011*, pp. 105-108, 12-14 September 2011, ISBN 978-9975-4237-0-0.

55. **T. Barbu**, Automatic Texture-based Image Segmentation Technique, *Proceedings of The 6th European Conference on Intelligent Systems and Technologies, ECIT 2010*, October 7-9, Iaşi, Romania, 2010, ISSN 2069-038X.

56. **T. Barbu**, M. Costin, A. Ciobanu, Content-based Image Recognition Technique Using Area Moments, *Proceedings of the 4th International Workshop on Soft Computing and Applications, SOFA 2010*, Arad, Romania, pp. 171-174, 15-17 July 2010, ISBN: 978-1-4244-7985-6.

57. **T. Barbu**, M. Dragomir, An Information Retrieval System for E-Learning, *Proceedings of the International Multidisciplinary Scientific Geo-Conference SGEM 2010*, Volume 2, pp. 1033-1038, June 20-25, 2010, Albena, Bulgaria, ISBN 10: 954-91818-1-2.

58. A. Ciobanu, M. Costin, **T. Barbu**, Extraction of main colors from a digital color image, *Proceedings of the International Multidisciplinary Scientific Geo-Conference SGEM 2010*, Volume 1, pp. 1069-1076, June 20-25, 2010, Albena, Bulgaria, ISBN 10: 954-91818-1-2.

59. **T. Barbu**, Automatic Skin Detection Technique for Color Images, *Proceedings of the International Multidisciplinary Scientific Geo-Conference SGEM 2010*, Volume 1, pp. 1047-1052, June 20-25, 2010, Albena, Bulgaria, ISBN 10: 954-91818-1-2.

60. **T. Barbu**, Content-based image retrieval system using Gabor filtering, *Proceedings of the 20th International Workshop on Database and Expert Systems, DEXA '09*, pp. 236-240, 31 August - 4 September, Linz, Austria, 2009, ISBN: 978-0-7695-3763-4.

61. **T. Barbu**, M. Costin, A. Ciobanu, Histogram Intersection based Image Retrieval Technique using Relevance Feedback, *Proceedings of the Third International Workshop on Soft Computing and Applications, SOFA 2009*, pp. 65-67, Szeged-Hungary, Arad-Romania, 29 July - 1 August 2009, ISBN: 978-1-4244-5054-1.

62. **T. Barbu**, A. Ciobanu, Color-based Image Retrieval Technique Using Relevance Feedback, *The 3rd International Conference on Electronics, Computers and Artificial Intelligence, ECAI 2009*, Vol. 4, pp. 105-108, Pitesti, Romania, 3-5 July 2009, ISSN: 1843-2115.

63. **T. Barbu**, M. Costin, A Text-dependent Voice Recognition Approach using the Spectral Distance, *The 9th International Symposium on Signals, Circuits and Systems, ISSCS'09*, Vol. 2, pp. 313-316, Iaşi, Romania, July 9-10, 2009, ISBN: 978-1-4244-3785-6.

64. **T. Barbu**, Comparing Various Voice Recognition Techniques, *From Speech Processing to Spoken Language Technology* (*Proc. of the 5th International Conference on Speech Technology and Human-Computer Dialogue, SPED 2009*), eds. Academy Publishing House, pp. 33-42, Constanta, Romania, June 18-21, 2009, ISBN: 978-1-4244-4727-5.

65. L. Alboaie, **T. Barbu**, Reputation System User Classification using a Hausdorf based Metric, *Proceedings of the International Conference on Intelligent Agents, Web Technologies and Internet Commerce, IAWTIC '08*, Vienna, Austria, eds. IEEE Computer Society, pp. 1035-1040, Dec. 10-12, 2008, ISBN: 978-0-7695-3514-2.

66. **T. Barbu**, M. Costin, Various Speaker Recognition Techniques Using a Special Nonlinear Metric, *Lecture Notes in Computer Science (Proc. of the 12th International Conference in Knowledge-Based Intelligent Information and Engineering Systems, KES 2008*, Zagreb, Croatia, September 3-5, 2008), Part III, Springer Berlin/Heidelberg, Vol. 5179, pp. 622-629, 2008.

67. H. Costin, **T. Barbu**, C. Rotariu, C. Costin, A Biometric System for Person Verification and Identification through Fingerprint and Voice Recognition, *Proceedings of The 5th European Conference on Intelligent Systems and Technologies, ECIT 2008*, Iaşi, Romania, July 10-12, 2008, ISSN: 978-973-304-971.

68. **T. Barbu**, An automatic no-threshold video shot identification approach, *Proceedings of the 5th European Conference on Intelligent Systems and Technologies, ECIT 2008*, Iaşi, Romania, July 10-12, 2008. ISSN: 978-973-304-971.

69. **T. Barbu**, M. Costin, Combining Various Biometric Technologies Based on a Special Nonlinear Metric, *Proceedings of 9th International Symposium on Automatic Control and Computer Science, SACCS 2007*, Iaşi, Romania, Nov. 16 - 18, 2007, ISSN: 1843-665-X.

70. H. Costin, I. Ciocoiu, **T. Barbu**, C. Rotariu, Through Biometric Card in Romania: Person Identification by Face, Fingerprint and Voice Recognition, *Proceedings of World Academy of Science, Engineering and Technology*, Vol. 17, pp. 107-112, Cairo, Egypt, Dec. 2006, ISSN: 1307-6884.

71. **T. Barbu**, A novel automatic image recognition technique, *Proceedings of the 4th European Conference on Intelligent Systems and Technologies, ECIT 2006*, Sept. 2006, eds. H. N. Teodorescu, 2006, ISBN (10): 973-730-246-X, ISBN (13): 978-973-730-246-5Y.

72. **T. Barbu**, Moment-based image recognition approach, *Proceedings of the Tenth International Conference on Computers*, Vouliagmeni, Athens, Greece, pp. 390-393, July 13-15, 2006, ISSN: 1843-665-X.

73. **T. Barbu**, Content-based Video Recognition Technique using a Nonlinear Metric, *The 47th International Symposium ELMAR-2005, on Multimedia Systems and Applications*, pp. 25-28, Zadar, Croatia, June 2005, ISBN: 978-975-01752-1-3, IEEE.

74. **T. Barbu**, Discrete Speech Recognition Using a Hausdorff Based Metric, *Proceedings of the 1st International Conference of E-Business and Telecommunication Networks, ICETE 2004*, Setubal, Portugal, Vol. 3, pp. 363-368, Aug. 2004, ISBN: 972-8865-15-5.

75. M. Costin, **T. Barbu**, A. Grichnik, Tips on New Decision Tools in Automatic Speaker Recognition, *Proceedings of the Third European Conference on Intelligent Systems and Technologies, ECIT 2004*, eds. H. N. Teodorescu, E. Sofron, I. Bogdan, July 2004, ISBN: 973-7994-78-7.

76. **T. Barbu**, Fuzzy Matrix Approach for Multirate Sampling in Switching Systems, *Proceedings of the 3rd European Conference in Numerical Mathematics and Advanced Applications*, *ENUMATH '99*, Jyväskylä, Finland, 26 – 30 July 1999, eds. World Scientific, Singapore, pp. 280-287, 2000, ISBN: 978-981-02-4387-6, 981-02-4387-1.

6. Plenary Talks at international scientific events and top universities:

1. **Tudor Barbu**, Geometric and PDE models for moving object detection and tracking, Invited Speech at *The XVIth International Conference of Differential Geometry and Dynamical Systems, DGDS 2022*, Bucharest, Romania, September 1-4, 2022.

2. **Tudor Barbu**, Geometry analysis-based models for digital image segmentation, Invited Speech at *The XVth International Conference of Differential Geometry and Dynamical Systems, DGDS 2021*, Bucharest, Romania, August 26-29, 2021.

3. **Tudor Barbu**, Mathematical Models for Photon-limited Image Restoration, Invited Speech at *The XIVth International Conference of Differential Geometry and Dynamical Systems, DGDS 2020*, Bucharest, Romania, August 27-29, 2020.

4. **Tudor Barbu**, Variational and PDE-based image compression models: a survey, Invited Speech at *The XIIIth International Conference of Differential Geometry and Dynamical Systems, DGDS 2019*, University Politehnica of Bucharest, Romania, October 10 –13, 2019.

5. **Tudor Barbu,** Overview of Nonlinear Partial Differential Equation-based Structural Inpainting Techniques, Plenary Speech at *26th International Conference on Applied and Industrial Mathematics, CAIM 2018*, Chişinău, Moldova, September 20-23, 2018.

6. **Tudor Barbu,** Hyperbolic second-order partial differential equation-based model for structural interpolation, Invited Speech at *12th International Conference Differential Geometry and Dynamical Systems, DGDS 2018*, Mangalia, Romania, August 30-September 2, 2018.

7. **Tudor Barbu,** Nonlinear PDE-based Frameworks for Image Denoising and Inpainting, *Analysis and Control of PDE Seminary*, Faculty of Science, University of Monastir, Tunisia, September 6, 2017.

8. **Tudor Barbu**, Nonlinear Differential Model-based Approaches for Image Denoising and Restoration, *Computational Mathematics Seminar*, University of Pittsburgh, United States of America, August 26, 2016.

9. **Tudor Barbu**, Nonlinear Diffusion-based Schemes for Image Restoration and Interpolation, *Colloquium at Department of Scientific Computing*, Florida State University, United States of America, August 15, 2016.

10. **Tudor Barbu**, Image object detection techniques, *Seminario di Analisi Matematica*, University of Bologna, Italy, July 3, 2015.

11. **Tudor Barbu**, Variational PDE Models for Image Inpainting, *Seminario di Analisi Matematica*, University of Bologna, Italy, June 30, 2015.

12. **Tudor Barbu**, Fourth-order Diffusion-based Denoising Schemes, *Seminario di Analisi Matematica*, University of Bologna, Italy, June 23, 2015.

13. **Tudor Barbu**, Nonlinear Diffusion-based Image Restoration Models, *Bielefeld Stochastics Afternoon (CRC)*, Faculty of Mathematics, Bielefeld University, August 20, 2014.

14. **Tudor Barbu,** Novel PDE-based Image Denoising and Restoration Models, *The 5th International Conference on Circuits, Systems, Control, Signals, CSCS'14*, Salerno, Italy, June 3-5, 2014.

15. **Tudor Barbu**, Detection and Tracking of Biological Cells, Plenary Speech at *Scientific Circle "Biomedical Signal Processing"*, Faculty of Medical Bioengineering, "Grigore T. Popa" University of Medicine and Pharmacy of Iaşi, Romania, March 2014.

16. **Tudor Barbu**, Novel Human Detection and Tracking Solutions, *The 2nd International Conference on Computers, Digital Communications and Computing, ICDCC '13*, Brasov, Romania, June 1-3, 2013.

17. **Tudor Barbu**, Video object detection and tracking solutions, Plenary Talk at *Seminario di Analisi Matematica "Bruno Pini"*, University of Bologna, Italy, April 22, 2013.

18. **Tudor Barbu**, Automatic face detection and recognition approaches, Plenary Talk at *Seminario di Analisi Matematica "Bruno Pini"*, University of Bologna, Italy, April 15, 2013.

19. **Tudor Barbu**, PDE-based image denoising, restoration and edge enhancement techniques, Plenary Talk at *Seminario di Analisi Matematica "Bruno Pini"*, University of Bologna, Italy, April 8, 2013.

20. **Tudor Barbu**, Robust Video Object Detection and Tracking Techniques, *3rd International Conference for the Applied Mathematics and Informatics*, *AMATHI '12*, Montreux, Switzerland, 29-31 Dec. 2012.

21. **Tudor Barbu**, Automatic Face Detection and Recognition Techniques, *International Conference on Automation & Information, ICAI '12*, Iași, George Enescu University, 13-15 June 2012.

7. Research works at national conferences:

1. **T. Barbu**, Soluții de segmentare a imaginilor digitale utilizând modele geometrice și energetice / Digital Image Segmentation Solutions using Geometric and Energy-based Models, *Conferința Națională Științifică de Toamnă a AOSR 2023*: "Știința pentru o societate sănătoasă", Constanța, 20-23 sept. 2023.

2. **T. Barbu**, Algoritmi de filtrare a zgomotului mixt utilizând modele PDE și energetice / Mixed Noise Filtering Algorithms using PDE and Energy-based Models, *Conferința Științifică de Primăvară a AOSR 2023: Transformarea digitală în științe*, section "Știința și Tehnologia Informației", București, 19-20 mai 2023.

3. **T. Barbu**, Extragerea muchiilor din imaginile digitale utilizând ecuații cu derivate parțiale neliniare / Nonlinear PDE-based Digital Image Boundary Extraction, *Conferința Științifică de Toamnă a AOSR 2022*: *Rolul științei în soluționarea crizelor contemporane,* section "Știința și Tehnologia Informației", Cluj - Napoca, 3-5 Nov. 2022.

4. **T. Barbu**, Soluții de procesare și analiză a imaginilor medicale referitoare la pandemia COVID-19 / Medical Image Processing and Analysis Solutions for COVID-19 Pandemic, *Conferința Științifică de Primăvară a AOSR 2022*, *ERA DIGITALĂ – PROVOCĂRI ȘI OPORTUNITĂȚI PENTRU SOCIETATEA CONTEMPORANĂ*, section "Știința și Tehnologia Informației", București, May 6-7, 2022.

5. **T. Barbu**, Tehnici de filtrare a zgomotului cuantic utilizând modele PDE neliniare / Quantum denoising techniques using nonlinear PDE models, *Conferința Științifică de Toamnă a AOSR 2021*: *Tradiții și progrese în știința românească,* section "Știința și Tehnologia Informației", București, 18-19 Nov. 2021.

6. **T. Barbu**, Modele de codificare a imaginilor utilizând ecuații de difuzie / Diffusion equation-based image coding models, *Conferința Științifică de Primăvară a AOSR 2021*, section "Știința și Tehnologia Informației", București, June 10-11, 2021.

7. **T. Barbu**, Modele bazate pe ecuații cu derivate parțiale neliniare pentru reconstrucția structurală a imaginilor / Nonlinear Partial Differential-Based Models for Structural Inpainting, *Conferința Științifică de Toamnă a AOSR 2020*, section "Știința și Tehnologia Informației", 25 nov. 2020.

8. V. Apopei, S. I. Bejinariu, **T. Barbu**, Cercetări recente în domeniul procesării imaginilor și secvențelor video, *Conferința Cercetării Științifice din Academia Română*, CCSAR 2021, 22-23 nov. 2021.

9. **T. Barbu,** A. Ciobanu, C. D. Niță, Nonlinear Second-order PDE-based Image Filtering Approach, *IIVA - Anniversary Workshop: Information in Image and Video Analysis. Theory and Applications*, Iași, Romania, March 24th, 2016.

10. A. Ciobanu, **T. Barbu**, M. Luca, Resolution Constraints for Iris Images in the Case of Identification Based on Color Features*, IIVA - Anniversary Workshop: Information in Image and Video Analysis. Theory and Applications*, Iași, Romania, March 24th, 2016.

11. 20 works presented at *Simpozionul „Sisteme Inteligente și Aplicații"* of „Zilele Academice Ieșene", Iași, Romania, in the period 2001-2023.

12. 10 communications presented at the Faculty of Medical Bioengineering, "Grigore T. Popa" University of Medicine and Pharmacy of Iași, Romania, in the period 2014-2020

7. <u>Edited Special Issues:</u>

1. **Tudor Barbu**, Lead Guest Editor of *Advances in PDE-based Models, Artificial Intelligence and Deep Learning*, Special Issue of *Mathematics*, MDPI, IF = 2.258, 2022-2023.

2. **Tudor Barbu**, Lead Guest Editor of *Advances in Variational and Partial Differential Equation-Based Models for Image Processing and Computer Vision*, Special Issue of *Mathematical Problems in Engineering*, Hindawi, IF = 1.305, April 2018.

3. **Tudor Barbu**, Lead Guest Editor of *Advanced Image Processing and Analysis Solutions using PDE-based Modeling of the Physics Phenomena*, Special Issue of *Advances in Mathematical Physics*, Hindawi, IF=1.128, 2019.

4. **Tudor Barbu**, Lead Guest Editor of *Advances in PDE-based Methods for Image Processing*, Special Issue of *Mathematics*, MDPI, IF = 2.258, 2020-2021.

5. **Tudor Barbu**, Guest Editor of *Image and Video Processing and Analysis Techniques Using Variational and PDE-based Approaches,* Research Topic of *Frontiers in Applied Mathematics and Statistics*, Frontiers, 2021.

8. Other research works:

1. **Tudor Barbu**, *Expert System for Knowledge Engineering*, Licence Thesis, Faculty of Computer Science of University *Al. I. Cuza* of Iaşi, July 1997.

2. **Tudor Barbu**, *Fuzzy Modelling of Switched Systems with Multirate Sampling*, Master Thesis, Mathematical Information Technology Department of Jyvaskyla University, Finland, 105 pages, June 1999.

3. 42 scientific research reports elaborated as team coordinator at the Institute of Computer Science of the Romanian Academy, Iași Branch.