



UNIVERSITY OF CALCUTTA
FACULTY ACADEMIC PROFILE

- ❖ **Full name of the faculty member:** RAJARSHI GUPTA
- ❖ **Designation:** PROFESSOR
- ❖ **Currently Head, University Science Instrumentation Centre, CU.**
- ❖ **Date of Joining the University:** December 01, 2005
- **Contact information:** Rashbehari Siksha Prangan, University of Calcutta, Department of Applied Physics, 92, APC Road, Kolkata-700009, West Bengal, India.
- ❖ E-mail: rgaphy@caluniv.ac.in; Mobile: +91 (India)-8240669580
- ❖ **Google scholar link:** <https://scholar.google.co.in/citations?user=mUXsVQYAAAAJ>
- ❖ **Personal website:** <https://www.rajarshigupta.in>
- ❖ **ORCID:** 0000-0001-5964-7683
- ❖ **Academic qualifications:** M.Tech., Ph.D. (Tech), Diploma in Business Management
- ❖ **Current Editorial Assignments:**
 - (a) Associate Editor: IEEE Transactions on Instrumentation & Measurement (TIM).
 - (b) Editorial Board member: Physiological Measurement (PMea) (IPEM).
 - (c) Editorial Board member: APSIPA Transactions on Signal and Information Processing (ATSIP).
- ❖ **Recognition from Professional Bodies:**
 - (a) Outstanding Associate Editor of IEEE Transactions on Instrumentation & Measurement (TIM): 2021, 2022.
 - (b) Outstanding reviewer of IEEE Transactions on Instrumentation & Measurement (TIM): 2020, 2021, 2022, 2023.

Education:

College/ University	Abbreviation of the degree and year	Class (Rank)
University of Calcutta	B. Sc. (Physics Hons.) 1995	First Class (-)
University of Calcutta	B. Tech. (Instrumentation Engineering) 1998	First Class (Second)
University of Calcutta	M. Tech. (Instrumentation Engineering) 2002	First Class (First)
University of Calcutta	Ph. D. (Technology) 2012	-
IMT Ghazaibad	Diploma in Business Management (Distance Mode)	First Class (First)

- ❖ **Positions held before joining University of Calcutta:**

Lecturer in Instrumentation Technology, North Calcutta Polytechnic, Govt. of West Bengal, 2001-2005.
Lecturer in Instrumentation Technology, Dr. Meghnad Saha Institute of Technology, Govt. of West Bengal, 1999-2001.
- ❖ **Research interests:**

Biomedical signal analysis and processing; Intelligent human health monitoring; Biomedical Instrumentation;



❖ **Teaching assignments:**

Undergraduate level: B.Tech in EE

1. Analog Electronics (PCC EE-303)
2. Process Control Instrumentation (OEC-EE 605)
3. Analog and Digital Communication (EE704)

Post Graduate Level: M.Tech in EE

1. Computational Intelligence (EE-901)

Funded Research Projects:

(A) Completed:

1. Principal Investigator, DST (WB) project titled, "**Development of short-range health monitoring system using ZigBee based wireless communication**", Sanction No. 851(Sanc.)/ST/P S&T/6G-2/2013 dtd: 11/01/2016. Total funding: Rs.9.57 Lakhs.
2. Deputy Coordinator, UGC Special Assistance Programme (SAP) Departmental Research Support (DRS) Phase II: Sanction No. F. 530/15/DRS-II/2015(SAP-I) dated August 18, 2015. Total Funding 1.39 Crore (approx.). Theme: Remote Healthcare; Funding INR: 26 Lakhs (approx.)
3. University Potential for Excellence (UPE) phase -II under UGC, Group B: Sensor and System Development Group. Area of work: Cardiovascular health assessment device development. (Completed).
4. Co-Investigator, DST WB project titled, "**Development of cardiovascular signal simulator for training of medical professionals**", Sanction No. 20(Sanc.)/ST/P/S&T/6G-12/2017 DTD:12/06/2018. Total funding Rs.10.36 Lakhs.
Principal Investigator: Dr Palash Kundu, Dept of EE, Jadavpur University, India.
Other Co-Investigator: Dr Arunansu Talukdar, Professor, Dept of Medicine, Medical College & Hospital, Kolkata, India.
5. Co-Investigator, DST WB project titled, "**Development of Low cost Point-of-care Technology for Early Screening of Chronic Obstructive Pulmonary Disease (COPD) for Remote Population of West Bengal**", Sanction No. 15(sanc)/ST/P/S&T/6G-6G/2018 DTD: 29/01/2019. Total Grant: INR10.80 Lakhs.
Principal Investigator: Dr Jayanta K Chandra, Dept of EE, RK Mahato Govt. Engg. College, Purulia, West Bengal.
Other Co-Investigator: Dr Arunansu Talukdar, Professor, Dept of Medicine, Medical College & Hospital, Kolkata, India.
6. Mentor: DST Women Scientist Project titled: "Self-enabled monitoring of hypertension towards low cost digital healthcare" File No: SR/WOS-A/ET-67/2018. Total Grant INR22.5 lakhs (approx)
PI: Mrs. Monalisa Singha Roy, Research Scholar, EE, Department of Applied Physics, University of Calcutta.
7. Co-investigator, Regional Geriatric Centre, Medical College Kolkata, "Affordable, wearable cardiac monitor for early detection, monitoring and prevention of cardiac arrhythmia for elderly citizens". MC/4982/ 09/2022 dtd: 13/09/2022.
Other Investigators: Dr. Himadri Das (MCK), Dr. Sumitra Mukhopadhyay and Dr. Sumitra Mukhopadhyay, Institute of Radio Physics and Electronics, University of Calcutta.



(B) Ongoing :

Co-Investigator, DST WB project on "Self-operated cardiac monitor for early detection of Electrocardiogram rhythm disorder", Sanction No. - 2052(Sanc)/SBST-11012(16)/5/2023-STSEC DTD: 31/01/2024. Total Grant: INR11.66 Lakhs.

Principal Investigator: Dr. Sumitra Mukhopadhyay, Associate Professor, Institute of Radio Physics and Electronics, University of Calcutta.

❖ **Research Guidance:**

A. As Sole Supervisor

1. Dr. Priyanka Bera (Awarded: 2021). CSIR Senior Research Fellow (SRF) (2018-2020). Assistant Professor, Dept. of ECE, GLA University, Mathura, UP, India.
Title of thesis: "Hybrid Compression Approaches for Electrocardiogram with Preservation of Diagnostic Information".
2. Dr. Biplab Roy: (Awarded: 2024), Associate Professor, Dept of ECE, The Neotia University (TNU), West Bengal.
Title of thesis: "Advanced Signal Processing Methods for Assessment of Cardiovascular and Respiratory Functions".
3. Dr. Soumyak Chandra: (Awarded: 2024), Senior Research Fellow, UPE-II, CU (2018-2020) Sr. Engineer R&D (Firmware and Systems), Cenergist , Kolkata, India.
Title of research: "Intelligent Human Health Monitoring using Wireless Communication: Some New Approaches".
4. Priya Sardar (PhD enrolled under Electrical Engineering, Department of Applied Physics, University of Calcutta)
Topic of research: Non-invasive diabetes detection using physiological signals.

B. As Primary Supervisor

5. Dr. Samiul Alam (Awarded: 2023); Asst. Professor, Dept. of Applied Electronics & Instrumentation Engg., Heritage Institute of Technology, Kolkata.
Title of thesis: "Signal Quality-Guided Compression Techniques of Photoplethysmogram for Continuous Health Monitoring".
6. Dr. Monalisa Singha Roy (Awarded 2024); DST Women Scientist (WOS-A), Project title: "Self-enabled monitoring of hypertension towards low cost digital healthcare". File no is SR/WOS-A/ET-67/2018.

Title of thesis: "Non-invasive Assessment of Cardiovascular Functions utilizing Machine Learning Techniques".

C. As Joint Supervisor

7. Dr. Harekrishna Chatterjee (Awarded: 2016); Associate Professor, Dept. of Electronics & Communication Engineering, School of Engineering, Techno India University, Kolkata, West Bengal.
Title of research: "ECG Feature Extraction and Signal Processing using Standalone Embedded Systems".
Primary supervisor: Dr. Madhuchhanda Mitra, Professor in IE, Dept of Applied Physics, CU.
8. Nirmal Murmu (PhD registered with Electrical Engineering, Applied Physics, University of Calcutta) Assistant Professor, Electrical Engineering, Department of Applied Physics, University of Calcutta)
Topic of research: Design and Development of Smart Robotic Walker as Mobility Assistive Technology with



Health Monitoring Facility.

Primary supervisor: Dr. Kaushik Das Sharma, Professor of Electrical Engineering, Applied Physics, CU.

9. Nabanita Banerjee (PhD registered with Department of Radio Physics and electronics, University of Calcutta); Assistant Professor, Techno India Main, SaltLake City, Kolkata

Title of Research: Automated Expert System for the Detection of Mental Stress using Bio-inspired Optimization Algorithms and Light Weight Hardware.

Primary supervisor: Dr. Sumitra Mukhopadhyay, Associate Professor, Institute of Radio Physics and Electronics, University of Calcutta.

10. Debasmita Pal (PhD enrolled with Department of Radio Physics and Electronics, University of Calcutta)

Title of Research: Automatic detection of abnormal cardiac episodes using lightweight signal processing and machine learning techniques

Primary supervisor: Dr. Sumitra Mukhopadhyay, Associate Professor, Institute of Radio Physics and Electronics, University of Calcutta.

❖ **Patent/ Copyright:**

1. "A novel portable equipment for wireless recording of finger pulse signal with data compression facility" Jointly with Samiul Alam.
Indian patent Application No: 201631012435 dtd: 08/04/2016.
2. "Wireless Condition Monitoring" Jointly with Soumyak Chandra. Indian Copyright No: SW-10260/2018.

(A) Research Publications:

Summary: Journals: 37, Conference/seminar: 47; Books/ Book Chapters: 06, As Editor: 01.

❖ **Books / Book Chapter:**

1. ECG Acquisition and Automated Remote Processing: Rajarshi Gupta, Madhuchhanda Mitra, Jitendranath Bera; Springer (India) (2014). ISBN Print: 978-81-322-1556-1; Electronic: 978-81-322-1557-8; Link: <http://www.springer.com/in/book/9788132215561>
2. Invited Book Chapter "Telecardiology" at "Telemedicine and Electronic Medicine" Volume in the "E-medicine, M-Health, Telehealth Handbook", CRC Press USA; Editors: Halit Eren, John G. Webster. ISBN: 978-1-4822-3658-3.
Link: <https://www.crcpress.com/Telemedicine-and-Electronic-Medicine/Eren-Webster/p/book/9781482236583>
3. Invited Book Chapter, "Biomedical Sensors and Their Interfacing" in with "Advanced Interfacing Techniques for Sensors", Editors: Boby George, Joyanta Kumar Roy, Subhas Mukhopadhyay, Jagadeesh Kumar (Springer International), under "Smart Sensing, Measurement and Instrumentation" series). ISBN: 978-3-319-55368-9.
Link: <https://www.springer.com/br/book/9783319553689>
4. Rajarshi Gupta, Dwaipayan Biswas (Eds.), Health Monitoring Systems: An Enabling Technology for patient; ISBN: 978-1-4987-7582-3, Publisher: CRC Press USA (2019).
Link: <https://www.taylorfrancis.com/books/e/9780429113390>

❖ **Journal Publications (Selected)**

1. Debasmita pal, Sumitra Mukhopadhyay, and Rajarshi Gupta, "Ensembled Data Augmentation Model for Simplified Cardiac Arrhythmia Detection Under Limited Minority Class Data", *IEEE Transactions on Instrumentation and Measurement* (Accepted).
2. Nirmal Murmu, Rajarshi Gupta and Kaushik Das Sharma, "Real-time PPG-to-ECG



Reconstruction Model with On-Device Recalibration Facility", *IEEE Transactions on Instrumentation and Measurement* (Accepted).

3. Sk. Md. Shafique Anwar, Debasmita Pal, Sumitra Mukhopadhyay, and Rajarshi Gupta, "A Lightweight Method of Myocardial Infarction Detection and Localization from Single Lead ECG Features Using Machine Learning Approach", *IEEE Sensors Letters*, DOI: 10.1109/LSENS.2024.3374790 (Accepted).

4. Aytrik Bose, Shatanik Mukherjee, Jayanta K. Chandra, Rajarshi Gupta, and Dipankar Ghosh, "On-device Signal Quality Guided and Embedded Physiologic Information for High Fidelity Continuous PPG Compression", *IEEE Transactions on Instrumentation and Measurement* (Accepted).

5. Samiul Alam, Rajarshi Gupta and Kaushik Das Sharma, "On-Device Multi-level Signal Quality Aware Compression for Energy-efficient Wearable PPG Sensing", *IEEE Sensors Journal*, Vol. 23, No. 4, pp. 3955 - 3964, 2023 DOI: 10.1109/JSEN3234171

6. Soumyak Chandra, and Rajarshi Gupta, "Smart Biomedical Sensor Network for Multi-patient Cardiac Arrhythmia Monitoring", *IEEE Transactions on Instrumentation and Measurement*, Vol. 72, DOI: 10.1109/TIM.2022.3231278.

7. Debasmita Pal, Sumitra Mukhopadhyay and Rajarshi Gupta, "Two-stage Classifier for Resource Constrained Onboard Cardiac Arrhythmia Detection", *IEEE Transactions on Instrumentation and Measurement* ; Vol. 72, DOI: 10.1109/TIM.2022.3224535.

8. Monalisa Singha Roy, Rajarshi Gupta and Kaushik Das Sharma, "BePCon: A Photoplethysmography- based Quality-aware Continuous Beat-to-Beat Blood Pressure Measurement Technique Using Deep Learning", *IEEE Transactions on Instrumentation and Measurement*, Vol. 71, 2022. DOI: 10.1109/TIM.2022.3212750.

9. Nilava Mukherjee, Sumitra Mukhopadhyay, and Rajarshi Gupta, "Real-time Mental Stress Detection Technique Using Neural Networks towards Wearable Health Monitor", Special Issue on Neural Networks in Measurement, *Measurement Science and Technology* (IoP Science), Vol. 33, NO. 4, 2022, DOI: 10.1088/1361- 6501/ac3aae.

10. Pratyush Prasad, Sumitra Mukhopadhyay and Rajarshi Gupta, "Real-time Multi-class Signal Quality Assessment of Photoplethysmography using Machine Learning Technique", *Measurement Science and Technology* (IoP Science), Vol. 33, 2022, Art No. 015701, DOI: 10.1088/1361-6501/ac2d5b.

11. Samiul Alam, Rajarshi Gupta and Kaushik Das Sharma, "On-board Signal Quality Assessment Guided Compression of Photoplethysmogram for Personal Health Monitoring", *IEEE Transactions on Instrumentation and Measurement*, Vol. 70, 2021, DOI: 10.1109/TIM.2021.3067238.

12. Biplab Roy, Arka Roy, Jayanta K. Chandra, and Rajarshi Gupta, "i-PRExT: Photoplethysmography Derived Respiration Signal Extraction and Respiratory Rate Tracking Using Neural Networks", *IEEE Transactions on Instrumentation and Measurement*, Vol. 70, 2021 DOI: 10.1109/TIM.2020.3043506.

13. Monalisa Singha Roy, Biplab Roy, Rajarshi Gupta and Kaushik Das Sharma, "On-Device Reliability Assessment and Prediction of Missing Photoplethysmographic Data Using Deep Neural Networks", *IEEE Transactions on Biomedical Circuits and Systems*, Vol. 14, No. 6, Dec 2020, pp. 1323 – 1332, DOI:10.1109/TBCAS.2020.3028935.

14. Soumyak Chandra, Abhijit Chandra and Rajarshi Gupta, "An Efficient Data Routing Scheme for Multi- patient Monitoring in a Biomedical Sensor Network through Energy Equalization Strategy", *Wireless Networks* (Springer), Vol. 27, pp. 635-648, 2021, DOI: 10.1007/s11276-020-02472-3, Free reading link: <https://rdcu.be/b8jN4>.

15. Priyanka Bera, Rajarshi Gupta and Jayanata Saha, "Preserving Abnormal Beat Morphology in Long-term ECG Recording: An Efficient Hybrid Compression Approach ", *IEEE Transactions on Instrumentation & Measurement*, Vol. 69, No. 5, 2020, pp. 2084-2092 (DOI:10.1109/TIM.2019.2922054).

16. Monalisa Singha Roy, Rajarshi Gupta, Jayanta K. Chandra, Kaushik Das Sharma, and Arunansu Talukdar, "Improving Photoplethysmographic Measurements under Motion Artifacts using Artificial Neural Network for



Personal Healthcare", *IEEE Transactions on Instrumentation and Measurement*, Vol. 67, No. 12, pp. 2820- 2829, Dec 2018. (DOI: 10.1109/TIM.2018.2829488.

❖ **Conference Publications (2018- till date): (*: presenting author)**

1. Mousumi Mondal, Shromana Majumder, Sumyak Chandra, Debasmita Pal, Rajarshi Gupta, and Sumitra Mukhopadhyay, "A Wireless In-shoe Plantar Pressure Sensing System With Embedded Sensor Condition Analysis", IEEE 2023 Smart Generation Technologies in Computing, Networking & Communication (SMARTGENCON), Bengaluru, India, Dec 29-31, 2023 (Accepted).
2. Yudha Raja Singam D(*), Sumitra Mukhopadhyay and Rajarshi Gupta, "FPGA Based Implementation of Cuffless Blood Pressure Measurement Using Photoplethysmogram Signal", 3rd International Conference on Signal and Data Processing (ICSDP), Nov 3-5, 2023, VIT Bhopal University.
3. Debasmita Pal (*), Sumitra Mukhopadhyay and Rajarshi Gupta, "A Machine Learning-based Lightweight and Real-time Cardiac Arrhythmia Detection Using Optimum Samples and Features", 9th. IEEE Uttar Pradesh Section International Conference on Electrical, Electronics and Computer Engineering (UPCON-2022), Dec 2-4, 2022, Allahabad (Awarded best paper in Track: Signal Processing); DOI: 10.1109/UPCON56432.2022.9986397
4. Priya Sardar (*), Rajarshi Gupta, and Sumitra Mukhopadhyay, "Multiclass Signal Quality Assessment of Electrocardiogram using Entropy-based Features and Machine Learning Technique", IEEE Silchar Sub-section Conference (SILCON-2022) Nov 4-6 2022, Silchar, India, DOI: 10.1109/SILCON55242.2022.10028787.
5. Anumita Mitra(*), Palash Kundu, and Rajarshi Gupta, "Hyperparameter Optimization of Autoregressive Integrated Moving Average (ARIMA) Model-based Synthesis of Electrocardiogram", 2022 International Conference for Advancement in Technology (ICONAT), Jan 21-22, 2022, Goa, India. DOI: 10.1109/ICONAT53423.2022.9725911.
6. Souvik Ghosh(*), Sumitra Mukhopadhyay, and Rajarshi Gupta, "A New Physiology-based Objective Mental Stress Detection Technique with Reduced Feature Set and Class Imbalanced Dataset Management", International Conference on Technology, Research, and Innovation for Betterment of Society (TRIBES – 2021), Dec 17-19, 2021, Dr. Shyama Prasad Mukherjee International Institute of Information Technology, Naya Raipur, India, DOI: 10.1109/TRIBES52498.2021.9751622 .
7. Soumyak Chandra(*), and Rajarshi Gupta, "Coordinate-assisted Routing in a Biomedical Sensor Network with Schedule-based Dynamic Sink", 8th IEEE Uttar Pradesh Section International Conference on Electrical, Electronics and Computer Engineering (UPCON-2021), Nov 11-13, 2021, Dehradun, Uttarakhand, India, DOI: 10.1109/UPCON52273.2021.9667559 .
8. Rikon Ghosh(*), Sukarna Nag, and Rajarshi Gupta, "A Software-based Linearization Technique for Thermocouples using Recurrent Neural Network ", 2021 IEEE Mysore Sub Section International Conference (MysuruCon-2021), October 24-25, 2021, Mysuru, Karnataka, India, DOI: 10.1109/MysuruCon52639.2021.9641731 .
9. Monalisa Singha Roy(*), Rajarshi Gupta, and Kaushik Das Sharma, "Photoplethysmogram Signal Quality Evaluation by Unsupervised Learning Approach", Second IEEE Conference on Applied Signal Processing, ASPCON 2020, October 7-9, Kolkata, India (DOI:10.1109/ASPCON49795.2020.9276733).
10. Anumita Mitra(*), Palash Kundu and Rajarshi Gupta, "Segment Specific Modeling of Electrocardiogram for Improved Reconstruction Error", Second IEEE Conference on Applied Signal Processing , ASPCON 2020, October 7-9, Kolkata, India (DOI: 10.1109/ASPCON49795.2020.9276731).



11. Shatabdi Das(*), and Rajarshi Gupta, "Link Constrained Real-time Electrocardiogram Compression with Controlled Payload Packet Size", 2020 IEEE R10 Symposium (TENSYP), Bangladesh, June 5-8, 2020, pp. 582-585 (DOI: 10.1109/TENSYP50017.2020.9230939).
12. Priyanka Bera(*), and Rajarshi Gupta, "Improved Arrhythmia Detection from Electrocardiogram", 2019 IEEE R10 Symposium (TENSYP), June 7-9, 2019, Kolkata, pp. 547-552, DOI: 10.1109/TENSYP46218.2019.8971240
13. Biplab Roy(*), Rajarshi Gupta, and Jayanta K. Chandra, "Estimation of Respiration Rate from Motion Corrupted Photoplethysmogram: A Combined Time and Frequency Domain Approach", 2019 IEEE R10 Symposium (TENSYP), June 7-9, 2019, Kolkata, pp.292-297 , DOI: 10.1109/TENSYP46218.2019.8971202 .
14. Monalisa Singha Roy(*), Pinaki Bag and Rajarshi Gupta, "Reconstruction of Corrupted and Lost Segments from Photoplethysmographic Data Using Recurrent Neural Network ", 2019 IEEE R10 Symposium (TENSYP), June 7-9, 2019, Kolkata, pp. 214-219, DOI: 10.1109/TENSYP46218.2019.8971035 .
15. Soumyak Chandra(*), Saruk Md., and Rajarshi Gupta, "Instrumentation for Wireless Condition Monitoring of Induction Machine", National Conference on on Control, Signal processing and Energy Systems (CSPES) 2018, November 16-18, 2018, Kolkata, Published as chapter under Advances in Control, Signal Processing and Energy Systems, Springer (DOI: 10.1007/978-981-32-9346-5_13).
16. Soumyendu Banerjee(*), Rajarshi Gupta and Jayanta Saha, "Compression of Multilead Electrocardiogram Using Principal Component Analysis and Machine Learning Approach", First IEEE Conference on Applied Signal Processing (ASPCON), Organized by IEEE Signal Processing Society Chapter, Kolkata, Dec 7-9, 2018, pp.23-27, Kolkata (DOI: 10.1109/ASPCON.2018.8748572).
17. Sohel Das, Priyanka Bera(*), Rajarshi Gupta, "Electrocardiogram Compression Technique Using DWT-Based Residue Encoder with Desired Reconstruction Quality", Emerging Applications on Information Technology (EAIT2018), January 12-13, 2018, Kolkata, (DOI: 10.1109/EAIT.2018.8470445).

❖ **Voluntary Contribution in Knowledge bodies (Selected):**

1. Chair, Joint IEEE Control Systems Society -Instrumentation & Measurement Society (CSS-IMS) Chapter Kolkata. URL: http://ewh.ieee.org/r10/calcutta/css_ims/index.html. (2020, 2021)
2. Chair, Membership Development Committee (MDC), IEEE Kolkata Section (2021)
3. Vice Chair, IEEE Joint CSS-IMS Chapter Kolkata, India. (IEEE Joint CSS-IMS Chapter, Kolkata) (2018, 2019).
4. Secretary, IEEE Joint CSS-IMS Chapter Kolkata, India. (IEEE Joint CSS-IMS Chapter, Kolkata) (2016, 2017).
5. ExeCom Member-IEEE Kolkata Section (2014-2018, 2020,2021).
6. Advisor, IEEE IMS student chapter, College of Engineering (A Govt. of Kerala, India UT), Chengannur, Kerala (2018-2019).
7. Secretary, IET UK Kolkata Local Network (2011-2013).

❖ **Reviewer in International Journals (2023, 2024) (Selected)**

1. IEEE Transactions on Instrumentation & Measurement.
2. IEEE Internet of Things Journal.
3. IEEE Journal of Biomedical and Health Informatics.
4. IEEE Transactions on Artificial Intelligence.
5. IEEE Sensors Journal.
6. IEEE Sensors Letters.



Updated August 20, 2024

7. IEEE Transactions on Industrial Applications.
8. IEEE Transactions on Emerging Topics in Computational Intelligence.
9. Biomedical Signal Processing & Control (Elsevier Sc.).
10. Engineering Applications of Artificial Intelligence (Elsevier Sc.)
11. Artificial Intelligence in Medicine (Elsevier Sc.)
12. Computers in Biology and Medicine (Elsevier Sc.).
13. Measurement (Elsevier Sc.).