

## **Dr. VIJAY S. CHOURASIA**

### **PERSONAL INFORMATION**

- Date of Birth: June 21, 1969
- Marital Status: Married, two daughters.
- Father's Name: Late Shri Satyanarayan C. Chourasia.

### **ACADEMIC DEGREE**

- PhD in Electronics & Communication Engineering from The LNM Institute of Information Technology, Jaipur - Oct'2012 (A setup of Mittal Foundation in collaboration with Government of Rajasthan).
  - *Thesis Title: Design Methodology and Implementation of an Antenatal Care System using Abdominal Acoustic Signals*
  - *Supervisors:*
    - *Dr. Anil Kumar Tiwari, IIT Jodhpur*
    - *Prof. Ranjan Gangopadhyay, Distinguished Professor, LNMIIT, Jaipur, Former Professor (Emeritus) and Head Electronics and Electrical Communication Engineering, IIT Kharagpur.*
- B.E. (Electronics Engg.) - Mar'1990- Nagpur University. First Division- 72.32%
- H.S.C (XII th) - Mar'1986- M. S. Board, Pune. First Division- 68.83%
- S.S.C. (X th) - Mar '1984- M. S. Board, Pune. First Division- 70.28%

### **PROFESSIONAL EXPERIENCE**

- *Twenty three years* as a Lecturer / Sr. Lecturer / Asstt. Prof. (1990 – till date) in the Department of Electronics/Electronics & Communication Engineering, MIET, Kudwa, Gondia (MS) 441614.
- *Subjects Taught:* Communication Electronics, Fields & Radiated Systems, Signals and Systems, Network Theory, Electrical Engineering, Electronic Measurements etc.

### **ENTREPRENEURIAL EXPERTISE**

- Established three startup SSIs in Central India during 1997 to 2007 as a First Generation Entrepreneur.
- First Hand experience of managing Three Plastics Goods Mfg units profitably with diverse product range.

## **ADMINISTRATIVE AND ACADEMIC POSITIONS**

- Co-ordinator – Industry Institute Interaction Cell, MIET, Gondia (2012 – till date)
- Co-ordinator – Research Progress Council of R&D Cell, MIET, Gondia
- In-charge of the sessional examination of E&C department

## **INVITED TALK**

- Type-2 fuzzy logic and its applications, Delivered at Government college of engineering, Aurangabad on 7<sup>th</sup> June 2013.
- An introduction to MATLAB, Delivered at Gurukul Polytechnic, Nagra, Gondia on 24<sup>th</sup> Jan 2013.

## **SOCIAL CONTRIBUTIONS**

- Active participation in Eye Donation Activity carried out by Pramod Agrawal Memorial Trust.
- Member of Lions club main, Gondia.

## **WORKSHOPS ORGANIZED/ATTENDED**

- Research Methodology & Quantitative methods of computer applications – Three week course work, Manoharbai Patel Institute of Engineering & Technology, Gondia, 15 April - 23 April and 24 June – 28 June 2013.
- Matlab: Introduction and Applications – Two Days, Manoharbai Patel Institute of Engineering & Technology, Gondia, 7-8 Aug 2012.
- Psychometric Test – Right Person for the Right Job, Manoharbai Patel Institute of Engineering & Technology, Gondia, 28 Aug 2012.
- Syllabus Reframing for Electronics/Electronics & Telecommunication/Electronics Communication Engineering, J. D. College of Engineering, Nagpur, 28 Nov 2011.
- Embedded System Design using 8051 Microcontroller – Three Days, Manoharbai Patel Institute of Engineering & Technology, Gondia, 27-29 Jan 2011.
- Cyber Crimes and Safety, Manoharbai Patel Institute of Engineering & Technology, Gondia, 16 Jan 2010.

## **SHORT TERM TRAINING PROGRAMMES**

- Optimization: Theory & Applications in Engineering Problems – Two Weeks, Manoharbai Patel Institute of Engineering & Technology, Gondia
- Emerging Trends in Energy Conservation & Use of Renewable Energy Sources – One Week, Manoharbai Patel Institute of Engineering & Technology, Gondia

## **INTERESTS AND ACTIVITIES**

- Reading, Music, Current Affairs, Sports.

## **ACHIEVEMENTS**

- Represented College Badminton Team at Intercollegiate Championship, Nagpur.
- In charge of the Industry Institute Interaction cell of the department.

## **NOMINATIONS**

- Winner of Best SSI unit Award constituted by Directorate of Industries.

## **RESEARCH ACTIVITIES**

### **a) TECHNICAL PUBLICATIONS (Updated on 05/10/2013)**

#### **International Journal:**

1. **Vijay S. Chourasia**, Anil Kumar Tiwari, Ranjan Gangopadhyay, A novel approach for phonocardiographic signals processing to make possible fetal heart rate evaluations, Accepted in Digital Signal Processing, Elsevier, Vol. 30, pp. 165-183, 2014. (Impact Factor: 1.918)
2. **Vijay S. Chourasia**, Anil Kumar Tiwari, Ranjan Gangopadhyay, Interval Type-2 Fuzzy Logic based Antenatal Care System using Phonocardiography, Applied Soft Computing, Elsevier, Vol. 14, pp. 489-497, 2014. (Impact Factor: 2.140)
3. **Vijay S. Chourasia**, Anil Kumar Tiwari, Design methodology of a new wavelet basis function for fetal phonocardiographic signals, The Scientific World Journal, Volume 2013, Article ID 505840, 12 pages. (Impact Factor: 1.730)
4. **Vijay S. Chourasia**, Anil Kumar Tiwari, Ranjan Gangopadhyay and K. A. Akant, Fetal phonocardiographic signal denoising based on non-negative matrix factorization, Journal of Medical Engineering and Technology, vol. 36, no.1, pp. 57-66, Dec 2011.
5. **Vijay S. Chourasia**, Anil Kumar Tiwari, Ranjan Gangopadhyay, Adaptive Neuro-Fuzzy Inference System for Antepartum Antenatal Care using Phonocardiography, International Journal of Biomedical Engineering & Technology, vol. 8, no. 4, pp. 357-374, 2012.
6. **Vijay S. Chourasia**, Anil Kumar Tiwari, Wireless Data Acquisition System for Fetal Phonocardiographic signals using Bluetooth<sup>TM</sup>, International Journal of Computers in Healthcare, vol. 1, no. 3, pp. 240-253, 2012.
7. **Vijay S. Chourasia**, Anil Kumar Tiwari, Ranjan Gangopadhyay, Spectral Analysis of Fetal Heart Sounds in Healthy and Pathological Subjects, International Journal of Medical Engineering and Informatics, vol. 4, no. 2, pp. 125-139, 2012.

8. **Vijay S. Chourasia**, Anil Kumar Tiwari, Ranjan Gangopadhyay, Time-Frequency Characterization of Fetal Phonocardiographic Signals using Wavelet Scalogram, *Journal of Mechanics in Medicine and Biology*, vol. 11, no. 2, pp. 391-406, 2011.
9. **Vijay S. Chourasia**, Anil Kumar Tiwari, A Phonocardiography based Real-Time Fetal Heart Rate Monitoring System, In: Eddie Y. K. Ng, R. U. Acharya, T. Tamura, (Eds.), *Distributed Diagnosis and Home Healthcare*, American Scientific Publications, pp. 115-128, chapter 8, vol. 3.
10. **Vijay S. Chourasia**, Anil Kumar Tiwari, Fetal Heart Rate Variability Analysis from Phonocardiographic Recordings, *Journal of Mechanics in Medicine and Biology*, vol. 11, no. 5, pp. 1315-1331, 2011.
11. **Vijay S. Chourasia**, A. K. Mitra, Wavelet Based De-noising of Fetal Phonocardiographic Signals, *International Journal of Medical Engineering and Informatics*, Inderscience Publications, vol. 2, no. 2, pp. 139-150, 2010.
12. **Vijay S. Chourasia**, A. K. Mitra, Electronic Fetal Monitoring: A Review of Methods, *International Journal of Biomedical Engineering & Computer Health Informatics*, Serials Publications, vol.2, no.1, pp. 23-30, Jan-June 2010.
13. **Vijay S. Chourasia**, A. K. Mitra, DSP Implementation for Analysis of Fetal Heart Sound Signals, *International Journal of Biomedical Engineering & Computer Health Informatics*, Serials Publications, vol.2, no.1, pp. 59-64, Jan-June 2010.
14. **Vijay S. Chourasia**, A. K. Mitra, Selection of Mother Wavelet and De-noising Algorithm for Fetal Phonocardiographic Signals, *Journal of Medical Engineering & Technology*, Taylor and Francis, vol. 33, no. 6, pp. 442-448, 2009.
15. **Vijay S. Chourasia**, A. K. Mitra, Passive Acoustic Signal Acquisition System for Non-Invasive Fetal Heart Sound Monitoring Applications, *The Internet Journal of Medical Research*, Internet Scientific Publications, vol. 5, no. 1, 2009.
16. **Vijay S. Chourasia**, A. K. Mitra, Development of Data Acquisition Module for a Non-Invasive Fetal Monitoring System, *International Journal of Biomedical Signal Processing*, pp. 35-44, 2009.
17. **Vijay S. Chourasia**, Anil Kumar Tiwari, A Review and Comparative Analysis of Recent Advancements in Fetal Monitoring Techniques, *Critical<sup>TM</sup> Reviews in Biomedical Engineering*, Begell's House Publications, vol. 36, no. 5-6, pp. 335-373, 2008.
18. **Vijay S. Chourasia**, Anil Kumar Tiwari, Ranjan Gangopadhyay, Implementation of fetal e-health monitoring system through biotelemetry, *International Journal of Electronic Healthcare*, vol. 7, no. 1, pp. 36-52, 2012.
19. Sangita Rastogi, A. K. Mitra, **Vijay S. Chourasia**, Condition monitoring of plastic extrusion machine using artificial neural network, *International Journal of Emerging Technology and Advanced Engineering*, vol. 3, no. 3, pp. 242-248, 2013.

20. J. G. Agrawal, **Vijay S. Chourasia**, A. K. Mitra, State-of-the-art in Stock Prediction Techniques, International Journal of Advanced Research in Electrical, Electronics and Instrumentation Engineering, vol. 2, no. 4, pp. 1360-1366, 2013.
21. Lochan Keote, Srikant Dongre, Dinesh Katole, **Vijay S. Chourasia**, Multicell wireless access gateways and wireless access points for rea-time traffic monitoring, surveillance and for drowsiness detection, IOSR journal of Electrical & Electronics Engineering, pp. 44-48, 2014.

#### **National Journal:**

1. **Vijay S. Chourasia**, A. K. Mitra, A Comparative Analysis of De-noising Algorithms for Fetal Phonocardiographic Signals, IETE Journal of Research, The Institution of Electronics and Telecommunication Engineers Publications, vol. 55, no. 1, pp. 10-15, 2009.
2. **Vijay S. Chourasia**, A. K. Mitra, Anil Kumar Tiwari, Most Suitable Wavelet for Fetal Phonocardiographic Signal Analysis: Journal of Future Engineering & Technology, i-Manager Publications, vol. 4, no. 3, pp. 23-29, Feb-Apr 2009.

#### **International Conference:**

1. J. R. Sharma, **Vijay S. Chourasia**, Optimized design and development of a bio-medical health care device through Quality Function Deployment (QFD), Proceedings of International Conference on Biomedical Engineering (ICBME 2011), Manipal Institute of Technology, 8-10 Dec, 2011.
2. **Vijay S. Chourasia**, A. K. Mitra, Computer Aided System for Analysis and Segmentation of Fetal Heart Sound, International Conference on Biomedical Instrumentation and Health Care Engineering-2009 (ICOBIAHC'09), Chennai, pp. 120-124, 8-10 Aug 2009.
3. **Vijay S. Chourasia**, Anil Kumar Tiwari, Development of a Signal Simulation Module for Testing of Phonocardiography Based Prenatal Monitoring Systems, Proceedings of the IEEE conference INDICON 2009, Ahmedabad, 18-20 Dec 2009.
4. **Vijay S. Chourasia**, A. K. Mitra, Anil Kumar Tiwari, Knowledge based Extraction of Fetal Heart Rate from Phonocardiographic Signals, Proceedings of International Conference on Signals System and Automation (ICSSA09), pp. 24-28, 28-29 Dec 2009.
5. K. Agrawal, A.K. Jha, S. Sharma, A. Kumar, **V. S. Chourasia**, Wavelet subband dependent thresholding for denoising of phonocardiographic signals, Signal Processing: Algorithms, Architectures, Arrangements, and Applications (SPA), 2013, Poznan, pp. 158 – 162, 26-28 Sept. 2013.

#### **National Conference:**

1. **Vijay S. Chourasia**, A. K. Mitra, Wavelet based Detection of Fundamental Components of Fetal Heart Sound, Proceedings of 7th National Conference on Emerging Technology (Technologia09), Bhilai, 2009.
2. **Vijay S. Chourasia**, A. K. Mitra, De-noising of Fetal Phonocardiographic Signals using Wavelets, Proceedings of National Conference NCRITEM08, Jabalpur, pp. 59-63, 4-5 Oct 2008.
3. **Vijay S. Chourasia**, A. K. Mitra, Fetal Heart Rate Detection and Monitoring Techniques: A Comparative Analysis and Literature Review, National Conference INVENT- 2007, Gondia, 14 – 15 March 2007.
4. J. N. Chourasia, **Vijay S. Chourasia**, A. K. Mitra, Heart Sound Signal Feature Extraction Methodologies: A Review, National Conference INVENT- 2007, Gondia, 14 – 15 March 2007.

**Submitted/Under Review:**

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**b) RESEARCH PROJECTS**

- Developing End to End Mobile Systems and Solutions for Healthcare in India, Department of Information Technology, New Delhi (Approved in first phase, final result awaited) submitted in collaboration with NIIT-Jaipur and BITS-Hyderabad.
- Development of a system for diagnostics of Congenital Heart disease (CHD) and a study on effect of various factor such as smoking, alcoholic habits, nutrition status on CHD, Proposal under preparation for Department of Science & Technology.

**c) EDITORIAL BOARD MEMBER**

- Journal on Instrumentation and Control Engineering (JIC)

**d) OFFICIAL/INVITED REVIEWER**

- IET Signal Processing – The Institution of Engineering and Technology
- Computer Methods and Programs in Biomedicine – Elsevier
- IEEE Transactions in Biomedical Engineering
- Designated reviewer of IEEE Symposium on Industrial Electronics and Applications (ISIEA 2013)

**e) INTERNSHIP PROGRAM SUMMER/WINTER**

- Conducting Summer/Winter Internship programs in the field of Digital Signal Processing and Digital Image Processing

**f) ME/M. TECH Advised**

- S. H. Rahangdale - Analysis of vibroacoustic signals for knee joint monitoring using advanced digital signal processing techniques
- Sangita Rastogi - Condition monitoring of plastic extrusion machine
- Aparna Karwal - Screening of abnormal vibration for rubber roll sheller machine using advanced signal processing & soft computing methodologies
- Anuradha Agrawal - Adaptive neuro-fuzzy inference system for health monitoring at home
- Kavita Rao - Effective image compression using wavelets
- Shradha Tiwari – Phonocardiography based Human Identification and Authentication system

**g) Ph. D Advised**

- N. K. Gautam – Detection of lung related diseases through soft computing techniques and DSP
- J. N. Chourasia - Design of a non-invasive predictive system for congenital heart defects in unborn
- J. G. Agrawal - Development of a predictive model for Indian stock market using digital signal processing and other soft computing techniques
- S. K. Asati - Vibration signature analysis and fault diagnosis of machines using neural networks

**REFERENCES**

**1. Prof. Ranjan Gangopadhyay**

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