Prof. Dr. Rao Tatavarti M.S. (IIT Madras), PhD (Dalhousie University, Canada)

Senior Professor and Director (Engineering Research & Consultancy)
GVP-SIRC, GVP College of Engineering
Madhurawada, Visakhapatnam 530048, A.P., India
Telephone: +91-891-2739211, Fax: +91-891-2739605; Mob: +91-9490760658
E-mail: rtatavarti@gmail.com, director@gvpce.ac.in

April 2015 – July 2015
Visiting Professor   University of Georgia, Athens, Georgia, USA

2014 – To date
Founder and Partner   CATS – **C**ASTLE **A**dvanced **T**echnologies and **S**ystems, India – *A Technology Start-up Firm.*
Adviser to Board of Directors   Mech Well Industries, Nasik, India

2013 – 2015   National Maritime Foundation, New Delhi, India
Regional Director   NMF, Vizag Chapter – *A Think Tank for Advancing India's Maritime Interests*.

2010 – To date
Director, Dean and Senior Professor   GVP-SIRC and GVP College of Engineering, Visakhapatnam, India
Executive Director   CASTLE, Visakhapatnam – *A Non Profit Scientific Society and Think Tank*
Visiting Professor   U of H – Central University of Hyderabad, Hyderabad, India
Director   Srujana Dukeship Consulting – An Innovation Incubation Company
Technical Adviser   Mrs. AVN College, Visakhapatnam, India
Technical Adviser   Hindustan University, Chennai, India
Technical Adviser   The Sun School, Vizianagaram, India
Editorial Board   ICTACT Journal on Image and Video Processing, India

Involved in the Design & Development of Cutting-Edge Systems/Technologies with Aerospace / Oceanic applications in Defence/Civilian Sectors.

2008 – 2010   VIT University, Vellore, India
Member, Board of Management
Director (R&D)
Dean, Academic Research

Steered R&D activities and was responsible for increasing the R&D productivity at VIT University. Instrumental in streamlining the research policies and practices of VIT University. Facilitated award of 54 PhD and 25 M.S. by Research degrees.

1989 - 2008   Naval Physical & Oceanographic Laboratory (NPOL), DRDO, Kochi, India
Senior Scientist and Additional Director
Head, Centre for Oceanics and Optronics
Programs Director - Non-Acoustic Technologies

Significant contributions to the fields of ocean science, engineering and technology through development of new algorithms, novel monitoring techniques and innovative design and development of highly sensitive optoelectronic systems for studying the dynamics of stratified fluids as well as for use in naval surveillance activities. Design and Development of novel techniques and technologies to monitor ocean dynamics and was responsible for utilization of the state-of-art satellite technology for surveillance activities - by developing satellite image processing algorithms which can comprehensively extract spatial feature information from any of the available satellite sensors covering regions of interest.

1984 - 1989   Dalhousie University, Halifax, Canada
Researcher and Teaching Assistant
Involved in R&D and Teaching Activities pertaining to Coastal and Ocean Processes at Dalhousie.

1981 - 1984   Indian Institute of Technology, Madras, Chennai, India
Researcher and Senior Project Officer
Involved in R &D and Consultancy Activities in Ocean / Coastal / Port and Harbor Engineering

Professional Experience
30 + years R&D experience at various institutes in India, Asia, North America, Europe and Russia.

Research Projects and Technical Consultancy
Headed and completed research and consultancy projects with a total financial outlay of more than Rs.500 million in India and North America related to Engineering Industry, Ocean Industry, Power, Oil and Natural Gas, Ports and Harbors, Defence and Telecom.

Research Interests
Aerospace and Ocean Engineering and Technology, Signal Processing, Fluid Dynamics, Photonics, Image Processing, Satellite Image Processing, Biomedical Engineering and Bio-Technology

Research Supervision
70 Theses / Dissertations (30 Bachelors, 36 Masters and 4 PhDs in Engineering, Technology and Science); Many Private and Public Funded Projects

Teaching Experience
20+ years of teaching experience at Dalhousie University, Canada; Cochin University of Science and Technology, Kochi; VIT University, Vellore, GVP College of Engineering, Visakhapatnam; Central University of Hyderabad, Hyderabad.

Publications / Patents
154 Peer Reviewed Research and Classified Publications   2 Monographs   7 Patents

Systems and Technologies Developed for Commercialization
Systems for - Real Time Monitoring of Air Quality, Air Data Products from Fighter Aircrafts, Environment, Eaves Dropping, and Wind Profile. System for Maritime Surveillance, System for Vibration and Condition Monitoring, Fully Instrumented Wind Tunnel Facility.

Awards
Most Active Researcher Awards, GVPCE (2014, 2013, 2012, 2011), VIT University (2010, 2009), DRDO Laboratory Award (2007), DRDO Silicon Medal (2006), DRDO Advances in Naval Technology Award (1997).

Fellowships
Berkner Fellow, American Geophysical Union, USA (1990–1994); Dalhousie Senior Fellow, Canada (1988–1989); International Center for Ocean Development (ICOD) Fellow, Canada (1985–1987); Dalhousie Fellow, Canada (1984–1987); Hayes' International Scholar Canada (1984–1985); Institute Fellowship, IIT Madras (1981–1983); CSIR Fellowship (1980–1981).

Membership of Professional Bodies
Life Member of Scientific and Engineering Professional Bodies in India, Asia and North America; and the Founder of OSI; CASTLE and CATS.

Prof. Dr. V.S.N. RAO TATAVARTI

Personal

Contact	Director and Senior Professor
	GVP-SIRC, GVP College of Engineering Campus,
	Madhurawada, Visakhapatnam 530048, A.P., India
Telephone	+91 – 891– 2739211
E-mail	*rtatavarti@gmail.com*
Mobile	+91 9490760658
Citizenship	Indian
Date of Birth	October 13, 1958

Professional

April 2015 – July 2015
Visiting Professor   University of Georgia, Athens, Georgia, USA

2014 – To date
Founding Partner   CATS– **C**ASTLE **A**dvanced **T**echnologies & **S**ystems, India
                                        A Technology Start-up Firm.
Technical Adviser   Mech Well Industries, Nasik, India

2013 – 2015   National Maritime Foundation, New Delhi, India
Regional Director   NMF, Visakhapatnam Chapter
                                        A Think Tank for Advancing India's Maritime Interests.

2010 – To date
Director/Dean/Senior Professor GVP-SIRC and GVP College of Engineering, Visakhapatnam, India
Executive Director   CASTLE, Visakhapatnam – *A Non Profit Scientific Society and Think Tank*
Visiting Professor   U of H – Central University of Hyderabad, Hyderabad, India
Director   Srujana Dukeship Consulting – An Innovation Incubation Company
Technical Adviser   Mrs. AVN College, Visakhapatnam, India
Technical Adviser   Hindustan University, Chennai, India
Technical Adviser   The Sun School, Vizianagaram, India
Editor   ICTACT Journal on Image and Video Processing, India

Design & Development of Cutting-Edge Systems/Technologies with Aerospace / Oceanic applications in Defence / Civilian Sectors.

2008 – 2010   VIT University, Vellore, India
Member, Board of Management
Director (R&D)
Dean, Academic Research

Steered R&D activities and was responsible for increasing the R&D productivity at VIT University. Instrumental in streamlining the research policies and practices of VIT University. Facilitated award of 54 PhD and 25 M.S. by Research degrees.

1989 - 2008   Naval Physical & Oceanographic Laboratory (NPOL), DRDO, Kochi, India
Programs Director - Non-Acoustic Technologies
Senior Scientist and Additional Director
Head, Centre for Oceanics and Optronics

Significant contributions to the fields of ocean science, engineering and technology through development of new algorithms, novel monitoring techniques and innovative design and development of highly sensitive optoelectronic systems for studying the dynamics of stratified fluids as well as for use in naval surveillance activities. Design and Development of novel techniques and technologies to monitor ocean dynamics and was responsible for utilization of the state-of-art satellite technology for surveillance activities - by developing satellite image processing algorithms which can comprehensively extract spatial feature information from any of the available satellite sensors covering regions of interest.

1984 - 1989   Dalhousie University, Halifax, Canada
Researcher and Teaching Assistant
R&D and Teaching Activities pertaining to Coastal and Ocean Processes at Dalhousie.

1981 - 1984   Indian Institute of Technology, Madras, Chennai, India
Researcher and Senior Project Officer
R &D and Consultancy Activities in Ocean / Coastal / Port and Harbor Engineering.

Office

Director and Senior Professor
GVP-SIRC, GVP College of Engineering Campus,
Madhurawada, Visakhapatnam 530048, A.P.
Tel: +91 – 891– 2739211

E-mai**l** *rtatavarti@gmail.com*
Citizenship Indian

Residence

2-110/7, '*Visak*', Mithilapuri Layout
Madhurawada, PM Palem Post
Visakhapatnam 530041, A.P.
Tel: +91 – 891– 2500594

Mobile +91 9490760658
Date of Birth October 13, 1958

Education

1984 – 1989	PhD	Dalhousie University	
	Wave Hydrodynamics	Halifax, Canada	
1981 – 1983	M.S.	Indian Institute of Technology, Madras	
	Ocean Engineering	Chennai, India	

Awards / Fellowships / Recognitions

- Visiting Professor, University of Georgia, USA (April – July 2015).
- Technical Adviser, Mech Well Industries, Nashik (2013 – to date).
- Regional Director, National Maritime Foundation, Visakhapatnam (2013 – 2015).
- Most Active Researcher Award, GVP College of Engineering, Visakhapatnam (2014, 2013, 2012, 2011).
- Most Active Researcher Award, VIT University, India (2010, 2009).
- Listed in *Who's Who in the World* (2008-'09); *Who's Who in Science & Engineering*, (2007 – 2008).
- Laboratory Award for Novel Optoelectronic Technology Development, NPOL, India (2007)
- Silicon Medal, National Science Day, DRDO, India (2006).
- National Science Day Award for Advances in Defence Technology, DRDO, India (1997).
- Berkner Fellow, American Geophysical Union, USA (1990 – 1994).
- Dalhousie Senior Fellow, Canada (1988 – 1989).
- International Center for Ocean Development (ICOD) Fellow, Canada (1985 – 1987).
- Dalhousie Fellow, Canada (1985 – 1987).
- Hayes' International Scholar & Dalhousie Fellow, Canada (1984 – 1985).
- Institute Fellow, IIT Madras, India (1981 – 1983).
- CSIR Scholar, India (1980 – 1981).

Team Building / Leadership

Feb. 2013 – Feb. 2015   Regional Director, National Maritime Foundation (NMF)
Dec. 2010 – to date   Director (Consultancy & Research), GVP-SIRC & GVPCE
Oct. 2010 – to date   Executive Director, CASTLE

Nov. 2008 – Dec. 2010   Director (Research & Development), VIT University
Responsible for all university R&D, consultancy programs and patent issues involving 1000 faculty and 900 research scholars.

1989 – Nov. 2008   Team Leader / Program Head / Project Director
Responsible for conceptualizing, building and leading a team of scientists, engineers and technical staff in the research and development of novel non-acoustic technologies and systems in various classified projects at NPOL (DRDO) for Naval applications.

Institution Building / Organizational Management

- Founder, CATS - CASTLE Advanced Technologies and Systems, Dec. 2014 – to date.
- *Regional Director, National Maritime Foundation, Visakhapatnam, Feb. 2013 – Feb. 2015.*
- *Director, GVP-SIRC and GVP College of Engineering, Visakhapatnam, Dec 2010 – to date.*
- *Founder and Executive Director, CASTLE, Visakhapatnam, Oct. 2010 – to date.*
- *Member, Board of Management & Academic Council – VIT University from 2008 to Dec. 2010.*
- *Founder and Head, Centre for Oceanics and Optronics, a State-of-art R&D facility, NPOL, 2000 – 2008.*
- *President, DROMI – Defence Research Officers Mess and Institute, Kochi, 2003-2005.*
- *Chief, HRD (700 people) & Active Member of Laboratory Management, NPOL, Kochi.*

International R&D Experience

Worked with leading Scientists/ Engineers/Technologists in North America and U.K. for 5 years, and also visited and collaborated with many premier R&D institutes in USA, Canada, UK, USA, France, Russia, Spain, Singapore, Switzerland, Malaysia, Thailand, Korea, Australia and Netherlands.

Research Experience

Date	Institution	Subject
April–July 2015	University of Georgia, Athens, Georgia, USA	Visiting Research Professor at University of Georgia, Athens, Georgia, USA. Worked on Bio-photonics
2011 – to date	Centre for Earth and Space Sciences, University of Hyderabad, India	Visiting Professor - Teaching and R&D on Ocean Dynamics, Simulation and Modeling
2010 – to date	Gayatri Vidya Parishad College of Engineering, Visakhapatnam, India	Senior Professor and Director. Responsible for Research and Consultancy Projects of GVPCE
2008 – 2010	VIT University, Vellore, India	Senior Professor and Director of Research. Responsible for all PhD /MS / M Phil / Integrated PhD programs (1000 Faculty & 900 Research Students) and all R&D activities of university
1989 – 2008	Naval Physical & Oceanographic Laboratory, Defence R & D, India	Research on Surface and Internal Wave dynamics, Coastal processes, Tsunami dynamics, Non-conventional techniques for defence and ocean applications. Novel laboratory & field experiments using state-of-art optoelectronic and remote sensing satellite technologies
1984 – 1989	Dalhousie University, Canada	Research on near shore wave dynamics (theoretical modeling, field and laboratory experiments, in-situ data acquisition, data analyses employing various signal processing techniques, scientific interpretation and publication of results in refereed journals)
1984 – 1989	Member of Inter-Institutional Group comprising Dalhousie University, University of Toronto, Memorial University of New Foundland, NERC, (Canada); University of Plymouth, University of East Anglia, (UK); University of Florida, Scripps Institution of Oceanography, University of Oregon, Naval Post Graduate School, USA Army Corps of Engineers Research Centre.	Field programs – Near shore data acquisition with electro-magnetic current meters, pressure transducers, optical backscattering sensors and acoustic suspended sediment profiler, remote sensing satellite sensors and CCD cameras on many North American (USA, Canada) & UK beaches
1984 – 1989	Dalhousie University, Canada	Teaching / Research Assistant – for graduate & undergraduate courses in oceanography, including lecturing, preparation of assignments, and evaluation papers & reports
1983 – 1984	Ocean Engineering Centre, Indian Institute of Technology, India	Wave energy, OTEC (Ocean Thermal Energy Conversion) and Coastal Engineering Consultancy Projects
1981- 1983	National Institute of Oceanography, & IIT, Madras	Oceanographic Cruises in Bay of Bengal, Indian Ocean & Arabian sea
1981 – 1983	Ocean Engineering Centre, Indian Institute of Technology, India	Research on near shore wave dynamics and sediment transport
1980 – 1981	Andhra University, India	Research on coastal processes and waves

Theses

- **PhD** - *The reflection of waves on natural beaches*, Dalhousie University, Halifax, Canada (1989).
- **MS** (Ocean Engineering) - *Studies on wave induced long shore sediment transport on beaches and related phenomena*, IIT Madras, India (1983).

Theses Supervision / Research Guidance

70 Theses / Dissertations (*PhDs – 4, M. Tech / M.E. / M. Sc / MCA – 36, B.Tech – 30*).

Research supervision in the fields of Oceanography, Optoelectronics, Image Processing, Signal Processing, Wave Dynamics, Physics, Pattern Recognition, Computer Vision & Software, Satellite Image Processing.

Publications, Books, Monographs, Patents

163 *(110 Journals / Conference Proceedings; 44 Peer-Reviewed Research Reports; 2 Monographs; 7 Patents).*

Teaching Experience

- o Visiting Professor, University of Georgia, Athens, Georgia, USA (Apr. 2015 – July 2015).
- o Visiting Professor, Central University of Hyderabad, India (2011 – to date).
- o Senior Professor, GVPCE, Visakhapatnam, India (2010 – to date).
- o Senior Professor, VIT University, Vellore, India (2008 – 2010).
- o Visiting Professor, Cochin University of Science & Technology, Kochi, India (1990 – 1996).
- o Teaching / Research Assistant, Dalhousie University, Halifax, Canada (1984–1989).

Graduate Level Courses Taught

Ocean Engineering, Oceanography, Fluid Dynamics, Geophysical Fluid Dynamics, Geo-Mathematics, Digital Signal Processing, Time Series/Spectral Analysis, Image Processing, Remote Sensing Applications, Research Methodology.

Research Interests

Ocean Engineering, Oceanography, Port & Harbor Engineering, Earth Sciences, Coastal Processes, Ocean Dynamics, Lasers and optoelectronics, Image Processing, Satellite Technology, Defense Technology, Systems and Devices.

Research Projects / Level of Participation

Involving a total financial outlay of more than INR 500 Million.

Name of Project (Year)	Level of Participation	Sponsor
PROJECT CATS (2016)	Principal Investigator	CATS, Nashik
PROJECT BEACH (2015)	Principal Investigator	VPT, Govt. of India
PROJECT SSID (2014)	Principal Investigator	SSID Pvt. Ltd.
PROJECT SKY RIDE (2014)	Principal Investigator	Sky Ride Tours & Travels
PROJECT FORTIS (2014)	Principal Investigator	Fortis Hospitals Pvt. Ltd.
PROJECT CWET (2014-15)	Principal Investigator	MNRE, Govt. of India
PROJECT ADA (2012-14)	Principal Investigator	MOD, Govt. of India
PROJECT NRB (2012-14)	Principal Investigator	DRDO, Govt. of India
PROJECT INMAS (2012-14)	Principal Investigator	DRDO, Govt. of India
PROJECTS NSTL (2011-13)	Principal Investigator	DRDO, Govt. of India
PROJECT ISTM (2007 – 2008)	Program Director	DOS, Govt. of India
PROJECT 212 (2003 – 2008)*	Program Director	DRDO, Govt. of India
PROJECT 205 (1998 – 2002)*	Project Director	DRDO, Govt. of India
MUDBANKS (1994 – 1997)	Principal Investigator	DST, Govt. of India
NADS (1994 – 1997)*	Project Leader	DRDO, Govt. of India
DYWAKE (1990 – 1993)*	Project Manager	DRDO, Govt. of India
INWAVE (1990 – 1993)*	Project Manager	DRDO, Govt. of India
COMAP (1989 – 1994)	Member	DRDO, Govt. of India
BLUEWATER (1988 – 1989)	Team Leader	Canada, Government
QUEENSLAND (1987 – 1988)	Team Leader	Canada, Government
C^2S^2 (1984 – 1986)	Member	Canada, Government
NSTS (1984)	Member	U.S.A., Government
WRS / OTEC (1983)	Senior Project Officer	DOD, Govt. of India

* Classified Defence Projects

Curriculum Vitae of Dr. Rao Tatavarti

Membership of Professional Societies

- o Founder and Executive Director, CASTLE.
- o Fellow, Optical Society of India.
- o Life Member, International Association of Engineers, Hong Kong.
- o Life Member & Founder, General Secretary Ocean Society of India.
- o Life Member, Instrument Society of India.
- o Life Member, Photonics Society of India.
- o Member, SPIE International Society of Optical Engineering, USA.
- o Member, AGU American Geophysical Union, USA.
- o Member, India Meteorological Society.

Activities

2015	Visiting Professor, University of Georgia, Athens, Georgia, USA
2013 – to date	Regional Director, NMF, Visakhapatnam Chapter
2010 – to date	Director, Consultancy & Research, GVPCE
2010 – to date	Executive Director, CASTLE, Visakhapatnam
2008 – to date	Member, Editorial Board, ICTACT Journal on Image and Video Processing
2008 – 2010	Director, Research, VIT University ~ 1000 faculty & 900 research students
2008 – 2010	Member, Board of Management and Academic Council, VIT University
1990 – 2010	Theses Evaluator for Masters, PhD students at Institutes/ Universities
1990 – 2010	Invited talks / lectures at many institutes / organizations
2006 – 2008	Chairman, HRD Council at NPOL having ~ 700 employees
2003 – 2005	President, Defence Research Officers Mess & Institute (DROMI)
1999 – 2008	Head, Centre for Oceanics and Optronics, NPOL, India
1989 – 2008	Project Director and Research Leader of Lab. & Field Programs
1990 – 2008	Member, Selection committees & Research committees at CUSAT
1990 – 2008	Advisor for DST, DOS, NRB and DOD projects at CUSAT
1990 – 2008	Member, Departmental Academic Committees Andhra University, CUSAT
1975 – 1978	Prize Winner, Inter-University competitions, Debates, Essays and Sports

Technical Accomplishments

Mathematical Modeling

- o Surface wave dynamics – Gravity waves, infragravity waves, far infragravity waves, edge waves, longshore currents, cross shore currents in the nearshore and resulting sediment transport, frequency dependent reflections, decomposition of incoming waves and outgoing waves.

- o Sub-surface wave dynamics – Motions in stratified fluids, the forced dynamics in stratified fluids, wakes and waves in stratified fluids.

Novel Laboratory Experiments

- o Conceived, designed and conducted laboratory experiments using novel optoelectronic techniques and sensors for detection, discrimination and parameterization of natural and manmade (forced) hydrodynamic signatures.
- o Testing and calibration of instruments.

Sea Trials / Field Experiments

- o Conceived, designed and conducted 50+ sea trials during different environmental conditions at various geographical locations involving the use of traditional sensors, non-conventional sensors in ocean moorings and on board ships, submarines & aircrafts; and also satellite based optical and microwave sensors.
- o Conceived, planned & participated in many innovative scientific missions as *Chief Scientist* on board naval platforms (*ships, submarines, long range aircraft and helicopters*) and INS Sagardhwani.

Remote Sensing Satellite Observations / Sea Truth – For Operational Requirements

- o Conceived, designed and conducted satellite-sea trials in conjunction with Department of Space, DRDO and NAVY - more than 150 satellite scenes collected, analyzed and interpreted.
- o Remote sensing by optical and microwave satellite sensors from – IRS 1C, IRS 1D, IRS P4, IRS P6, ERS, RADARSAT, ENVISAT, TES, IKONOS, QUICKBIRD.
- o Parameterization study of the wake imagery from sensors on board ocean surface platforms and satellites, in terms of ship speed, displacement, propeller characteristics etc. to enable classification of the ships.

Design and Development

- o Novel technique for determining frequency dependent wave reflections, decomposition of waves.
- o Underwater Submarine Simulator, Single Point Mooring, Gravity platform for inshore use.
- o Optoelectronic Systems for detection, discrimination of hydrodynamic signatures.
- o Optoelectronic Systems for detection of ships and submarines.
- o Infrastructure for ongoing and futuristic R &D activities.
- o *SpaFEx* – A state of art satellite image processing package, capable of detecting and discriminating targets.
- o Optoelectronic System for Tsunami Monitoring.
- o Photonics Systems for Air Data Monitoring Onboard Aircrafts.
- o Photonic System for Wind Profiling.
- o Photonic System for Vibration and Condition Monitoring.
- o Photonic System for Environmental Monitoring.

Algorithm Development for Signal and Image Processing

- o New algorithms for data processing and information extraction.
- o Adopted innovative ways of interpretation of observations from conventional sensors and mapped the temporal and spatial evolutionary characteristics of sub surface generated wakes and waves in ocean.
- o Digital signal and image processing of voluminous data obtained from laboratory and field trials.

Research Supervision / Guidance

Fields of Research: *Ocean Engineering, Oceanography, Optoelectronics, Image Processing, Signal Processing, Wave Dynamics, Fluid Dynamics, Mechanical Engineering, Physics, Pattern Recognition, Computer Vision, Computer Software.*

PhD

1. S. Naithani, '*Inversion technique to estimate geo-acoustic parameters of the seafloor sediments based on Matched Field Processing and Beamforming'*, Dept. of Geophysics, School of Marine Sciences, CUSAT, Cochin, 2015.

2. K. R. Prabhu, *'Design and Development of Electrical Capacitance Tomography System,* School of Electrical Engineering, VIT University, Vellore, 2013.

3. T. L. Rambabu, *'An inter-comparison of acoustic and opto-electronic techniques for monitoring stratified fluids'*, Department of Physics, Andhra University, Visakhapatnam, 2000.

4. P. Manoj Kumar, *'Near shore processes of Ambalapuzha coast, Kerala: Special reference to Mudbanks'*, School of Marine Sciences, CUSAT, Cochin, 2000.

M. Tech.

1. K. Rahthinavel Raj, *'Inverse scattering transform technique for determination of suspended particle size and distribution function in a medium'*, International School of Photonics, CUSAT, Cochin, 1997.

2. T. K. Shahana, *'An improved edge detection algorithm for image processing'*, Department of Electronics, CUSAT, Cochin, 1999.

3. T. S. Asha, *'Laser beam position measurement using a four-quadrant detector system'*, International School of Photonics, CUSAT, Cochin, 1999.

4. C. Jayakrishnan, *'Developmental studies on LISS profiler – An instrument for monitoring in situ suspended sediment concentration'*, International School of Photonics, CUSAT, Cochin, 1999.

5. Babu Varghese, *'Laser beam deflection technique for the study of stratified fluids using lateral-effect position sensitive photo detectors'*, International School of Photonics, CUSAT, Cochin, 2000.

6. C. Sudhir, *'Characterisation studies of position sensitive photo detectors and their application to refractive index measurements'*, International School of Photonics, CUSAT, Cochin 21, 2000.

7. Sajan Ambadiyil, *'Development of a novel fibre optic sensor for fluid monitoring'*, International School of Photonics, Cochin University of Science and Technology, Cochin 682 022, 2002.

8. Satish John, *'Multiplexed data acquisition system for remote measurements with multiple fibre sensors',* International School of Photonics, Cochin University of Science and Technology, Cochin 682 022, 2002.

9. T. Mahesh Kumar, *'DSP based hardware for data acquisition from an optical sensor'*, Department of Electronics, Cochin University of Science and Technology, Cochin 682 022, April 2003.

10. V.R. Rajeev Kumar, *'Image Velocimetry: A technique for monitoring diffusion processes'*, International School of Photonics, Cochin University of Science and Technology, Cochin 682 022, April 2003.

11. Sumitha Mathew, *'Image enhancement using the principles of anisotropic diffusion'*, Department of Electronics, Cochin University of Science and Technology, Cochin 682 022, April 2003.

12. Ch. V. Sirisha, 'Signal *Characterization and causality determination using different algorithms'*. National Institute of Technology, Calicut, March 2004.

13. Preetha Sreekumar, *'System for transmission of laser sensor signals to distant location'.* National Institute of Technology, Calicut, March 2004.

14. M. Prasad, '*Gaussian mixture models for image texture Modeling and discrimination'.* Amrita School of Engineering, Coimbatore, July 2007.

15. R. Vineeth, '*Algorithms for extraction of curvilinear features in very low SNR images'.* Amrita School of Engineering, Coimbatore, July 2007.

16. Lekshmi Raj, '*Multichannel data acquisition and processing: A virtual instrumentation using UDP and DAQ tools*', Sastra University, Thanjavur, April 2008.

17. Madhu S. Nair, '*Restoration and enhancement of color images using Fuzzy appro*ach', University of Kerala, Thiruvananthapuram, July 2008.

18. Rekha Vibin, '*Gray level grouping: An automatic method for contrast enhancement'*, University of Kerala, Thiruvananthapuram, July 2008.

19. Hemachander, R. 'Operation of unmanned railway level crossing using GPS', VIT University, June 2010.

M. Sc.

20. Prasithlal, R, '*Complex empirical orthogonal function analysis: Application to surface meteorological and oceanographic data'*, Department of Operations Research and Computer Applications, Cochin University of Science and Technology, 1991.

21. P.R. Biju, *'Application of Laser beam deflection technique for the study of stratified fluid media'*, International School of Photonics, CUSAT, Cochin, 1997.

22. H. Sreekala, *'Laser beam scattering by particle of arbitrary size: An experimental approach for particle sizing'*, Department of Physics, CUSAT, Cochin 21, 1999.

23. P. C. Ajith Kumar and Vishnu Vardhana Rao Yalamanchi, *'Simulation of near real-time data acquisition system and spatial feature extraction from SAR and optical images'*, Department of Electronics, CUSAT, Cochin 21, 2000.

24. T. S. Binilroy and Varsha Jose Joseph, *'Spatial feature extraction from images: improved algorithm and implementation'*, Department of Electronics, CUSAT, Cochin 21, 2000.

25. Sunitha Achamma George and S. Smitha, *'Quantification of mixing and diffusion process using laser beam deflection technique'*, School of Pure and Applied Physics, Mahatma Gandhi University, Kottayam 686 560, 2001.

26. R. Unmai, *'Spatial feature extraction from images: Application of wavelet and Radon Transforms'*, Department of Physics, Regional Engineering College, Trichy, 2000.

27. Neel Abraham, Jinto. K. Johnson, *'Software development for processing of satellite images from optical sensors'*, Faculty of Software Engineering, Annai Mathammal Sheela Engineering College, Namakkal, 2001.

28. Jinto. K. Johnson, *'Software development for processing of satellite images from microwave sensors'*, Faculty of Software Engineering, Annai Mathammal Sheela Engineering College, Namakkal, 2001.

29. Siji Chandrasekharan, M. Sunitha Thomas, Smitha Felix and M. Kavitha, *'Vibration monitoring using Michelson Interferometer'*, Department of Physics, St. Teresas College, Ernakulam, MG University, Kottayam 686 560, 2002.

30. Deepa Sivan, Sreelekha Badhran, *'Software development for signal processing and display of an optoelectronic system'*, Department of Computer Science, University of Calicut, Calicut, April 2003.

31. Neel Abraham, *'Software Development for Processing of Satellite Images from IRS Satellites'*, Faculty of Software Engineering, Annai Mathammal Sheela Engineering College, Namakkal, 2003.

32. Jinto. K. Johnson, *'Software Development for Processing of Satellite Images from Radarsat Satellites'*, Faculty of Software Engineering, Annai Mathammal Sheela Engineering College, Namakkal, 2003.

M. C. A

33. Aswathy Karthikeyan, *'Bi-spectral analysis for detection of non-linearities in stochastic processes'*, Bharathidasan University, Tiruchirapalli, 1998.

34. Julie George, *'SpaFex: Package for feature extraction from images'*, Department of Computer Applications, VLB Janaki Ammal College of Engineering and Technology, Coimbatore 42, Bharathiar University, 2000.

35. Antony, Francis, *'SpaFex 2.0: Package for feature extraction from images'*, Kongu Engineering College, Perundurai, Erode, 2001.

36. Mr. Jayasankar, *'Design and development of multi-document interface for the existing dialog based software'*, VHNSN College, Virudhu Nagar, 2002.

B. Tech

1. Smitha U, Shakheela Marikar, 'Edge detection in image processing using Hough transform', Dept. of Electronics and Communication, College of Engineering, Trivandrum, 1996.

2. Ranjith J. et al., 'System for classification of ECG abnormalities using wavelet networks', Dept. of Electronics and Communication, Model Engineering College, Kochi, 1998.

3. Febin A. Gafoor, Jipson Paul, Praveen Paul, Sameer Baker, 'Development of a novel optical fibre sensor for monitoring *of fluids*', Dept. of Electronics & Communications, University College of Engineering, 2002.

4. Amit James, Bipin Thomas, Lavitha Elizabeth Peter, Lekshmi Nair, Sageeva Joseph, *'Multiscale image enhancement using robust anisotropic diffusion'*, Dept. of Electronics and Communications Engineering, MG University, 2003.

5. Ajit Kumar, S., Dileep Jose, Jerin Kuttathil, Joxin Stanly, 'Real *Time Signal Analysis'*, Department of Information Technology, College of Engineering, Munnar, 2004.

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Systems and Technologies Developed

AUM ॐ *Air Unique-quality Monitoring*	System for Environmental Monitoring
PRANEEDHI प्रणिधि *Photonic Reconnoitering of Acoustic Noise for Effective Eaves Dropping and Highlighting Intelligence*	System for Eaves-dropping
SAMIRA समीरा *Seeing Air in Motion: Instrumentation for Remote-sensing Applications*	System for Wind Profiling
SARATHI सारथि *Search And Rescue Apparatus for Targeting Holistic Information*	System for Search and Rescue in Disaster Management
SAVDHAN सावधान *Scan, Analyze, Validate, Discriminate, Highlight, Assess and Neutralize*	System for Maritime Surveillance
taraNi तारणि *Technology for Air data Reckoning for Aerial Navigational Information*	System for Air data monitoring onboard Aircrafts
Vayu वायु *Wind Tunnel*	Fully Instrumented Wind Tunnel Facility
VEDA वेदा *Vibrational Effects – Detection Analysis*	System for Vehicle and Intrusion Monitoring
VIDUR विदूर *Vibration Intelligence Data Unravelling Remotely*	System for Vibration and Condition Monitoring