

BIO-DATA

I. Personal Details :

Name: Dr. Lucy J.Gudino

Age: 42

Sex: Female

Marital status : Married

Date of Birth: 02-02-1971

Nationality : Indian

Residential Address:

C-183, Birla Institute of Science and Technology Pilani, Goa Campus , NH17B,
Zaurinagar,Goa. 403726

Permanent Address:

Maria House,Gandhinagar,
Kumta Uttara Kannada
Karnataka 581343

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Web page: <http://www.bits-pilani.ac.in/goa/lucy/profile>

Telephone: Off : 0832 - 2580425

II. Academic record:

Degree	University	Year of Completion	%	Class
B.E. Electronics and Communications Engineering.	Kuvempu University, Karnataka	1994	77	First with distinction
M.Tech. Computer Science and Engineering	Vishweswaraya Technological University Belgaum, India	2003	83	First with distinction Secured third rank to University
Ph.D., Computer Science and	Vishweswaraya Technological	Jan 2010	-	-

Engineering Title: Adaptive arrays for cellular base stations	University, India			
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Ph.D. thesis title: Adaptive arrays for cellular base stations

Brief abstract :

Advances in wireless systems particularly cellular communication systems has resulted in the need for improved techniques for antenna arrays to enhance spectral efficiency, tackle interference problems, synthesize highly directive beam patterns, increase data transmission rates and support high user density. This work address research on antenna array processing in time, frequency and space domain using non-adaptive and adaptive arrays with reduced number of antenna elements and low computational complexity which has gained importance in recent years. The beam pattern characteristics of the proposed beamformers, i.e., beamwidth, directivity, nearest to farthest minor lobe level ratio are compared with existing beamformers for various side lobe levels and number of elements. Also wideband beam patterns with narrow transition band employed at the base stations of cellular communication systems are also investigated. A novel Adaptive Interpolated Beamformer which is an adaptive version of Spatially Interpolated Beamformer is proposed.

III. Employment Details :

Teaching Experience :

Total teaching experience of 18 years out of which 7 years in Electronics and Communications Engineering, 2 years in Computer Science and Engineering, 9 years at Birla Institute of Technology and Science, K K Birla Goa Campus in Computer Science and Information systems.

Sr. No.	Name of Institute	Position held	Period
1.	Birla Institute of Science and Technology Pilani, K.K. Birla Goa Campus, Goa, India	Lecturer Assistant Professor, Computer Science and Information systems	Feb 2005-Feb 2010 Feb 2010-till date
2.	St. Joseph College of Engineering, Mangalore	Assistant Professor, Computer Science and	Feb 2004-Feb 2005

		Engineering.	
3.	Rayeshwar Institute of Technology Shiroda, Goa	Senior Lecturer in Computer Engineering.	Feb 2003-Feb 2004
4.	P.C. College of Engineering, Verna, Goa	Lecturer in Electronics and Communications Engineering.	July 1998-June 2001
5.	Parinitha Computers, Shimoga	Software Developer	Feb. 1997-June 1998
6.	J.N.N. College of Engineering, Shimoga	Lecturer in Electronics and Communications Engineering.	Jan 1995-Dec 1996

IV. Courses Taught:

Under graduate level:

Subjects handled in Computer Science and Information Sciences

Computer Programming I, Computer Programming II, Advanced computer organization, Computer organization and architecture, C programming, Microprocessor programming and interfacing, Mobile telecommunication networks, Design and analysis of algorithms, Computer networks, Digital electronics, Microprocessors, Computer Programming I and Computer Programming II, Computer Project, Study Oriented Project, Special Projects, Computer Graphics and Engineering Graphics

Subjects handled in Electronics and Communications Engineering

Wireless communications, Communication Systems, Data communications, Analog Electronics, Basic Electronics, Power Electronics, Pulse and digital electronics, Electronic devices and circuits.

Post Graduate M.E.:

Computer Networks, Computer Organization and system software, Professional Practice I, Professional Practice II, Research Practice

WILP (Work Integrated Learning Program):

Computer Organization and Software System

Courses Presently Teaching:

Computer Graphics and Operating Systems

International linkages in teaching :

Mr. Jokelainen Janne from NOKIA, Finland, delivered lectures and lab sessions along with me in the subject of “Mobile Telecommunication Networks” on topics modulation techniques, multiple access techniques, link improvement, GSM and IS 95.

Details of involvement in curriculum enhancement, course notes, lab manual development and laboratory development

Lab Manuals were developed for the courses “Computer Organization and Architecture”, “Advanced Computer Organization” and “Microprocessor Programming and Interfacing”

During 2004-2005, assisted Electronics Engineering department in setting up of analog electronics and digital electronics labs.

V. Research Interests:

Areas of specialization: Adaptive Signal Processing, Array signal processing, Digital filter design and application to Speech Processing, Wireless Networks (Wireless Sensor Networks and Wireless Ad-hoc Networks)

On Going Projects:

1. Design and Development of Condition Based Monitoring of Pipelines using Wireless Sensor Networks

Role: Co-Investigator

Project Cost : Rs 80.18 Lakhs

Funding Agency : GAIL (India) Limited

2. Spatially Interpolated Beamformer for Wireless Sensor Networks

Role: Principal Investigator

Project Cost : Rs 2 Lakhs

Funding Agency : Research Initiation Grant, BITS-Pilani

Industrial Linkages:

“Cry analysis of preterm babies to detect ailments Infant Cry Analysis as a Non-Invasive technique to detect and predict Apnea in Pre-term Neonates” was carried out in collaboration with at Health care division, Phillips Innovation Center, Philips Research Asia, Bangalore. As a part of this work, visited Goa Medical College, Bambolim, Goa, Saint John’s Medical College, Bangalore and collected around 45 cry samples of Pre-term Neonates.

Publications in reputed Journals:

International Journals (Refereed):

1. Joseph Rodrigues, **Lucy J. Gudino** and K.R. Pai, “Sharp Transition Multiband Filter in Speech Processing Scheme for Hearing Impaired”, American Journal of Engineering and Applied Sciences, Vol. 5, pp. 42-49, Feb. 2012.
2. **L. J. Gudino**, S. N. Jagadeesha, J. X. Rodrigues, “A New Design Approach of Spatial FIR Filter for the Synthesis of Wideband ULA Beamformer,” Special issue on RF-techniques in the Mediterranean Journal of Electronics and Communications, Vol. 5, No. 3, pp. 97-105,, July 2009.
3. Joseph Rodrigues, K. R. Pai and **Lucy J. Gudino**, “Synthesis of linear phase sharp transition FIR digital filter,” ECTI Transactions on Electrical Eng., Electronics and Communications, pp. 96-99, 2005.

International Conference Proceedings (Refereed):

1. **Gudino, L.J.**; Rodrigues, J.X.; Jagadeesha, S. N.; Yerryswamy, T., "Synthesis of Adaptive Interpolated Beamformer," Communication Systems Networks and Digital Signal Processing (CSNDSP), 2010 7th International Symposium on , vol., no., pp.101,105, 21-23 July 2010
2. Rodrigues, J.X.; **Gudino, L.J.**; Pai, K. R., "Design of novel sharp transition multiband FIR filter," Communication Systems Networks and Digital Signal Processing (CSNDSP), 2010 7th International Symposium on , pp.336,340, 21-23 July 2010
3. Yerriswamy, T.; Jagadeesha, S. N.; **Gudino, L.J.**, "Expectation Maximization - Matrix Pencil Method for Direction of Arrival estimation," Communication Systems Networks and Digital Signal Processing (CSNDSP), 2010 7th International Symposium on, pp.91,95, 21-23 July 2010
4. **Gudino, L.J.**; Jagadeesha, S.N.; Rodrigues, J.X., "A novel filter design for Spatially Interpolated Beamformer," Proceedings of the International Symposium on Intelligent Signal Processing and Communication Systems, IEEE ISPACS 2008, Bangkok, Thailand.
5. **Gudino, L.J.**; Jagadeesha S.N.; Rodrigues, J.X., "A new filter design for uniform linear array," Proceedings of the Fifth International Multi-conference on Systems, Signals and Devices IEEE SSD 2008, 20-23 July 2008, Amman, Jordan.
6. **Gudino, L.J.**; Jagadeesha S.N.; Rodrigues, J.X., "A novel design of sharp transition FIR filter for digital beamforming," Proceedings of the IEEE Conference on Communication Systems, Networks and Digital Signal Processing, 23 to 25 July, 2008, Graz, Austria, pp. 247-250.
7. **Gudino, L.J.**; Rodrigues, J.X.; Jagadeesha S.N., "Linear phase FIR filter for narrow band filtering," Proceedings of the IEEE International Conference on Communications, Circuits and Systems, ICCCAS 2008, 25 to 27 May 2008, Xiamen, China, pp. 868-871.
8. Rodrigues, J.X.; K.R. Pai; **Gudino, L.J.**, "Synthesis of linear phase sharp transition FIR digital filter," Proceedings of the Electrical Eng., Electronics and Communications International Conference, ECTI-CON 2005, Thailand.

National Conferences:

1. Joseph Rodrigues and **Lucy J. Gudino** "Speech processing scheme for reduction of spectral masking in sensorineural hearing impaired," Proceedings of the National Conference on Control, Communication and Information Systems, Goa, 2004, pp. 26-27.
2. Joseph Rodrigues, **Lucy J. Gudino** and Jagadeesha "FIR filter for speech processing applications," National Conference on Vision and Image Processing, Shimoga, 2005, pp. 575-578.

3. **Lucy J. Gudino** and Jagadeesha, “Performance Analysis of Constant Modulus Algorithms for Adaptive Beamforming,” National conference on Emerging Trends in IT, KLE College of Engineering, Belgaum, 2007.

Papers presented at International IEEE Conference, U.K. 2010

1. **Lucy J Gudino**, Joseph Rodrigues, Jagadeesha S.N. and Yerryswamy T., “Synthesis of Adaptive Interpolated Beamformer” IEEE International Symposium on Communication Systems, Networks and Digital Signal Processing CSNDSP2010, Newcastle Upon Tyne, U.K., pp. 107-111
2. Yerryswamy T., Jagadeesha S.N. and **Lucy J. Gudino**, “Expectation Maximization -Matrix Pencil Method for Direction of Arrival Estimation” IEEE International Symposium on Communication Systems, Networks and Digital Signal Processing CSNDSP2010, Newcastle Upon Tyne, U.K., pp. 97-101.

Journal Reviewer : Reviewer of reputed International IEEE journal “IEEE Transactions in Antenna and Wave propagation” 2010

Session Chair and Invited Lecture:

1. Resource faculty for Indian Society for Technical Education (ISTE) short term training programme ” Recent trends in digital filter design and its applications“ for Polytechnic, Engineering faculty and Electronics industry personnel at Agnel Polytechnic, Verna, Dec.10-14, 2007
2. Chaired a session at International Conference on “Emerging Trends in Engineering and Technology” (ICETE 2010) organized by Rasoni College of Engineering, Nagpur, India
3. Delivered a lecture on topic “Synthesis of Adaptive Interpolated Beamformer” at BITS-Pilani, K K Birla Goa Campus, Aug., 2010
4. Keynote speaker at National Conference on Modern Trends in Science and Technology –MTST -2011, Dr. M.V. Shetty Institute of Technology, Mangalore-Karnataka. Topic: Spatially Interpolated Beamformer for Wireless Sensor Networks.
5. Chaired a session at 2nd National Conference on Electronics Technologies- NCET 2K11, Goa College of Engineering, Goa.
6. Chaired a session at National Conference on “ Modern Trends in Advanced Computing” MTAC 2013, organized by Goa Engineering College, Goa.

Membership of international professional organizations:

Member, The Institute of Electrical and Electronics Engineers (IEEE)
Member, Member Institute of Engineers (MIE)

Professional development/Workshops/Conferences attended recently:

1. Technical Education Quality Improvement Program by National Institute of Teachers Training and Research, Bhopal at Directorate of Technical Education, Goa, 2003.
2. 2 days course on “Object Oriented Analysis and Design using the UML with fundamentals of Rational Rose”, conducted by IBM during December 2006
3. 5 days subject workshop on “Embedded Systems” at BITS-Pilani Goa campus during July 2008.
4. 2 days lab based course on “Microcontrollers” at BITS-Pilani Goa campus during August 2008.
5. Workshop on “Network Security”, at BITS-Pilani Goa campus conducted by Prof. Shanmugasundaram Balasubramaniam during October 2009
6. Attended IEEE International Symposium on Communication Systems, Networks and Digital Signal Processing CSNDSP2010, Northumbria University, Newcastle Upon Tyne, U.K. from 21/7/2010 to 23/7/2010.
7. National Conference on Modern Trends in Science and Technology –MTST - 2011, Dr. M.V. Shetty Institute of Technology, Mangalore- Karnataka.
8. 2nd National Conference on Electronics Technologies- NCET 2K11, Goa College of Engineering, Goa.
9. As a part of my research work in the area of Biomedical signal processing interacted with Pediatric Department, Goa Medical College and Health care division, Phillips Innovation Center, Philips Research Asia, Bangalore.
10. International Workshop on Data Analytics and Applications, 26th Feb. to 1st Mar. 2013, organized by Department of Computer Science and Information Systems, BITS-Pilani.

Awards and recognitions received from outside agencies and organizations of repute:

1. Secured 3rd Rank in M.Tech. in Computer Science and Engineering, VTU, Belgaum
2. CSNDSP 2008 International travel grant award ,Graz, Austria
3. DST 2010 International travel grant award as senior scientist for CSNDSP 2010, Newcastle, Upon Tyne, UK.
4. UGC unassigned grant award for CSNDSP 2010 Newcastle, Upon Tyne, UK.

Ph.D. Guidance:

Name of the Research Scholar	Title	Role
Mr. Mahadev Gawas	Cross layer protocol design and its application to wireless networks	Guide
Mr. Shamanth	Directional Antennas for Wireless Sensor Network Application	Guide

Mr. Sarang Dhogde	Development of energy efficient network architecture and protocol stack for underwater wireless sensor networks	Co-Guide
Mr. Sreejith V	Development of energy efficient routing protocol for mobile wireless sensor networks.	Co-Guide
Ms. Geeta Patil	Design of Energy Efficient Cache Architecture for Uniprocessor and Multicore Systems	Co-Guide

Ph.D. Thesis Evaluated:

1. “Decision making in data driven environment and its application to astronomy”, BITS-Pilani, K K Birla Goa Campus, 2010.
2. “Resource Allocation in Downlink OFDMA Systems: An Evolutionary Approach”, BITS-Pilani, K K Birla Goa Campus, 2012.

Examiner for Ph.D. qualifying exam and Ph.D. qualifying viva-voce.

Examiner for PhD qualifying examination for 13 candidates during 2007-2010 in the following subjects:

Advanced Computer Networks, Computer networks, Advanced Computer Architecture, Mobile Telecommunication Networks, Advanced Microprocessor Programming and interfacing, Advanced digital communication, Wireless Sensor Networks

M.Tech /MS dissertation and First Degree Thesis supervised:

1. Ms. Geeta Patil, “Adaptive beamformer and its applications”, M.Tech. dissertation, Vishveswaraya Technological University, Belgaum, 2009
2. Ms. Rachel D’ Silva, “Spatially Interpolated Beamformer for wireless communications”, M.Tech. dissertation, Vishveswaraya Technological University, Belgaum, 2009
3. Ms. Samyuktha H. Subramanian, “Cry analysis of preterm babies to detect ailments Infant Cry Analysis as a Non-Invasive technique to detect and predict Apnea in Pre-term Neonates”, BITS-Pilani, K K Birla Goa Campus, 2012.
4. Mr. Rakesh Kumar, “Implementation of Online Booking System for Audio Visual Unit and CC Labs”, WILP, BITS-Pilani, 2013.
5. Mr. Om Prakash, “Development of Computer Center Loan System”, WILP, BITS-Pilani, 2013.

First degree and higher degree projects supervised

Guided around 55 students in the following areas

1. Sharp transition FIR filter and their applications to speech processing and network encryption
2. Adaptive filters and their application to equalization and echo cancellations
3. Image processing
4. Adaptive antenna array processing

5. Various Database projects for Students Welfare Division of BITS
6. Computer Graphics
7. Wireless Sensor Networks
8. Wireless Ad-hoc Networks

Softwares developed for use at BITS Pilani Goa Campus :

1. Online admission software which is used since 2007-2010 admissions
2. Online student scholarship software
3. Website for student welfare division

VI Administrative Responsibilities:

1. Faculty In-Charge, Student Welfare Division and Admissions (July 2013 till date)
Student Welfare Division provides services such as
 - Student Housing
 - Financial Assistance
 - Student Dues
 - Games and Sports Facility
 - Cultural and Recreational Activities
 - Certificates
 - Counseling and Assistance
2. Nucleus member, Student Welfare Division (Aug. 2005-Jun. 2013) where I was involved in
 - Student Admissions from 2005-2006 onwards
 - Students scholarship committee: Merit and Merit cum need scholarship from 2005-2006 onwards
 - Student Aid Fund during 2009-2010
3. BITSAT Goa 2008 and BITSAT Bangalore 2009
4. Practice School (PS) instructor during 2005-2006 for the following PS stations.
 - Bangalore Stock Exchange Ltd., Bangalore
 - Manjushree Extrusions Ltd., Bangalore
5. Involvement in Distance learning programmes of BITS
In-charge for conducting WILP examination at BITS Pilani-Goa Campus during 2005-2006 and 2006- 2007.
6. Member, Student Mentor Group for ACB students from 2008-2009 onwards
7. Instructor for Special Reading Course during 2009-2010. The objective of this course is to use the medium of books to inculcate a sense of discipline, duty and good-will among students.
8. Member, National Accreditation Sub-Committee for BITS accreditation
Member, anti-ragging committee during 2005-2006

VII Professional references

1. Dr Bharat Deshpande,
HOD, Computer Science and Information System,
BITS Pilani Goa Campus
NH17B, Zuarinagar, Goa 403726
2. Dr Erich Lietgeb,
Professor in Broadband Communications,
Technical University, Graz, Austria
3. Dr. Jagadeesha S.N.
Prof. and Head, Computer Science and Engineering
JNN College of Engineering
Shimoga

17/8/2013

Zuarinagar Goa

Dr. Lucy J. Gudino