Vinod Achutavarrier Prasad *PhD*

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Brief Biography

Vinod A Prasad received his B. Tech. degree in Instrumentation & Control Engg. from University of Calicut, India in 1993 (Second rank in University) and the Master of Engineering (by Research) and Ph.D. degrees from School of Computer Engineering, Nanyang Technological University (NTU), Singapore in 2000 and 2004 respectively. Vinod has a professional experience of 25 years (full-time), which includes 20 years full-time academics (teaching and research) experience and 5 years industry experience. He has spent the first 5 years of his career in industry as an automation engineer at Kirloskar, Bangalore, India, Tata Honeywell, Pune, India, and Shell Singapore. From September 2000 to September 2002, he was a Lecturer in the School of Electrical and Electronic Engineering at Singapore Polytechnic, Singapore. He joined as a Lecturer in the School of Computer Engineering, NTU, Singapore in September 2002, became Assistant Professor in December 2004 and Associate Professor (tenured) in August 2010 where he continued till September 2017. In October 2017, Vinod joined Indian Institute of Technology (IIT) Palakkad, India, as a Professor in Electrical Engineering Department. He was also the first Dean (Industry Collaboration & Sponsored Research) in IIT Palakkad during April 2018 – October 2020. In December 2020, Vinod joined The Hong Kong University of Science and Technology as a Professor of Engineering Practice. He also served as a Visiting Associate Professor in Electrical & Computer Engg. Dept., University of British Columbia, Canada, during June-July 2013.

Vinod has won the *Nanyang Award for Excellence in Teaching 2009*, the highest recognition conferred by NTU Singapore to individual faculty for teaching. He has won the Best Lecturer Award of School of Computer Engineering four years consecutively – 2007, 2008, 2009 and 2010. He was also a nominee of *Nanyang Award for Excellence in Teaching 2008.*

Vinod's research interests include digital signal processing, low power, reconfigurable circuits & systems for wireless communications, Brain-Computer Interface and its applications in neurofeedback, neurorehabilitation, neuroprosthetics and assistive technology devices. He has on-going and completed external research grants from various funding agencies (public and private sectors) - Ministry of Education, Singapore, Ministry of Defence, Singapore, DSO National Laboratories, Singapore, European Aeronautic Defence & Space Company (EADS), Singapore Millennium Foundation, Civil Aviation Authority of Singapore (CAAS), Airbus Group Innovations, Department of Science and Technology (Govt. of India), UVJ Technologies Pvt Ltd., India, and GadgEon Smart Systems Pvt Ltd., India, amounting over S$3.5 million as principal investigator. He has published 266 papers in refereed international journals and international conferences which include 87 journal papers. He has supervised and graduated 17 Ph.D. students

in NTU Singapore and 1 Master of Engineering (By Research) student. He has been conferred Research Outstanding and Recognition Award, Office of Research, NTU, twice – in 2005 and 2006. Currently, he is an Associate Editor of IEEE Transactions on Human-Machine Systems, Associate Editor of IEEE Transactions on Neural Systems and Rehabilitation Engineering, Associate Editor of IEEE Transactions on Cognitive and Developmental Systems, Associate Editor of IEEE Systems Man & Cybernetics Magazine, Associate Editor of Springer Journal of Circuits, Systems & Signal Processing, Associate Editor of Frontiers in Neurorobotics and also a Senior Member of IEEE. He was the Technical Co-Chair (Brain-Machine Interface Systems) of IEEE Systems, Man & Cybernetics Society during 2014 - 2018. Vinod has won the 'Award for the Most Active Technical Committee Award in Human-Machine Systems' (as the Technical Co-Chair of Brain Machine Interface Committee) of IEEE Systems, Man and Cybernetics Society in three consecutive years – 2016, 2017 and 2018.

In NTU Singapore, Vinod was the Assistant Chair (Students) in School of Computer Science & Engineering during 2015 – 2017, Member of NTU Teaching Council, Member of NTU Research Council, Leader of Hardware & Embedded Systems Research Group, Embedded Systems Track Lead of Curriculum Management Committee, and the Chairman of Faculty Search Committee of the School of Computer Engineering, NTU. Formerly, he has served as the Chair of NTU School's Undergraduate Outreach Committee for 6 years (2007 – 2013), Team Leader of NTU's Ph.D. Outreach (India) during 2012 - 2016 and Graduate Students' Liaison Faculty-in-Charge of the School in NTU for 2 years and Member of Undergraduate Outreach of College of Engineering, NTU for 4 years.

1. EDUCATION

Ph.D., 2004
School of Computer Engineering, Nanyang Technological University, Singapore
Dissertation topic: Design Techniques for Low-Complexity Implementation of Software Defined Radio Channelizers (Advisor: Professor Edmund M-K. Lai)

Master of Engineering - M.Eng. (By research), 2001
School of Computer Engineering, Nanyang Technological University, Singapore
Dissertation topic: A Novel Approach to the Design and Realization of Quadrature Mirror Filters

Bachelor of Technology - B.Tech., Instrumentation and Control Engg., **1993** (Second topper in the University), University of Calicut, Kerala State, India

Certificate in Teaching (Higher Education), 2002
Accredited with the University of Sheffield, United Kingdom

2. PROFESSIONAL MEMBERSHIP

- Senior Member-IEEE (From June 2007)
- Technical Co-Chair, IEEE Systems, Man & Cybernetics Society (2014-2018)

3. SUMMARY OF WORKING EXPERIENCE:

Total Work Experience – 25 years (Teaching: 20 years, Industry: 5 years)

9 December 2020 – Present: Professor of Engineering Practice, Electronic and Computer Engineering Department, The Hong Kong University of Science and Technology, Hong Kong

25 October 2017 – 7 December 2020: Professor, Electrical Engineering Department, Indian Institute of Technology Palakkad, India

1 Aug. 2010 – 26 September 2017: Associate Professor (Tenured), School of Computer Science and Engineering, Nanyang Technological University (NTU), Singapore

1 December 2004 – 31 Jul. 2010: Assistant Professor, School of Computer Engineering, NTU

September 2002-November 2004: Lecturer, School of Computer Engineering, NTU

September 2000-September 2002: Lecturer, School of Electrical and Electronic Engineering Singapore Polytechnic, Singapore

June 1997 – September 1998: Instrumentation Engineer**,** Radiant Instrument and Electrical Engineering, Singapore (C/o Shell Chemicals Singapore)

June 1996-March 1997: Project Engineer, Kirloskar AAF Ltd., Bangalore, India

Nov. 1995-May 1996: Project Engineer (Industrial Automation)**,** Tata Honeywell, India

October 1993-November 1995: Instrumentation Engineer, Kirloskar Snydergeneral Ltd., Bangalore, India

4. TEACHING

A. Teaching Awards:

- Winner of **Nanyang Technological University's *Nanyang Award for Excellence in Teaching*, 2009** (*University's Teacher of the Year Award* - The highest recognition conferred by NTU to individual faculty for teaching excellence).
- Nominee of University's Nanyang Educator Award (College of Engineering level), 2016.
- Nominee of University's Nanyang Educator Award (Department level), 2016.
- **Most Popular Year-2 Lecturer** in School of Computer Engineering (SCE), NTU Singapore, 2010 (Voted by students).
- **Most Popular Year-2 Lecturer** in SCE, NTU, 2009 (Voted by students).
- **Nominee, University's (NTU) *Nanyang Award for Excellence in Teaching*, 2008.**
- **Most Popular Year-2 Lecturer** in SCE, NTU, 2008 (Voted by students).
- **Best Year-2 Lecturer in SCE**, NTU, 2007 (Voted by students).

B. Achievements of PhD Students and Undergraduate Final Year Project Students

- **Ph.D. Student, Abhishek Ambede, won the 2nd Prize for Best Student Paper Award** in 2016 Integrated Communications, Navigation, and Surveillance (ICNS) Conference, Herndon, Virginia, USA, April 19-21, 2016. http://i-cns.org/ Paper: Abhishek Ambede,

A. P. Vinod and A S Madhukumar, "Design of a low complexity channel filter satisfying LDACS1 spectral mask specifications for air-to-ground communications".

- **Ph.D. Student, Vikram Shenoy, won the Best Student Paper Award** in 2014 IEEE International Conference on Systems, Man, and Cybernetics, San Diego, USA, October 2014 – flagship conference of IEEE SMC Society (IEEE SMC 2014). Paper: Vikram Shenoy and A. P. Vinod, "An Iterative Optimization Technique for Robust Channel Selection in Motor Imagery based Brain Computer Interface".
- **Ph.D. Student, Sumedh Somanath Dhabu, won the Young Scientist Award** in the the 31st General Assembly of the International Union of Radio Science (URSI General Assembly), Beijing, China, August 16-23, 2014.
- **Ph.D, Student, Abhishek Ambede, won the Best Speaker Award in IEEE Circuits and Systems Society Graduate Students Workshop** held on 10 December 2015 in Singapore.
- **Ph.D. Student, Neethu Robinson, won the bronze medal in the best speaker competition: My research in 3 minutes"** organized by James Cook University Singapore Campus, 2014.
- **Final Year Project Student, Alvin Khong, won the International Undergraduate Award** (Highly commended in the category of Computer Sciences & Information Technology) for his Final Year Project on Brain-Computer Interface based Game for Enhancing Cognition, in 2014. The Undergraduate Awards is the world's largest academic awards programme. The Award is sponsored by Higher Education Authority of Ireland, Department for Employment & Learning (UK), Google and Digicel.

C. Supervision of Post-Doctoral Research Fellows (Sole Supervisor):

Post-Doctoral Research Fellow Supervision (Completed Projects):

No.	Name	Duration	Project Title and grant amount	Funding Organization
1	Dr. Mahesh R.	Sep. 2008 – Oct. 2009 Nov. 2009 - Sep. 2010	Development of a Real Time Spectral Analysis and Filtering System Based on Lyrtech Small Form Factor Software Radio, $64,000 Low Complexity Dynamically Reconfigurable Signal Processing for Cognitive Radios, $687,520	DSO National Labs, Ministry of Defence, Singapore Ministry of Education, Singapore, Academic Research Fund (AcRF Tier 2)
2	Dr. Smitha K. G.	Nov. 2009 – Dec. 2011	Low Complexity Dynamically Reconfigurable Signal Processing for Cognitive Radios, $687,520	Ministry of Education, Singapore, Academic Research Fund (AcRF Tier 2)
3	Dr. Smitha K. G.	Jan. 2012 - April 2013	CAPESR: Development of an Assistive Device for Autistic Children Impaired Recognition of Facial Emotion, $99,000	Ministry of Education, Singapore, Academic Research Fund (AcRF Tier 1)
4	Dr. Kavitha Thomas	Nov. 2011- Oct. 2014	Brain Wave Driven Computer Game: A Pedagogical Tool for Attention-Deficit Children, $175,000	Singapore Millennium Foundation (SMF)

5	Dr. Rajendra Prasad	Jan. 2014-Jan. 2017	Dynamic Spectrum Access Enabled Cognitive Radio based Sustainable Air-to-Ground Communication System, $564,000	Civil Aviation Authority of Singapore (CAAS)
6	Dr. Abhishek Ambede	Jan. 2014-Jan. 2017	Dynamic Spectrum Access Enabled Cognitive Radio based Sustainable Air-to-Ground Communication System, $564,000	Civil Aviation Authority of Singapore (CAAS)
7	Dr. Kavitha P. Thomas	March 2015 – Feb 2017	Electroencephalogram-based Hybrid Brain-Computer Interface System for Biometric Identification ($100,000)	Ministry of Education, Singapore (AcRF Tier 1)
8	Dr. Shreejith Shanker	March 2014 – Feb 2017	Enabling the Internet of Things Through New Hybrid Radio Architectures	Ministry of Education, Singapore (AcRF Tier 1)
9	Dr. Kavitha Thomas	Aug 2016 – July 2019	Decoding of Imagined Hand Movement Kinematics using Brain-Computer Interface ($576,545)	Ministry of Education, Singapore (AcRF Tier 2)
10	Dr. Neethu Robinson	Aug 2016 – Aug 2018	Decoding of Imagined Hand Movement Kinematics using Brain-Computer Interface ($576,545)	Ministry of Education, Singapore (AcRF Tier 2)

Post-Doctoral Research Fellow Supervision (On-going Projects):

No.	Name	Duration	Project Title and Grant Amount (S$)	Funding Organization
1	Dr. Benzy V. K.	September 2018 - Present	A Multimodal Brain-Machine Interface-based Neuro-enhancement System for Retarding the decline of Cognitive and Motor functions in the early-stages of Dementia, Stroke and Parkinson's Disease patients (INR 70,00000)	Department of Science and Technology, Govt of India
2	Dr. Sandra K. R.	July 2020 - Present	A Multimodal Brain-Machine Interface-based Neuro-enhancement System for Retarding the decline of Cognitive and Motor functions in the early-stages of Dementia, Stroke and Parkinson's Disease patients (INR 70,00000)	Department of Science and Technology, Govt of India

D. Graduate Research Student Supervision:

Number of Graduated Ph.D. Students: 17

No.	Name	Year of graduation	Thesis Title	Current Employment	Role
1	Mane Ravikiran	2020	Brain Computer Interface for Post-Stroke Motor Rehabilitation	Research Scientist, BioMind Singapore	Main Supervisor
2	Libin Mathew	2020	Spectrum Sensing for Air-to-ground Communications	Research Engineer, Panasonic Singapore	Main Supervisor
3	Tushar Chouhan	2020	Networks based Brain Computer Interfaces for	Research Fellow, NTU, Singapore	Sole Supervisor

			Decoding Neurophysiological Dynamics		
4	Syed Naveen Altaf Ahmed	2018	Hardware Efficient Algorithms and Architectures for Burst Communications in Cognitive Radios	Principal Research Engineer, Institute for Infocomm Research, Singapore |	Sole Supervisor
5	Vikram Shenoy	2017	Neural Signal Processing for Brain Computer Interfaces	Research Assistant Professor, Rutgers New Jersey Medical School	Main Supervisor
6	Abhishek Ambede	2016	Design of Low Complexity Variable Digital Filters and Filter Banks for Software Defined Radio Receivers	Research Engineer, Ericsson, Stockholm, Sweden	Sole Supervisor
7	Sumedh Dhabu	2016	Design and Implementation of Digital Filters with Very High Frequency Response Flexibility for Multi-Standard Wireless Communication Receivers	Research Engineer, Ericsson, Stockholm, Sweden	Sole Supervisor
8	Neethu Robinson	2015	Signal Processing Techniques for Motor Control Brain Computer Interface Systems	Research Fellow, NTU	Main Supervisor
9	Narendar Madhavan	2014	Physical layer Algorithms and Architectures for Accurate Detection and Classification in Cognitive Radios	Senior Research Engineer, Ericsson, Stockholm, Sweden	Main Supervisor
10	Sumit Darak Jagdish	2013	Design of Low Complexity Variable Digital Filters and Reconfigurable Filter Banks for Multi-standard Wireless Communication Receivers	Associate Professor, Indian Institute of Information Technology (IIIT), Delhi	Sole Supervisor
11	Lin Mengda	2012	Design and Implementation of a Low Power Wireless Communication Channelizer and Signal Detector	Research Fellow, Singapore Institute of Manufacturing Technology, A*STAR	Sole Supervisor
12	Navin Michael	2011	Design of a Low Power, Reconfigurable Digital Front-end for a Multi-mode Software Defined Radio Handset	Research Fellow, Singapore Institute of Clinical Sciences, Singapore	Sole Supervisor
13	Kavitha P. Thomas	2011	Efficient EEG Frequency Band Selection Techniques for a Robust Motor Imagery based Brain-Computer Interface	Senior Research Fellow, NTU, Singapore	Main Supervisor

14	Jijajia Chen		New Design Methodologies for Low-complexity FIR Filters	Senior Lecturer, Singapore University of Technology and Design	Co-Supervisor
15	Smitha K.G.	2010	Low Power and High Speed Digital Filters for Wireless Communication Receivers	Lecturer, NTU, Singapore	Sole Supervisor
16	Mahesh R.	2009	Reconfigurable Low Complexity Digital Filter banks for Software Radio Receivers	Assistant Professor, Indian Institute of Technology Palakkad, India	Sole Supervisor
17	Huang Beilei	2008	Sampling Theory for Non-Bandlimited Signals and Its Applications	Senior Research Fellow, Red Rock Consulting, Wellington, New Zealand	Co-Supervisor

Graduated Master of Engineering (By Research) Student: 1

No.	Name	Year of graduation	Thesis Title	Current Employment	Role
1	Prashob R.	2012	A Fast Algorithm for Spectrum Sensing in Cognitive Radios	Senior Research Engineer, Toshiba, Tokyo, Japan	Sole Supervisor

Ph.D. Students Presently Supervising: 3

No.	Name	Year of Commencement	Thesis Title	Current Status
1	Jijomon C M	July 2017	EEG-based Biometric Identification	Progressing (IIT Palakkad, India)
2	Praveen Kumar	January 2018	Detection of Error-related Potential in Brain Computer Interface Systems.	Progressing (IIT Palakkad, India)
3	Sagila Gangadharan	August 2020	Decoding Motor Imagery Hand Movement Kinematics using Brain-Computer Interface	Progressing (IIT Palakkad, India)

E. Courses Currently Teaching (in Hong Kong University of Science and Technology)

- Electro-Robot Design (First Year B. Engg)
- Introduction to Embedded Systems (Third Year B. Engg)

F. Courses Taught in Past Years

IIT, India:

- Digital Signal Processing
- Biomedical Instrumentation and Signal Processing
- Digital Systems

NTU, Singapore:

- Electronics I (Basic Electrical & Electronics), Tutorial, Laboratory
- Digital Signal Processing: Lecture, Tutorial, Laboratory
- Electronics II (Analog Electronics): Lecture, Tutorial, Laboratory
- Digital Signal Processing (Lecture, Tutorial and Laboratory)
- Introduction to Computing (Computing Minor): Lecture, Tutorial, Laboratory
- Sensors, Interfacing and Control: Lecture (class size 150), Tutorial, Laboratory, Course Coordinator.
- Circuits and Signal Analysis: Lecture, Tutorial and Laboratory
- Digital Logic: Tutorial and Laboratory

G. New Courses Developed:

- Biomedical Instrumentation and Signal Processing (Technical Elective Course in IIT Palakkad)
- Sensors, Interfacing and Control: Developed Lecture notes, Tutorials and Lab Manual, a new third year course introduced in 2012/2013 according to the revised B.Eng. (Computer Eng.) curriculum.
- Instrumentation & Data Acquisition: Developed Lecture notes, Tutorials and Lab Manual of CPE 208, a new second year course introduced in 2004/2005 according to the revised B.Eng. (Computer Eng.) curriculum. The course materials have been revised thrice subsequently.
- Electronics-II: Developed Lecture notes and Tutorials of SC106, a revised first year course in 2003/2004 according to the revised B.Eng. (Computer Eng.) curriculum.

H. Teaching Feedback Score by Students

Year	Lecture	Tutorial
IIT Palakkad, India (Overall rating out of 10)		
2019/2020	8.74	
2018/2019	9.1	
2017/2018	9.0	
NTU Singapore (Overall rating out of 100)		
2015/2016	90.40 (School Mean: 79.80)	**94.80** (School Mean: 80.00)
2014/2015	**93.60** (School Mean: 80.21)	**94.80** (School Mean: 82.90)
2013/2014	**96.66 (**School Mean: 80.67)	**98.00** (School Mean: 83.96)
2012/2013	**92.37 (**School Mean: 80.42)	**92.34** (School Mean: 82.85)
2011	**95.43** (School Mean: 80.35)	**94.29** (School Mean: 83.66)
2010	**95.69** (School mean: 82.41)	**93.80** (School Mean: 84.49)
2009	**95.06** (School Mean: 83.48)	**97.80** (School Mean: 83.78)

5. RESEARCH

A. Research Interests:

- Embedded Digital Signal Processing (DSP) for Wireless Communications
- Brain-Machine Interface / Human-Machine Systems and its applications in Neurofeedback, Neurorehabilitation, Assistive Technology, Biometric Identification,

Brain Fingerprinting, Advanced Driver Assistance Systems, Mental Workload & Stress evaluation, Cognitive Performance Training.
- Biomedical Signal Processing and Machine Learning

B. Publications: Please refer **Pages 16-31** for detailed list of publications.

- Published **266 papers** in international refereed journals and international conferences.
- **Number of Journal Papers**: **87, Number of International Conference Papers**: **179**

C. Research Grants:

On-going (Active) Research Grants:

No.	Amount (INR)	Title	Funding Organization	Duration	Role
1	35,00000	Technology Development for Combating Covid-19	Federal Bank Limited, India	April 2020-March 2021	**PI**
2	70,00000	A Multimodal Brain Machine Interface-based Neuroenhancement System for Retarding the Decline of Cognitive and Motor Functions in the Early Stages of Dementia, Stroke and Parkinson's Disease Patients	Department of Science & Technology, Govt. of India	Jan 2019 – Dec 2022	**PI**
3	13,80,000	Brain Machine Interface based Assistive and Rehabilitation Technology	GadgEon Smart Systems Pvt Ltd., Kochi, India	Nov 2019 – Oct 2021	**PI**
4	12,00000	EEG-based Driver Drowsiness Detection	UVJ Technologies Pvt Ltd., Kochi, India	Jan 2019 – Feb 2021	**PI**

Past (Completed) Research Grants as PI:

No.	Amount (S$)	Title	Funding Organization	Duration	Role
1	576,545	Decoding of Imagined Hand Movement Kinematics using Brain-Computer Interface	Ministry of Education, Singapore	Aug. 2016 – July 2019	**PI**
2	100,000	Electroencephalogram-based Hybrid Brain-Computer Interface System for Biometric Identification	Ministry of Education, Singapore	1 March 2015 – 28 Feb 2017	**PI**
3	564,000	Dynamic Spectrum Access Enabled Cognitive Radio based Sustainable Air-to-Ground Communication System	Civil Aviation Authority of Singapore (CAAS)	Jan. 2014 - Jan. 2017	**PI**
4	183,295	Enabling the Internet of Things Through New Hybrid Radio Architectures	Ministry of Education, Singapore	March 2014 – February 2017	**PI**

5	175,000	Brain Wave Driven Computer Game: A Pedagogical Tool for Attention-Deficit Children	Singapore Millennium Foundation (SMF)	Nov. 2011 – Oct. 2014	**PI**
6	99,000	CAPESR: Development of an Assistive Device for Autistic Children Impaired Recognition of Facial Emotion	Ministry of Education, Singapore, Academic Research Fund, AcRF Tier 1	Mar. 2011- Mar. 2013	**PI**
7	687,520	Low Complexity Dynamically Reconfigurable Signal Processing for Cognitive Radios	Ministry of Education, Singapore, Academic Research Fund, AcRF Tier 2	Nov. 2008 - Aug. 2012	**PI**
8	182,748	Advanced Baseband Algorithms and Low Power Implementations for Wireless Communications	European Aeronautic Defence & Space Company (EADS) Singapore Pte. Ltd.	Aug. 2008 - Aug. 2012	**PI**
9	24,000	Low Power Adaptive Spectrum Detection Technique for Cognitive Radio Applications	European Aeronautic Defence & Space (EADS) Singapore Pte. Ltd.	Jan. 2010 - Dec. 2011	**PI**
10	33,000	Design Methodology for Reconfigurable Low Power Software Defined Radio Handset	Merlion PhD Grant, Dossier No.: 9.03.07, France-Singapore Cooperation Platform in Science & Technology	July 2007- June 2011	**PI**
11	50,000	Design and Implementation of a low power wireless communication channelizer	Ministry of Defence, Singapore	Jan. 2008 – Dec. 2010	**PI**
12	64,000	Development of a Real Time Spectral Analysis and Filtering System Based on Lyrtech Small Form Factor Software Radio	DSO National Labs, Ministry of Defence, Singapore	Sep. 2008 - Oct. 2009	**PI**
13	30,000	An Architectural Framework for Dynamically Reconfigurable Low Power Software Defined Radio Handset	Merlion Project Grant, Dossier No.: 9.03.07, France-Singapore Cooperation Platform in Science & Technology	July 2007- June 2009	**PI**
14	64,514	Low Power Reconfigurable Receiver Architectures for Migrating Software Defined Radio Technology from Base Stations to Handsets	Ministry of Education, Singapore, Academic Research Fund, AcRF Tier 1	Nov.2005 - Aug. 2008	**PI**
15	46,000	EEG Signal Processing for Brain-Computer Interface	University Start-up Grant	March 2006 - Feb. 2008	**PI**
16	5000	Residue Number System-Based Reconfigurable Mesh for High-Performance Fault Tolerant Grid Computing	British High Commission Singapore, Federation of Commonwealth Offices (Travel grant)	2006	**PI**

Past (Completed) Research Grants as Co-Investigator:

No.	Amount (S$)	Title	Funding Organization	Duration	Role
1	548,828	**Interference Management for Emerging Satellite Communication Networks**	Astrium Innova	Feb. 2016 – Feb. 2018	**Co-PI**
2	147,000	Algorithms for scalable cooperative communication of multi-hop relay network in a distributed environment	Ministry of Education, Singapore, Academic Research Fund, AcRF Tier 1	Mar. 2009 – Jul. 2012	Co-investigator
3	54,194	VLSI-Efficient Algorithms and Architectures for Real-Time Face Recognition in Biometric-Based Security Systems	Ministry of Education, Singapore, Academic Research Fund, AcRF Tier 1	Oct. 2006 - Aug.2009.	Co-investigator

D. Research Awards:

1. Award for the Most Active Technical Committee Award in Human-Machine Systems' of IEEE Systems, Man and Cybernetics Society in 2016.
2. Tan Chin Tuan Fellowship in Engineering, Singapore, Awarded for **Visiting Associate Professorship in University of British Columbia, Canada (June-July 2013).**
3. Research Outstanding and Recognition (ROAR) Award, 1 PhD Scholarship ($150,000), Office of Research, NTU, 2006.
4. ROAR Award, 1 PhD Scholarship ($150,000), Office of Research, NTU, 2005.

6. SERVICE

A. Service to the University (Administrative Appointments):

Dean (Industry Collaboration & Sponsored Research), Indian Institute of Technology Palakkad, India (April 2018 – October 2020)

Head, Electrical Engineering Department, Indian Institute of Technology Palakkad, India (November 2017 – November 2020)

Senate Member, Indian Institute of Technology Palakkad, India (October 2017 – Nov 2020)

Board of Research Member, Indian Institute of Technology Palakkad, India (July 2018 – October 2020)

Assistant Chair (Students), School of Computer Science and Engg., NTU Singapore, May 2016 – May 2018

University Senate Member, NTU Singapore, June 016 – May 2018

University Team Leader, India Outreach (PhD), NTU Singapore, June 2012-31 May 2016

University Teaching Council Member, NTU Singapore, November 2012 – October 2016

University Research Council Member, NTU Singapore, June 2012 – May 2017

Faculty Search Committee Chair (Digital Systems & Cyber physical Systems), SCE, NTU Singapore, June 2013 - May 2017

Research Coordinator - Hardware and Embedded Systems Group, SCE, NTU, Jan. 2013 – Present

Subject Area Group Leader, Embedded Systems, NTU Singapore

School Curriculum Management Committee, NTU Singapore

Chairman, Student Outreach Committee (Undergraduate), SCE, NTU Singapore, July 2007 – June 2013

- Planning and Coordination of SCE student outreach activities.
- Deliver Career Talks at Open Houses
- Deliver Technical Talks at Polytechnics and Junior Colleges.
- Represent the School/University in Open Houses.
- Active participation in Outreach Meeting organized by Associate Dean (College of Engineering), giving suggestions and feedbacks on outreach activities.
- Proactive in formulating new initiatives to enhance linkage with Polytechnics and Junior Colleges.

Member, Research Performance Benchmarking Committee, SCE, NTU Singapore, 2008-2009

Graduate Student Liaison faculty-in-Charge, School of Computer Engineering, NTU Singapore, June 2005 – Jan. 2007

***B*. Editorial Board Memberships and Guest Editorships:**

- **Associate Editor,** *IEEE Transactions on Human-Machine Systems,* October 2014 – Present
- **Associate Editor,** *IEEE Transactions on Neural Systems & Rehabilitation Engineering,* January 2020 – Present
- **Associate Editor,** *IEEE Transactions on Cognitive and Developmental Systems*, January 2021 – Present
- **Associate Editor,** *IEEE Systems Man & Cybernetics Magazine,* September 2019 - Present
- **Associate Editor,** *Circuits, Systems & Signal Processing Journal (Springer)*, January 2013 – Present
- **Associate Editor,** *Frontiers in Neurorobotics,* January 2021 – Present
- **Guest Editor,** Special Issue on Electronic System Design, *Journal of Circuits, Systems and Signal Processing, Springer,* Publication: October 2013
- **Lead Guest Editor,** Special Issue on Embedded Signal Processing Circuits and Systems for Cognitive Radio, *Journal of Circuits, Systems and Signal Processing, Springer,* Publication: December 2010.
- **Lead Guest Editor,** Special Issue on Signal Processing for Software Defined Radio, *Journal of Signal Processing Systems (*Formerly, *Journal of VLSI Signal Processing), Springer,* Published in November 2009.

C. Invited Keynote Talks and Tutorials Delivered in Flagship IEEE International Conferences:

- Keynote Talk (Inaugural), 10th IEEE International Conference on Awareness Science & Technology (iCAST 2019), October 23, 2019, Morioka, Japan, http://www.chishiki.soft.iwate-pu.ac.jp/icast2019/plenary_speakers.html

- Keynote Talk (Inaugural), IEEE Region 10 Conference (IEEE TENCON 2019), October 18, 2019, Kochi, India, https://www.tencon2019.org/speakers.html

- Keynote Talk (Inaugural), IEEE INDICON 2018, December 2018, Amrita University, Coimbatore, India, http://117.240.224.8/indicon2018/Assets/keynote.pdf

- Invited talk on Brain-Computer Interface Systems Research in 'Sensing: From Minds to Machines Conference' organized by Israel Science Foundation and Ben-Gurion University of the Negev, Israel, May 29-June 1, 2016,

- "Brain-computer interface systems – Overview, design challenges and applications", IEEE International Conference on Systems, Man and Cybernetics (SMC 2015), Oct. 2015, Hong Kong, http://www.smc2015.org/tutorials

- "Brain-Machine Interaction: From neural decoding to real world applications", IEEE International Conference on Systems, Man and Cybernetics (SMC 2014), Oct. 2014, San Diego, USA, http://smc2014.org/node/68

D. Service to Professional Bodies:

- **Technical Co-Chair, Brain-Machine Interface Systems, IEEE Systems, Man & Cybernetics Society, 2014 - 2018:** http://www.ieeesmc.org/technical-activities/human-machine-systems/brain-machine-interface-systems
- **Workshop Organizer,** Brain-Machine Interface Systems, IEEE International Conference on Systems, Man and Cybernetics (SMC 2016), Oct. 2016, Budapest, Hungary, https://documents.epfl.ch/users/c/ch/chavarri/www/IEEESMC2016_BMI/files/IEEE_SMC2016_CFP_BMI_Workshop.pdf
- **Workshop Organizer,** Brain-Machine Interface Systems, IEEE International Conference on Systems, Man and Cybernetics (SMC 2015), Oct. 2015, Hong Kong, http://www.smc2015.org/workshops
- **Workshop Organizer,** Brain-Machine Interface Systems, IEEE International Conference on Systems, Man and Cybernetics (SMC 2014), Oct. 2014, San Diego, USA, http://ieeexplore.ieee.org/stamp/stamp.jsp?arnumber=6973872
- **General Chair,** *International Symposium of Electronic System Design, ISED 2013,* 12-14 December 2013, Singapore.
- **General Chair,** The third IEEE International Conference on Advances in Computing and Communications (ACC-2013), Aug. 2013, Kochi, India
- **General Chair,** The second International Conference on Advances in Computing and Communications (ACC-2012)**,** Aug. 2012, Kochi, India
- **Program Chair,** *International Symposium of Electronic System Design, ISED 2011,* 19-21 December 2011, Kochi, India.

- **Sub-Track Chair,** *'Signal Processing Architectures for Communications',* 54th IEEE Midwest Symposium on Circuits & Systems, Aug. 2011, Seoul, South Korea.
- **Special Session Organizer,** *'Signal Processing for Software Defined and Cognitive Radios',* 54th IEEE Midwest Symposium on Circuits & Systems, Aug. 2011, Seoul, South Korea.
- **Special Session Organizer,** *"Signal Processing Advances for Cognitive Radio", 2011 URSI (International Union of Radio Science) General Assembly and Scientific Symposium,* Istanbul, Turkey, August 13-20, 2011.
- Technical Program Committee Member (TPC), *IEEE International Conference on Communications Systems,* Nov. 2012, Singapore.
- TPC, *6th International ICST Conference on Communications and Networking in China (CHINACOM),* Aug. 17-19 2011, Harbin, China.
- TPC, *IEEE International Conference on Communications Systems,* Nov. 2010, Singapore.
- TPC, IEEE International Conference on Communication and Signal Processing, Feb. 2011, Calicut, India.
- TPC, *IEEE International Symposium on Electronic System Design,* Dec. 2010, Bhubaneswar, India.
- TPC, *Sixth Advanced International Conference on Telecommunications* May 9 - 15, 2010, Barcelona, Spain.
- TPC, *IEEE Region 10 Conference (TENCON),* Singapore, November 2009.
- TPC, *IEEE International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC),* Tokyo, Japan, September 2009.
- International Advisory Committee, *1st IEEE International Conference on Computer, Communication, Control and Information Technology,* Hoogly, West Bengal, India, February 2009.
- TPC, IEEE *International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC),* Cannes, France, September 2008.
- TPC, *11th IEEE International Conference on Communication Systems* Guangzhou, China, November 2008.
- TPC, *16th International Conference on Advanced Computing & Communication,* Chennai, India, December 14-17 2008.
- TPC, *National Conference on Communication Systems and Networking*, Guna, Madhya Pradesh, India, March 2008.
- TPC, 15th *IEEE International Conference on Advanced Computing & Communication,* Guwahati, India, December 2007.
- TPC, *IEEE International Conference on Communications, Circuits and Systems,* Fukuoka, Japan, August 2007.
- TPC, *Mosharaka International Conference on Communication and Information Technology,* Amman, Jordan, December 2007.
- **Organizer,** Special Session on Constraint-driven Hardware for Digital Signal Processing, *IEEE Asia Pacific Conference on Circuits and Systems,* Singapore, December 2006.
- **Organizer,** Special Session on Resource-Constraint DSP Hardware for Digital Communication Applications, *Tenth IEEE International Conference on Communication Systems,* Singapore, 30 Oct.-2 Nov. 2006.
- TPC, *IEEE International Conference on Communications Circuits and Systems,* Gui Lin, China, June 25-28, 2006.
- **Workshop Chair,** Future Computing, *International Multi-conference in Computer Science and Computer Engineering (CSREA),* Las Vegas, USA, June 2006.
- **Publicity Chair,** Tenth *Asia-Pacific Computer Systems Architecture Conference,* Singapore, October 24-27, 2005.

- Session Chair, Communication Receiver Design, *IEEE International Symposium on Circuits and Systems,* Kobe, Japan, May 2005.
- Organizing Committee Member, *International Conference on Signal Processing,* Istanbul, Turkey, 2004.

7. EXPERIENCE PRIOR TO JOINING NTU SINGAPORE:

A. Previous Teaching Experience

Courses taught in Singapore Polytechnic as a full-time Lecturer:

- Digital Electronics (Lecture, Tutorial, Lab)
- Digital Signal Processing (Tutorial, Lab)
- Structured Programming (Tutorial, Lab)
- Multimedia DIGITAL Signal Processing (Lecture, Tutorial, Lab)
- Advanced Digital Signal Processing (Lecture, Lab)

Curriculum Development and Related Activities during Lectureship in Singapore Polytechnic:

- Involved in the curriculum development of a new course on *Digital Signal Processing* for a new Diploma course in Multimedia DSP.
- Set up a lab and developed the lab experiments for above course.
- Lecturer-in-charge of Multimedia Laboratory.
- Team Member, Singapore Polytechnic, in obtaining the award of the Singapore Quality Class, the ISO 9001:2000 and the People Developer (2001).

B. Previous Industry Experience

June 1997 – September 1998: Instrumentation Engineer, Radiant Instrument and Electrical Engineering, Singapore (C/o Shell Singapore), Responsibilities include:

- Distributed Control System (DCS) based plant instrumentation maintenance.
- Programming and Troubleshooting of Programmable Logic Controllers (PLC).

June 1996-March 1997: Project Engineer, Kirloskar AAF Ltd., Bangalore, India, Responsibilities include:

- Instrumentation and control systems design engineering.
- Design of microprocessor based instrumentation systems for chemical plants, refineries, steel plants and pharmaceuticals.
- Programming, Installation, and Troubleshooting of PLCs – Siemens, Honeywell, Allen Bradley and Messung Systems.

November 1995-May 1996: Project Engineer (Industrial Automation) Tata Honeywell, Pune, India, Responsibilities include:

- Programming, Testing, and Commissioning of Honeywell PLCs.
- Developing Supervisory Computer Aided Data Acquisition (SCADA) systems for instrumentation and control systems of process plants.

October 1993-November 1995: Instrumentation Engineer, Kirloskar Snydergeneral Ltd., Bangalore, India, Responsibilities include:

- Installation, testing and commissioning of microprocessor based instrumentation systems.

PUBLICATIONS

- Published **266 papers** in international refereed journals and international conferences.
- **Number of Journal Papers**: **87**

Google scholar Citation: 3807, h-index: 32 (as at 21 April 2021)
Scopus Citation: 2584, h-index: 26 (as at 21 April 2021)

Book Chapter

1. Kavitha P. Thomas and **A. P. Vinod**, "Neurofeedback games using EEG-based brain–computer interface technology," The Institution of Engineering and Technology (IET), United Kingdom, 2018, Book Name: Signal Processing and Machine Learning for Brain-Machine Interfaces, DOI: 10.1049/PBCE114E.
2. P. K. Meher, C. H. Chang, O. Gustafsson, **A. P. Vinod,** and M. Faust, "Shift-add circuits for constant multiplications," in *Arithmetic Circuits for DSP Applications*, Wiley-IEEE Press, 2015.

Refereed Journals

87. Neethu Robinson, Kavitha Thomas and **A. P. Vinod,** "Separability of Motor Imagery Directions Using Subject-Specific Discriminative EEG Features," *IEEE Transactions on Human Machine Systems*, Accepted in April 2021.
86. Praveen Kumar and **A. P. Vinod,** "Single Trial Detection of EEG Error-Related Potentials using Modified Power-Law Transformation," *Biomedical Signal Processing and Control*, vol. 67, May 2021, https://doi.org/10.1016/j.bspc.2021.102563
85. Arish S., Smitha K. G., Sharad Sinha and **A. P. Vinod**, "A Survey of Algorithmic and Hardware Optimization Techniques for Vision Convolutional Neural Networks on FPGAs," *Neural Processing Letters*, April 2021, https://doi.org/10.1007/s11063-021-10458-1.
84. N. Agrawal, Abhishek Ambede, Sumit Darak, **A. P. Vinod** and A. S. Madhukumar, "Design and Implementation of Low Complexity Reconfigurable Filtered-OFDM based LDACS", *IEEE Transactions on Circuits and Systems II*, doi: 10.1109/TCSII.2021.3053367, January 2021.
83. V K Benzy, **A. P. Vinod**, Subasree R, Suvarna Alladi and Raghavendra R., "Motor Imagery Hand movement Direction Decoding Using Brain Computer Interface to Aid Stroke Recovery and Rehabilitation," *IEEE Transactions on Neural Systems and Rehabilitation Engineering*, Accepted for publication in November 2020, doi: 10.1109/TNSRE.2020.3039331.
82. C. M. Jijomon and **A. P. Vinod**, "EEG-Based Biometric Identification using Frequency-Weighted Power Feature," *IET Biometrics*, vol. 9, no. 6, pp. 251-258, November 2020 (Impact Factor: 2.092).
81. Libin K. Mathew, Sreejith Shankar, **A. P. Vinod** and A. S. Madhukumar, "A Power-efficient Spectrum Sensing Scheme using One-bit Quantizer and Modified Filter Banks," *IEEE Transactions on Very Large Scale Integrated Systems*, vol. 28, no. 9, pp. 2074-2078, Sept. 2020.
80. Libin K. Mathew, **A. P. Vinod** and A. S. Madhukumar, "An Adaptive Energy Detection Scheme with Real-Time Noise Variance Estimation, "Circuits, Systems and Signal Processing Journal (Springer), 39, 2623–2647, May 2020.
79. Ravikiran Mane, Effie Chew, K. S. Phua, K. K. Ang, Neethu Robinson, **A. P. Vinod** and Cuntai Guan, "Prognostic and Monitory EEG-Biomarkers for BCI Upper-limb Stroke Rehabilitation," *IEEE Transactions on Neural Systems and Rehabilitation Engineering*, PP(99):1-1, June 2019.
78. Neethu Robinson, Kavitha Thomas and **A. P. Vinod**, "Neurophysiological predictors and spectro-spatial discriminative features for enhancing SMR-BCI," *Journal of Neural Engineering*, 15(6):066032, December 2018 (Impact Factor – 3.92).
77. Tushar Chouhan, Neethu Robinson, **A. P. Vinod**, Ang Kai Keng and Guan Cuntai, "Wavelet phase-locking based binary classification of hand movement directions from EEG," *Journal of Neural Engineering*, 15(6):066008, December 2018 (Impact Factor – 3.92).

76. Shreejith Shanker, Libin Mathew, **A. P. Vinod** and Suhaib Fahmy, "Efficient spectrum sensing for aeronautical LDACS using low-power correlators", *IEEE Transactions on Very Large Scale Integrated Systems*, vol. 26. no. 8, pp. 1183 - 1191, June 2018.
75. Syed Naveen Altaf Ahmed, Pramod Kumar Meher and **A. P. Vinod**, "Efficient Cross-Correlation Algorithm and Architecture for Robust Synchronization in Frame-based Communication Systems," *Circuits, Systems and Signal Processing (Springer)*, vol. 37, no. 6. pp. 2548 - 2573, June 2018.
74. H. T. Pham, **A. P. Vinod** and A. S. Madhukumar, "A Hardware-Efficient Synchronization in L-DACS1 for Aeronautical Communications," *IEEE Transactions on Very Large Scale Integration Systems*, vol. 6, no. 5, pp. 924 - 932, May 2018.
73. Vikram Shenoy, **A. P. Vinod** and Guan Cuntai, "EEG source imaging of movement decoding: The state-of-the-art and future direction," *IEEE Systems, Man, and Cybernetics Magazine*, vol. 4, no. 2, pp. 14 - 23, April 2018.
72. Kavitha P. Thomas and **A.P.Vinod**, "EEG based Biometric Authentication Using Gamma Band Power during Rest State," *Circuits, Systems and Signal Processing (Springer)*, vol. 37. no. 1, pp. 277 - 289, January 2018.
71. Ravi Suppiah and **A.P.Vinod**, "Biometric Identification using Single Channel EEG During Relaxed Resting State," *IET Biometrics*, DOI: 10.1049/iet-bmt.2017.0142, October 2017.
70. Vikram Shenoy Handiru, **A.P.Vinod** and Guan Cuntai "EEG Source Space Analysis of Supervised Factor Analytic Approach for the Classification of Multi-directional Arm Movement," *Journal of Neural Engineering*, 14(4):046008, DOI: 10.1088/1741-2552/aa6baf.
69. Kavitha P. Thomas and **A.P.Vinod**, "Toward EEG based Biometric Systems: The Great Potential of Brain-wave based Biometric Systems," *IEEE Systems, Man, and Cybernetics Magazine*, vol. 3, no. 4, pp. 6 - 15, October 2017.
68. Sumedh Dhabu and **A.P.Vinod**, "A New Time-Domain Approach for the Design of Variable FIR Filters using the Spectral Parameter Approximation Technique," *Circuits, Systems and Signal Processing (Springer)*, vol. 36, no. 5, pp. 2154 - 2165, May 2017.
67. S. Rajendra Prasad, A S Madhukumar and **A.P.Vinod**, "Diversity Gain Region of Nakagami-m faded Z-Channel," *Circuits, Systems and Signal Processing (Springer)*, vol. 36, no. 5, pp. 2184 - 2197, May 2017.
66. Vikram Shenoy Handiru and **A.P.Vinod**, "Bi-objective optimization approach for EEG channel selection and its effect on cross-subject generalization in motor imagery-based brain-computer interface," *IEEE Transactions on Human Machine Systems*, pp. 777-786, vol. 46, no. 6, December 2016.
65. Neethu Robinson and **A.P.Vinod**, "Non-Invasive Brain-Computer Interface for decoding arm movement kinematics and motor control â€“ Recent Advances, Research Challenges and Future Scope," *IEEE Systems, Man, and Cybernetics Magazine*, vol. 2, no. 4, pp. 4-16, October 2016.
64. Neethu Robinson, A. D. Zaidi, Mohit Rana, **A.P.Vinod**, Guan Cuntai, Niels Birbaumer and Ranganatha Sitaram, "Real-time subject independent pattern classification of overt and covert movements from fNIRS signals," *PLOS ONE*, https://doi.org/10.1371/journal.pone.0159959, July 2016.
63. Ponnu Jacob, Rajendra Prasad, A S Madhukumar and **A.P.Vinod**, "Cognitive radio for aeronautical communications: A survey," *IEEE Access*, vol. 4, pp. 3417 - 3443, May 2016.
62. Abhishek Ambede and **A.P.Vinod**, "Design and implementation of high-speed All Pass Transformation based variable digital filters by breaking the dependency of operating frequency on filter order," *IEEE Transactions on Very Large Scale Integration Systems*, vol. 24, no. 5, pp. 2008 - 2012, May 2016.
61. Neethu Robinson, Cuntai Guan and **A.P.Vinod**, "Adaptive estimation of hand movement trajectory in an EEG based brain-computer interface system," *Journal of Neural Engineering*, vol. 12, no. 6, October 2015.
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57. Smitha K. G. and **A. P. Vinod,** "Facial emotion recognition system for autistic children - A feasible study based on FPGA implementation," *Medical & Biological Engineering & Computing (Springer),* pp. 1221-1229, vol. 53, no. 11, November 2015.
56. Sumedh Dhabu and **A. P. Vinod**, "Design of modified second order frequency transformations based variable digital filters with large cutoff frequency range and improved transition band characteristics," *IEEE Transactions on Very Large Scale Integration Systems,* pp. 413-420, vol. 24, no. 2, February 2016.
55. Sumit Darak, Sumedh Dhabu, Christophe Moy, Honggang Zhang, Jacques Palicot and **A. P. Vinod**, "Low complexity and efficient dynamic spectrum learning and tunable bandwidth access for heterogeneous decentralized cognitive radio networks," *Digital Signal Processing,* pp. 13-23, vol. 37, February 2015.
54. Sumit Darak, H. Zhang, J. Palicot, **A. P. Vinod** and Christophe Moy**,** "Reconfigurable filter bank with complete control over subband bandwidths for multi-standard wireless communication receivers," *IEEE Transactions on Very Large Scale Integration Systems,* pp. 1772-1782, vol. 23, no. 9, September 2015.
53. Sumedh Dhabu, Smitha K. G. and **A. P. Vinod,** Design of reconfigurable filter bank architecture using improved coefficient decimation-interpolation-masking technique for multi-standard wireless communication receivers," *Journal of Low Power Electronics,* DOI: 10.1166/jolpe.2014.1338, Sep. 2014.
52. Abhishek Ambede, Smitha K. G. and **A. P. Vinod**, "Flexible low complexity uniform and non-uniform digital filter banks with high frequency resolution for multi-standard radios," *IEEE Transactions on Very Large Scale Integration Systems,* pp. 631-641, vol. 23, no. 4, April 2015.
51. Sumit Darak, **A. P. Vinod**, E. M-K. Lai, J. Palicot and H. Zhang, "Linear phase Variable Digital Filter design with unabridged bandwidth control over the Nyquist band," *IEEE Transactions on Circuits & Systems – II,* vol. 61, no. 6, pp. 428-432, June 2014.
50. Abhishek Ambede, Smitha K. G. and **A. P. Vinod**, "A low complexity uniform and non-uniform digital filter bank based on an improved coefficient decimation method for multi-standard communication channelizers," *Circuits, Systems & Signal Processing (Springer),* vol. 32, no. 6, pp. 2543-2557, December 2013.
49. P. K. Meher, Saraju Mohanty and **A. P. Vinod,** "Advanced techniques for efficient electronic system design," Guest Editorial of Special Issue on Electronic System Design, *Circuits, Systems & Signal Processing Journal, Springer,* vol. 32, no. 6, pp. 2539-2541, December 2013.
48. Neethu Robinson, Cuntai Guan, **A. P. Vinod,** A. K. Ang and K. P. Tee, "Multi-class EEG classification of voluntary hand movement directions," *Journal of Neural Engineerin*g, vol. 10, no. 5, October 2013.
47. Navin Michael, **A. P. Vinod,** Christophe Moy and Jacques Palicot, "Design strategy for clocking and runtime parameterization in the channelization accelerator of multi-standard radios," *Journal of Signal Processing Systems (Springer),* DOI: 10.1007/s11265-013-0849-9, September 2013.
46. M. Narendar, **A. P. Vinod**, A. S. Madhukumar and Anoop Kumar Krishna, "A tree-structured DFT filter bank based spectrum detector for estimation of radio channel edge frequencies in cognitive radios," *Physical Communication (Elsevier),* vol. 9, pp. 45-60, December 2013.
45. S. J. Darak, Smitha K. G., **A. P. Vinod** and E. M-K. Lai, "Low complexity reconfigurable fast filter bank for multi-standard wireless receivers," *IEEE Transactions on Very Large Scale Integration Systems,* no. 99, pp. 1, July 2013.
44. M. Narendar, Anoop Kumar Krishna, **A. P. Vinod** and A. S. Madhukumar, "Robust two-stage spectrum sensing and policy management for cognitive radios using fourth order cumulants, *International Journal of Information Engineering (IJIE),* vol. 3, no. 2, pp. 45-55, June 2013.
43. A. Ambede, K. G. Smitha and **A. P. Vinod, "**A new low complexity uniform filter bank based on the improved coefficient decimation method," *Radioengineering Journal,* vol. 22, no. 1, pp. 34-43, April 2013.
42. Neethu Robinson, **A. P. Vinod**, Kai Keng Ang, Tee Keng Peng and Guan Cuntai, "EEG-based classification of fast and slow hand movements using wavelet-CSP algorithm," *IEEE Transactions on Biomedical Engineering,* vol. 60, no. 8, pp. 2123-2132, August 2013.

41. M. Narendar, **A. P. Vinod**, A. S. Madhukumar and Anoop Kumar Krishna, "Spectrum sensing and modulation classification for cognitive radios using cumulants based on fractional lower order statistics," *International Journal of Electronics and Communications (Elsevier),* vol. 67, no. 6, pp. 479-490, June 2013.
40. S. J. Darak, **A. P. Vinod** and E. M-K. Lai, "Efficient implementation of reconfigurable warped digital filters with variable lowpass, highpass, bandpass and bandstop responses," *IEEE Transactions on Very Large Scale Integration Systems,* vol. 21, no. 6, pp. 1165-1169, June 2013.
39. Smitha K. G. and **A. P. Vinod**, "Cluster based power efficient cooperative spectrum sensing under reduced bandwidth using location information," *International Journal of Electronics and Communications (Elsevier),* vol. 66, no. 8, pp. 619-624, August 2012.
38. Prashob R. Nair, **A. P. Vinod**, Smitha K. G. and Anoop Kumar Krishna, "Fast two-stage spectrum detector for cognitive radios in uncertain noise channels," *IET Communications,* vol. 6, no. 11, pp. 1341-1348, July 2012.
37. Mengda Lin and **A. P. Vinod**, "A low complexity high resolution cooperative spectrum sensing scheme for cognitive radios," *Circuits, Systems & Signal Processing (Springer),* vol. 31, no. 3, pp. 1127-1145, June 2012.
36. Navin Michael, **A. P. Vinod**, Christophe Moy and Jacques Palicot, "Design of multistandard channelization accelerators for software defined radio handsets," *IEEE Transactions on Signal Processing,* vol. 59, no. 10, pp. 4767-4780, Oct. 2011.
35. Smitha K. G. and **A. P. Vinod**, "A multi-resolution fast filter bank for spectrum sensing in military radio receivers," *IEEE Transactions on VLSI Systems*, vol. 20, no. 7, pp. 1323-1327, July 2012.
34. R. Mahesh and **A. P. Vinod**, "A low complexity flexible spectrum sensing scheme for mobile cognitive radio terminals," *IEEE Transactions on Circuits & Systems II,* vol. 58, no. 6, pp. 371-375, June 2011.
33. Kavitha P. Thomas, C. T. Guan, Lau Chiew Tong, **A. P. Vinod** and Ang Kai Keng, "Adaptive tracking of discriminative frequency components in EEG for a robust Brain-Computer Interface," *Journal of Neural Engineering,* vol. 8, no. 3, June 2011.
32. **A. P. Vinod**, Edmund M.-K. Lai, Pramod Kumar Meher, Jacques Palicot and Shahriar Mirabbasi, "Guest Editorial of Special Issue on Embedded signal processing circuits and systems for cognitive radio-based wireless communication devices," *Circuits, Systems & Signal Processing Journal, Springer,* vol. 30, no. 4, pp. 683-688, August 2011.
31. S. J. Darak, **A. P. Vinod** and E. M-K. Lai, "A low complexity reconfigurable non-uniform filter bank for channelization in multi-standard wireless communication receivers," *Journal of Signal Processing Systems for Signal, Image and Video Technology, Springer*, vol. 68, no. 1, pp. 95-111, July 2012.
30. Smitha K. G. and **A. P. Vinod**, "A reconfigurable channel filter for software defined radio using RNS," *Journal of Signal Processing Systems for Signal, Image and Video Technology, Springer*, vol. 67, no. 3, pp. 229-237, June 2012.
29. Navin Michael, **A. P. Vinod**, Christophe Moy and Jacques Palicot, "Flexibility and reusability in the digital front-end of cognitive radio terminals," *Circuits, Systems & Signal Processing Journal, Springer,* vol. 30, no. 4, pp. 799-821, August 2011.
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25. R. Mahesh and **A. P. Vinod**, "A reconfigurable low area complexity filter bank architecture based on frequency response masking for non-uniform channelization in software radio receivers," *IEEE Transactions on Aerospace and Electronic Systems,* vol. 47, no. 2, pp. 1241-1255, April 2011.
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21. Kavitha P. Thomas, Cuntai Guan, Lau Chiew Tong, **A. P. Vinod** and Kai Keng Ang, "A New Discriminative Common Spatial Pattern Method for Motor Imagery Brain-Computer Interfaces," *IEEE Transactions on Biomedical Engineering,* vol. 56, no. 11, pp. 2731-2733, November 2009.
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11. R.Mahesh and **A.P.Vinod**, "Reconfigurable frequency response masking filters for software radio channelization," *IEEE Transactions on Circuits & Systems II,* vol. 55. no. 3, pp. 274-278, March 2008.
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9. **A.P.Vinod**, Deepu Rajan and Ankita Singla, "A novel differential pixel-based low power and high-speed implementation of DCT for on-board satellite image processing," *IET Circuits, Devices & Systems,* vol.1, no. 6, pp. 444-450, December 2007.
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Refereed International Conferences

179. Ravikiran Mane, Effie Chew, Karen Chua, Kai Keng Ang, **A. P. Vinod** and Cuntai Guan, "FBCNet: A Filter-Bank Convolutional Neural Network for Motor Imagery BCI in Chronic Stroke Patients," *8th International BCI Meeting 2021,* Brussels, Belgium (Accepted).
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