https;//signalprocessingsociety,org

AGENDA

- Celebrating 75 years of IEEE Signal Processing Society
  IEEE's first society
- Officers of Sweden section SPS chapter
- SPS Members Statistics
- Events
  - Past
  - On Comming
- Discussions

: IEEE SIGNAL PROCESSING SOCIETY
S FIRST SOCIETY

In October 1947, Raymond A. Heising recommended that IEEE – then called the Institute of Radio Engineers (IRE) – imagine a new technical division, called "groups," to address burgeoning interest and focus in emerging areas of audio engineering. This new body would tailor to members' specialized technical interests and respective meeting and publication needs, setting the stage for what we know as IEEE societies today.

irst professional group of the IRE was formed. The Professional Group on Audio became a model for other ganization, demonstrating strength and involvement at local and national levels. In time, the Professional ld evolve into the IEEE Signal Processing Society (SPS) we know today.

EEE's first society – has continued to act as a bastion of innovation and collaboration, connecting a global a discipline that has swelled with the same speed and vigor that demanded its establishment in 1948, driven ated leaders that make it the technical home to nearly 20,000 members today.

of our rich history, and we look forward to celebrating with you with events and activities all year long! Keep or events and details throughout the year. Having a celebration of your own or any ideas of how you can get w us!

WE ARE NOW PART OF THE SPS MOSAIC!

IEEE Sweden SPS Officers

Chair: Dr. Amleset (Amli) Kelati ***amlikelati@ieee.org***
Postdoctoral Researcher (UTU)
IOT based data mining, pattern clustering, and signal classification using ML algorithms, and IP implementation (ASIC /FPGA).

Secretary and Treasurer: Dr. Thomas K. Sjögren
thomas.sjogren@foi.se
Researcher, Swedish Defense Research Agency, Linköping, Sweden

Vice hair: Dr. Elisa H. Barney Smith elisa.barney@ltu.se
Professor, Wallenberg AI, Autonomous Systems and Software Program
Luleå Technical University
Luleå, Sweden

IEEE Signal Processing Society ®

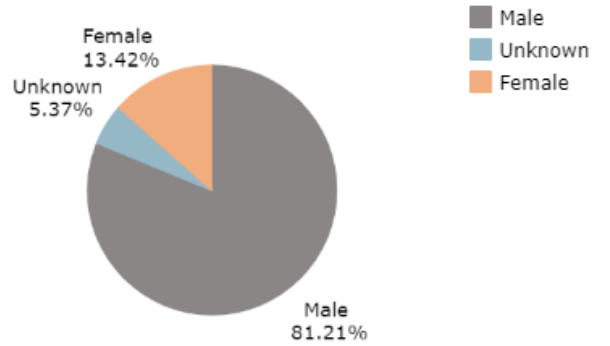
SPS Membership Statistics

Select OU of your Volunteer Role	Region	Section	Grade	IEEE Status	HKN Member
Sweden Section Chapter,SP01	R8	Sweden Section	(All)	Active	(All)

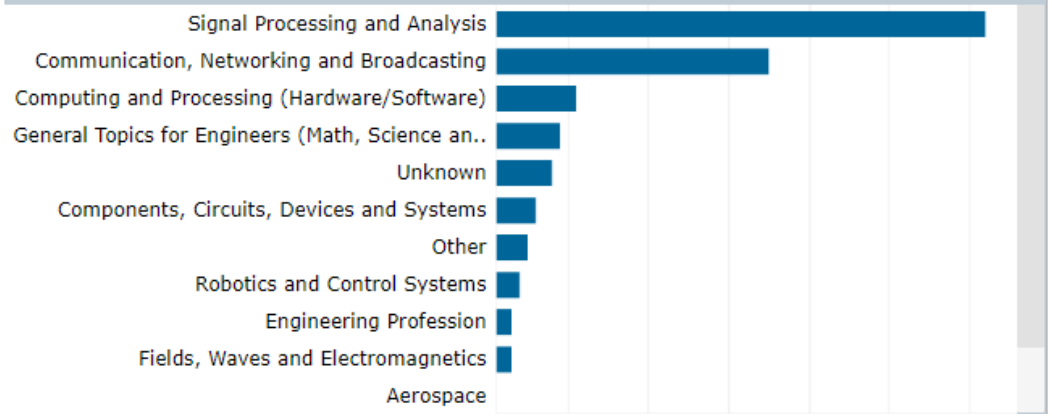
Count by Region and Grade

Region	Council	Section	Grade Category	Grade	Total
R8	Region 8 - No Council	Sweden Section	IEEE Grades	Fellow	4
				Graduate Student Member	31
				Life Fellow	4
				Life Member	7
				Life Senior	7
				Member	54
				Senior Member	40
				Total	147
			Other Grades	Affiliate	2
				Total	2
			Total		149
		Total			149
	Total				149

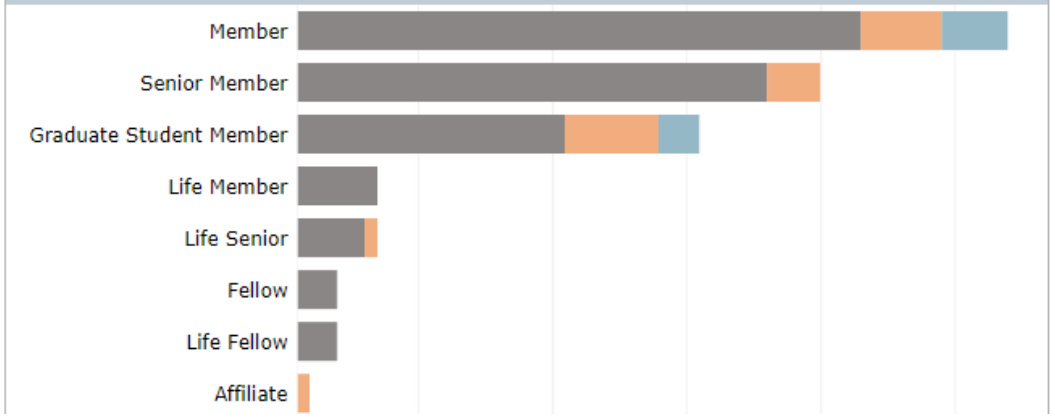
Count by Gender



Count by Technology Focus Area



Count by Grade and Gender



Members SPS Sweden **around** 150

- **Life Members - 8**
- **Fellow member - 5**
- Life fellow member - 4
- Senior Member - 30
- Members- 80
- Life member - 4
- Graduate Student Member - 15

Awards and recognitions

- April 2022 – EEE Signal Processing Society's Sweden Chapter has been awarded Certification valid until the coming five years!
- *This include Scholarship to participate of SPS conferences and events for the officers!*

- 2023, 2022 and 2021 - *SPS Sweden chapter is awarded the amount of $500 for each year on the number of new members.*

IEEE Signal Processing Society ®

RECENT ACTIVITY (2023)

Date: 21 Sep 2023
Time: 06:00 PM to 07:00 PM

ADVANCES IN MMWAVE AND THZ ANTENNAS

#circuits #cmos #design #rf #electronics #system-on-chip #signal #computer #low-powe #tools
#optimization #eda #analog

Tweet Share Share

IEEE
Santa Clara Valley section
Solid-State Circuits Society chapter

Abstract:
Antennas are crucial components of a wireless communication system. Increasing operational frequency results in the miniaturization of the antenna size. Millimeter-wave (mmWave) and terahertz (THz) antennas can thereby be designed on-chip or in a semiconductor package. This talk outlines the key design considerations of mmWave and THz antennas. Trends in antenna integration and comparison of antenna design in applications including 5G, 6G, and radar, will be presented. The talk will conclude with design techniques for improved antenna radiation performance and overall system efficiency.

Biography:
Harshpreet Bakshi received the B.Tech. degree in electronics and telecommunication engineering from Bharati Vidyapeeth University, India, in 2015 followed by the M.S. and Ph.D. degrees in electrical engineering from The University of Texas at Dallas in 2018 and 2022, respectively.

Between 2015 and 2022, he worked at Idea Cellular Ltd., CommScope Inc., Apple Inc., and at the Texas Analog Center of Excellence. He is presently with the Semiconductor Packaging Platform Technology R&D organization at Texas Instruments Inc. His research interests include mmWave and THz antenna design, semiconductor packaging, and system design.

Dr. Bakshi is a Senior Member of the IEEE and serves as a reviewer of several journals and conferences of the IEEE AP-S, MTT-S, and EP-S, and has held leadership positions at the IEEE EP-S Dallas and SSC-S UTD chapters.

IEEE SWEDEN SPS PARTICIPATION FOR 75 ANNIVERSARY OF IEEE SIGNAL PROCESSING SOCIETY

- Women in Signal Processing Luncheon: The IEEE Sweden Signal processing Society and Women in Engineering setup online event to watch the panel discussion of Women In Signal processing Event from IEEE ICIP conference (2023 IEEE International Conference on Image Processing – Women in Signal procesising Professionals Networking Event//2023.ieeeicip.org/young-professionals-networking/). Streaming Event in colabotartion with ICSP conferance
- Young Professionells Luncheon – the IEEE Young Professionals Luncheon at Universitetsklubben in Linköping discuss careers, entrepreneurship, and opportunities in a fun and casual setting. We will celebrate the 75th anniversary of the IEEE Signal Processing Society as well as watch the panel discussion of Young Professionals Networking Event from IEEE ICIP conference (2023 IEEE International Conference on Image Processing - Young Professionals Networking Event//2023.ieeeicip.org/young-professionals-networking/).

Date: 15 Sep 2023
Time: 11:00 AM to 12:00 PM

OVER A CENTURY OF ARRAY SIGNAL PROCESSING IEEE AESS DISTINGUISHED LECTURE: JIAN LI, UNIVERSITY OF FLORIDA

Jian Li of ECE Florida and KTH Digital Futures

Topic: Over a Century of Array Signal Processing

Abstract: Since the introduction of the phased array in 1905 by Karl Braun, a Nobel Laureate, array signal processing has advanced significantly over the past century. The era of the adaptive array was started by Jack Capon, signified by his seminal paper in 1969. The Capon beamformer has better resolution and much better interference rejection capability than the data-independent beamformer by Karl Braun, provided that the array steering vector corresponding to the signal of interest (SOI) and the array covariance matrix is accurately known and the SOI is uncorrelated to all other signals impinging on the array. However, whenever the knowledge of the SOI steering vector is imprecise, the number of data snapshots is scarce, or the SOI is correlated with multipath, which is often the cases encountered in practice, the performance of the Capon beamformer may become worse than that of the data-independent beamformer.

For over 50 years, making the Capon beamformer robust has attracted much interest and tens of thousands of papers on robust adaptive array processing have been published in the literature. To fundamentally overcome the limitations of the Capon family of beamformers, iterative approaches have been introduced in the recent literature. Most notably, the iterative adaptive approach (IAA) was published in 2010 and is shown to possess strong robustness and can work well under single snapshot and arbitrary array scenarios. We will compare the non-parametric and user parameter-free IAA algorithm with other well-known algorithms, including the data-independent beamformer, the Capon beamformer, the OMP algorithm introduced in the compressed sensing literature, as well as the parametric MUSIC and ESPRIT algorithms.

Date: **27 Jul 2023**

Time: **10:00 AM to 11:00 AM**

IEEE P3382 STANDARD FOR PERFORMANCE METRICS FOR MAGNETIC RESONANCE IMAGE RECONSTRUCTION WORKING GROUP KICKOFF MEETING

Announcing the inaugural SPS Day

Welcome to the SPS Day website!

2023 marks 75 years of the IEEE Signal Processing Society, and we are using this landmark year to announce the inaugural SPS Day on **Friday, 2 June 2023!**

Beginning this year, SPS calls on its members and Chapters from around the world to celebrate SPS Day annually on 2 June, bringing our community together to connect and collaborate to advance the SPS mission and fields of interest with local events, webinars, and more. Please look around our website for more information on how your Chapter can get involved, and stay tuned for more news, tools, and resources to bring SPS Day to your area.

We look forward to celebrating with you!

SPEAKERS

Assistant Professor Seraina Dual

Topic: Opportunities for Biomedical Signal Processing in Cardiovascular Technology

Abstract: Cardiovascular disease currently drives my research as it affects one-third of individuals in Europe – negatively impacting their quality of life, contributing to chronic health conditions, and resulting in a significant cost for society (economic cost of €111 billion/year). Although the last decade has seen tremendous advances in treatment options for patients with early cardiac disease, we are now witnessing an epidemic of heart failure (2–7% incidence). Prediction of the onset of the heart failure is crucial to initiate and optimize treatment strategies. At the same time, we are witnessing the advent of innovative digital technologies that enables access to health information in real-time, not only through bedside monitors, but also from wearables and implantable devices. Focusing on clinical needs, engineers can leverage this opportunity by combining sensors and algorithms into smart systems: Implantable sensors let us monitor heart health continuously allowing timely clinical intervention; Advanced signal processing and machine learning tools which incorporate physiological information provide quality control of clinical assessments; Test rigs equipped with sensors help us to predict the interaction of medical devices with the cardiovascular system; and bio-signals inform adaptive control algorithms for artificial hearts. Medical systems turn smart using advanced signal processing, sensors, and algorithms and are poised to transform the delivery of health care enabling intelligent medical treatments and services in cardiovascular disease.

Biography:

Seraina Dual is an Assistant Professor at KTH Royal Institute of Technology in Stockholm in Biomedical Signal Processing. Dual trained as a Mechanical Engineer at the Federal Institute of Technology in Zurich, Switzerland (ETH Zurich) obtaining a Bachelor's and Master's degree in Biomedical Engineering, Robotics and Control. She earned her PhD in the Product Development Group focusing on sensor systems for cardiovascular applications in the Zurich Heart Project. Subsequently, she joined Stanford University at the Departments of Radiology where she designed a soft robotic device using cardiac magnetic resonance imaging funded by the Swiss National Science Foundation. Her current research is funded by the Swedish innovation agency VINNOVA and by the starting grant of the Swedish Research Council.

Email: seraina@kth.se

IEEE SPS Sweden, Conference Collaboration ICACTCE’23

IEEE SPS Sweden, Conference Collaboration ICACTCE’23

IEEE SPS Sweden chapter is one of the organizers of the ICACTCE’23 Conference: The scope of **ICACTCE’23 – International Conference on the Advances in Communication Technology and Computer Engineering** Conference is to provide a common forum for researchers, engineers, academicians as well as industrial professionals from all over the world to present their research results and development activities in various topics of Engineering and Technology. It is an opportunity to discuss and interchange the real needs of Smart Cities in order to contribute in realizing smart communities of the future. The conference covers all topics of Smart cities, Artificial Intelligence, Internet of Things, Communication Networks, and Data Analytics

Interested chapters are welcome to join us! (email to amlikelati@ieee.org)

Home One

CALL FOR PAPERS

Paper submission deadline: 31 October 2022
Notification of acceptance: 10 January 2023
Camera-Ready submission deadline: 20 January 2023

PAST ACTIVITY

Hybrid event (Feb 2023) Seminar with Power Engineering group.

TUTORIAL ON PRESENTATION SKILL FOR STUDENTS AND RESEARCHERS
BY ERIK FROM ORDRUM
NOVEMBER 30, 2022

On line event (2h seminar on presentation skills/advices mainly for PhD students and PostDocs).

Sweden section, Women in Signal Processing Section (WISP), and Signal Proc
lebrating International Women's Day (IWD) with WiE Affinity group, Sweden

IEEE SIGNAL PROCESSING SOCIETY SWEDEN CHAPTER DISTINGUISHED LECTURE (WEBINAR)/SPARSE SAMPLING: THEORY AND APPLICATIONS, 19 MAY, 2021

[Sweden Section Jt. Chapter, AP03/MTT17]
[Sweden Section Chapter,SP01]

Prof. Pier Luigi Dragotti

Topic: **Sparse Sampling: Theory and Applications**

Modelling signals as sparse in a proper domain has proved fruitful in many signal and image processing applications. Recently, the notion of sparsity has led to new sampling theories that have demonstrated that the prior knowledge that signals can be sparsely described in a basis or in a parametric space can be used to sample and perfectly reconstruct such signals at a significantly reduced rate. The insight that sub-Nyquist sampling can, under some circumstances, allow perfect reconstruction is revolutionizing signal processing, communications and inverse problems.

In this talk we first recall that sampling involves the reconstruction of continuous-time or continuous-space signals from discrete measurements (samples) and show how to relate the discrete measurements to some properties of the original continuous signal (e.g., its Fourier transform at specific frequencies). This is achieved by using the theory of approximation of exponentials and the so called generalized Strang-Fix conditions. Given this partial knowledge of the original signal, we then reconstruct it by using sparsity priors and in particular we provide exact reconstruction formulas for specific classes of 1-D and 2-D signals.

We then consider applications of these ideas in super-resolution imaging and inverse problems. In particular, we present a method for enhancing image resolution which combines sparse sampling methods with learning and a method for estimating diffusion fields driven by localized sources using spatio-temporal sensor measurements.

Biography:

Pier Luigi Dragotti is Professor of Signal Processing in the Electrical and Electronic Engineering Department at Imperial College London. He received the Laurea Degree (summa cum laude) in Electronic Engineering from the University Federico II, Naples, Italy, (1997); the Master degree in Communications Systems from the Ecole polytechnique f´ed´erale de Lausanne (EPFL), ´ Switzerland (1998); and PhD degree from EPFL, Switzerland, (April 2002). Before joining Imperial College in November 2002, he was a senior researcher at EPFL working on distributed signal processing for the Swiss National Competence Center in Research on Mobile Information and Communication Systems. Prof. Dragotti has also held several visiting positions. He was a visiting student, Stanford University (1996); summer researcher, Mathematics of Communications Department at Bell Labs, Lucent Technologies, Murray Hill, NJ (2000); and visiting scientist, Massachusetts Institute of Technology (2011). Prof. Dragotti is an IEEE Fellow (2017). He was Editor-in-Chief, IEEE Transactions on Signal Processing (2018-2020); Member, IEEE SPS Fellow Evaluation Committee (2020-21); Associate Editor, IEEE Transactions on Image Processing (2006-2009); Elected Member, IEEE Image, Video and Multidimensional Signal Processing Technical Committee (2008-2013) where he acted as Chair of the award sub-committee (2011-2013); Member, IEEE Signal Processing Theory and Methods Technical Committee (2013-2018); Member, Computational Imaging Technical Committee (2015-2020); and Technical Co-Chair, European Signal Processing Conference (Eusipco) (2012).

Prof. Dragotti is also the recipient of a European Research Council (ERC) Investigator Award, which is awarded to "exceptional research leaders to pursue ground-breaking, high-risk projects" (2011-2016).

IEEE Signal Processing Society ®

- Sweden Section Jt. Chapter,
- AP03/MTT17
- Sweden Section Chapter,SP01

Modern Optimization and Machine Learning Workshop

Agenda, May 19, 2021 – All times are in CEST

Time	Presenter	Topic
09.00		Welcome
09.15	Mats Gustafsson, Lund University	Best and Better than Best – The Quest for Optimal Antennas
09:40	Martin Berggren, Umeå University	3D Acoustic Shape Optimization Using Cut Finite Element Methods
10:05		Coffee Break
10:20	Lars Olsson Fhager, Lund University	Classification of mmW Hand Gesture Radar Signatures
10:45	Cosme Culotta López, RWTH Aachen University	A practical approach to sparse recovery in spherical near-field antenna measurements
11:10	Isaac Skog, Linköping University	Tensor-Field Based Localization Using Sensor Arrays – A Machine Learning Approach
11:35	Jevgenija Rudzusika, Royal Institute of Technology	Data Driven Large-Scale Convex Optimisation
12:00	Adam Andersson, Saab Surveillance and Chalmers University of Technology	Deep Learning Accelerated Computations for Radar Related Applications
12:25		Lunch
13.25	Keynote by Pier Luigi Dragotti, Imperial College	Sparse Sampling: Theory and Applications
14:25	Christer Larsson, Saab Dynamics and Lund University	Radar Cross Section Analysis with BPDN
14:50		Coffee Break
15:05	Alexander Karlsson, Saab Surveillance and Royal Institute of Technology	Stepped Frequency Pulse Compression with Non-Coherent Radar Using Deep Learning
15:30	Ben Nel, Lund University	Optimal Design for Microstrip Antennas
15:55	Emadeldeen Hassan, Umeå University	Multilayer Topology Optimization of Wideband Waveguide Transitions
16:20	All	Discussion and Summary
16:45		End of Workshop

IEEE Signal Processing Society ®

SWEDEN SECTION CHAPTER,SP01: TECHNICAL SEMINAR: "MULTI-SENSOR FUSION USING FACTOR GRAPHS: TIGHTLY COUPLED ODOMETRY AND MAPPING." 16, DEC 2020

SPEAKERS

Dr. Maurice Fallon of University of Oxford

Topic: Multi-sensor Fusion using Factor Graphs: Tightly Coupled Odometry and Mapping

Biography:

Dr. Maurice Fallon is a Royal Society University Research Fellow at University of Oxford, within Oxford Robotics Institute. (A position equivalent to Assistant Professor in the UK system). His research is focused on probabilistic methods for localization and mapping. He has also made research contributions to state estimation for legged robots and is interested in dynamic motion planning and control. Of particular concern is developing methods which are robust in the most challenging situations by leveraging sensor fusion.

Dr. Fallon's PhD was the field of acoustic source tracking at University of Cambridge. Immediately after his PhD he moved to MIT as a post-doc and later research scientist in the Marine Robotics Group working on robot mapping. He was then the perception lead of MIT's team in the DARPA Robotics Challenge – a multi-year international competition developing technologies for semi-autonomous humanoid exploration and manipulation in disaster situations. After a period at University of Edinburgh, he moved to Oxford in April 2017 and started the Dynamic Robot Systems Group. He co-leads are group of 20 students and researches with multiple EU and UK funded research projects.

Address:Sweden

SWEDEN SECTION, AFFINITY GROUP WIE AND CHAPTER SP01 - CDE APPROACH UNDER IGRID PROJECT.09 , DEC 2020

Diana Rwegasira

Topic: Adoption of CDE Approach under iGrid project, Tanzania

The talk will focus on the iGrid project specifically on demonstrating how the CDE (Challenge Driven Education) methodology has been used towards providing mutual benefits in developing and developing countries upon solving societal problems. I a nutshell, the area to be discussed under this project are control and monitoring aspects with Agent-Based System, Communication and Security with IoT, e-health, etc. Achievements and opportunities towards the use of CDE are also amongst the discussion.

Biography:

Assistant Lecturer, Diana Severine Rwegasira is a PhD student as a sandwich programme between University of Dar es salaam (UDSM) in Tanzania and Royal Institute of Technology (KTH) in Sweden (June, 2016 till present) focusing on enhancement of agent based control on Solar driven DC microgrid system. She obtained her Bsc in Computer Engineering and IT at the University of Dar es salaam from Sept.2004- Dec. 2008.Thereafter, she went to University of Eastern Finland (UEF) in Finland and pursued her Msc in Computer Science from August.2010 – Dec.2011. She has been teaching different course at the University of Dar es salaam inducing programming courses, computer applications and e-commerce applications, supervising projects for final year students and practical training for continuing students.

Signal Processing Society ®

PLANNED ACTIVITY ACTIVITY

- Around November 2023 – EEE Signal Processing Society's Sweden Chapter has a plan a seminar on Signal Processing for Finger prints

  Looking for presenter (expert) or we can do it ??

- *Winter School in 2024 0r summer school in 2025*

  Looking venue and Participants and Professors

WE NEED TO BE MORE ACTIVE AND WE REQUEST OUR SPS MEMBER TO HELP AND TO COLLABORATE ON ORGANIZING WORKSHOP SUMMER SCHOOL

DISCUTIONS!