Electricity 2014 חשמל

2014 IEEE

28th Convention of
Electrical and Electronics Engineers
in Israel

December 3-5, 2014

Hilton Queen of Sheba, Eilat, Israel

Conference Committees

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Greetings from the Chairman

Dear Colleagues,

As part of the activities of the Israeli section of IEEE, we will be holding our 28th convention of electrical and electronics engineers in Israel during December 3-5 2014, in Eilat, Israel. The convention is organized by the Institute of Electrical and Electronics Engineers (IEEE) which is the largest professional organization in the world with its estimated 350,000 members. IEEE in itself is highly influential in the technological fields of electrical and electronic engineering with publications of over 155 journals and approximately 25% of the general scientific publications in these technological fields.

The Israeli section currently includes 1150 members. The biennial convention of the Israeli section of IEEE is a central event, which is prestigious and highly significant, in the community of electronics, computer and electrical engineering in Israel, as the works presented at these conferences reflect the forefront in research, development and application in these areas. The 2012 convention will feature over 300 presentations in a wide spectrum of disciplines such as signal processing, control theory, circuits and systems, energy, power electronics, computers, communications, antennas, and electro-optics. We therefore expect this convention to contribute to the exchange of knowledge and ideas between different areas in addition to increasing discipline-specific knowledge in each discipline.

We will also have the opportunity to celebrate 50 years of our existence at the convention. In June 1954, 30 members of I.R.E. residing in Israel met in Haifa and applied "for the formation of an IRE section in conformity with I.R.E. regulations". The establishment of the "first IRE section in the Eastern Hemisphere, the Israel Section" was approved by the IRE Board of Directors at its October 1954 meeting, and the official date of founding of the Israel Section is October 5th, 1954. We will hold a special session devoted to the history of IEEE in Israel where we will also survey our achievements and honor outstanding IEEE members.

I would especially like to express my gratitude to Yuval Beck, who contributed greatly to the convention, on all its aspects. It is their dedication that enabled the quality and success of this convention, and for that I hold my deepest appreciation. I would also like to thank the authors, technical committee members, chairmen of the sections, and all those who put the effort in preparing this convention. I would of course wish to thank the participants – your presence and the presence of your colleagues allows the existence of this convention and livens it.

Respectfully Yours, Prof. Simon Litsyn

Chairman IEEE Israeli section

Top Level Program

(We reserve the right to modify the program up to the last minute)

Wednesday, December 3, 2014	
10:00-16:00	Hilton Queen Sheba Hotel **Registration and check-in**
13:30-14:30	Herods Hotel **Get-together and Cocktail at Tradeshow Area**
14:30-16:00	Herods Boutique Hotel - Kings Hall **Plenary Session 1- SEEEI** Moderator: Dr. **Ilan Suliman** **Trends in the Israeli Electric Power Market**
16:00-16:30	**Coffee Break**
16:30-17:30	Herods Boutique Hotel - Kings Hall **Opening Ceremony and Greetings** Chairman: **Yizhak Balmas** Speakers: **Emil Koifman** — Chairman of SEEEI **Simon Litsyn** — Chairman of IEEE-Israel Eng. **Elisha Yanay** — Chairman of the Israeli Association of Electronics and Software Industries Major General (Res.) **Yiftach Ron-Tal** — Chairman of the board, Israel Electric Corporation Ms. **Orna Hozman-Bachor** — Director General Ministrry of National Infrastructure Energy and Water **IEEE Israel Life Achievements Awards presentation** Special Address- Ms. **Wesha Khare** Harvard University, USA Runner up at Intel International Science and Engineering Fair
17:30-19:00	Herods Boutique Hotel - Queens Hall **Jubilee Plenary Session of IEEE Israel**
19:00-21:00	**Dinner**
21:00	Dan Eilat Hotel - Tarshish Hall **Social Events: "The Isradixie Band"**

Top Level Program

	Sapphire Hall	Topaz Hall	Opal Hall	Edom Hall	Canaan Hall	Ophir Hall	Eden Hall
Thursday, Decenber 4, 2014							
8:30-10:40	**Signal processing 1** Chair: Nadav Levanon	**Special Session on EMC** Chair: Jacob Gavan	**Special Session on Electronics for Energy Systems 1** Chair: Doron Shmilovitz	**Special Session on Communication and Information Diffusion in Multy-Agent Systems** Chair: Irad Ben-Gal and Eugene Kagan	**Circuits 1** Chair: Hugo Guterman	**Computers 1** Chair: Itzhak Birk	**Special Session on Coding in Memories** Chair: Eitan Yaakobi
10:40-11:00	**Coffee Break**						
11:00-12:50	**Signal processing 2** Chair: Alex frid	**Communications 1** Chair: Itsik Bergel	**Power 1** Chair: Alon Kuperman	**Special Session on Power Management Integrated Devices and Circuits** Chair: Shye Shapira	**Circuits 2** Chair: Ilan Rusnak	**Computers 2 + Engineering in Medicine and Biology 1** Chair: Iaakov Exman	**Industrial Electronics and Applications + Power 3** Chair: George Weiss
12:50-14:00	**Lunch Break**						
14:00-16:00	**Signal processing 3** Chair: Stanley Rotman	**Communications 2** Chair: Dov Wulich	**Special Session 6: Renewable Energy and Energy Flow in Smart Grids** Chair: Yuval Beck	**Pattern Analysis and Machine Intelligence 1** Chair: Alex Frid	**Circuits 3** Chair: Eran Socher	**Engineering in Medicine and Biology 2** Chair: Arie Yeredor	**Information Theory 1** Chair: Yuval Kochman
16:00-16:20	**Coffee Break**						
16:20-18:20	**Signal processing 4** Chair: Sharon Gannot	**Communications 3** Chair: Shlomo Shamai	**Power 2** Chair: Alon Kuperman	**Pattern Analysis and Machine Intelligence 2** Chair: Hugo Guterman	**Microwaves and Antennas 1** Chair: Timor Melamed	**Photonics** Chair: Zeev Zalevsky	
18:20-19:30	**Dinner (individual arrangements)**						
20:00-21:00 Dan Eilat Hotel Blue Hall	**Festive Evening Ceremony** Chairman: Eng. Emil Koifman		**Certificates & Scholarships Awarding Ceremony**	with the participation of **MK. Silvan Shalom. Minister of National Infrastructures, Energy**			
21:00	**Social Events: "Latino American Night"** Dan Eilat Hotel – Blue Hall						
Friday, Decenber 5, 2014							
8:30-10:40	**Signal processing 5** Chair: Simon Litsyn	**Communications 4** Chair: Arie Reichman	**Power 4** Chair: Doron Shmilovitz	**Pattern Analysis and Machine Intelligence 3** Chair: Itshak Lapidot	**Microwaves and Antennas 2** Chair: Yehuda Leviatan	**Electron Devices + Aerospace Systems** Chair: Gady Golan	**Information Theory 2** Chair: Shraga Bross
10:40-11:00	**Coffee Break**						
11:00-12:50	**Signal processing 6** Chair: Mark Shtaif	**Special Session on Dependable and Energy Efficient SOC Design in Scaled Technologies** Chair: Adam Teman and George Karakonstatis	**Special Session 2: Power Electronics for Energy Systems 2** Chair: Sigmond Singer	**Lasers and Electro Optics** Chair: Shmuel Sternklar	**Microwaves and Antennas 3** Chair: Noam Kaminsky		
13:00-14:30 Dan Eilat Hotel Tarshish Hall	**Closing Session** Chair: Eng. Yitzhak Balmas	Speakers: **Emil Koifman**, Chairman of SEEEI **Simon Litsyn**, Chairman of IEEE-Israel **Yitzhak HaLevy**, Mayor of Eilat		**Prof. Jacob Garty** Tel Aviv University **מסע לקוטב הדרומי**			
14:30-15:30	**Light Lunch (included in registration)**						

Hilton Halls: **Lower Level:** *Sapphire, Topaz, Opal*
Entrance Level: *Edom, Canaan, Ophir*
12th Floor: *Eden*

Sapphire Hall

Signal processing 1

Chair: Nadav Levanon

Weight Windows - An Improved Approach
Itzik Cohen and Nadav Levanon

An Approach to Estimation of Unknown Signal Composed from Several Unknown Frequencies
Ilan Rusnak and Liat Peled-Eitan

Creating Sidelobe-Free Range Zone Around Detected Radar Targets
Nadav Levanon

User Determined Superdirective Beamforming
Reuven Berkun, Israel Cohen and Jacob Benesty

On the Achievable Coverage of Rain Field Mapping Using Measurements from a Given Set of Microwave Links
Omry Sendik and Hagit Messer

POC Form based Tracking and Estimation of Harmonic Signals with Unknown Frequencies
Eyal Braiman and Ilan Rusnak

Topaz Hall

Special Session EMC: Basic and Applied EMC

Chair: Jacob Gavan

PCB EMI Simulation
Shai Sayfan-Alman and Vladimir Vulfin

EMC Education in the World and in Israel
Jacob Gavan and Moshe Rousso

Induced Static Magnetic Field by a Cellular Phone
Moshe Einat and Asher Yahalom

Design of a Broadbabd Periodic Absorber for Microwave Frequencies
Vladimir Vulfin, Shai Sayfan-Altman and Reuven Shavit

EMI Due to Signal Integrity & Power Integrity Missed Design
S. Shlomi Zigdan

Wideband Communication and Remote Sensing in the Extremely High Frequency and Terra-Hertz Regime
Yossi Pinhassi

Opal Hall

Special Session 1: Power Electronics for Energy Systems 1

Chair: Doron Shmilovitz

Minimizing Fuel Consumption and Mechanical Wear of Diesel Generator Based Auxiliary Power Unit
Gal Geula, Moshe Averbukh and Alon Kuperman

Partial Shading Problem Solution Via Permanent Monitoring of Individual Panels for Solar Arrays Fed by MPPT
Moshe Averbukh and Pavel Domorad

The Virtual Infinite Capacitor
Guy Yona and George Weiss

Study of Magnetic Actuation Systems
Ofer Ezra and Mor Mordechai Peretz

Suitability of Capacitive Converters to Photovoltaic Systems
Sigmond Singer, Yuval Beck, Wu Bin and Keyue Smedley

A Simple Method of PV Cells Balancing for Maximum Power Harvesting in Partially Shaded Environmen
Nikolay Telzhensky, Ilya Zeltser and Mor. M. Peretz

Edom Hall

Special Session: Communication and Information Diffusion in Multy-Agent Systems

Chair: Irad Ben-Gal and Eugene Kagan

An Approach to Bayesian Multi-Mode Statistical Process Control based on Subspace Selection
Marcelo Bacherand Irad Ben-Gal

Information Diffusion in Sub-Communities
Eugene Khmelnitsky and Eugene Kagan

Multi-Valued Logic Based on Probability-Generated Aggregators
Eugene Kagan, Alexander Rybalov and Ronald Yager

Honest Signaling in the Cooperative Search
Hava Siegelmann,Eugene Kagan and Irad Ben-Gal

The Model of Choice between Preferences: Elevator-Stairs Dilemma
Rottem Botton

Information Spread in the Age of the Internet
Alon Sela and Irad Ben-Gal

Canaan Hall

Circuits 1

Chair: Hugo Guterman

Non-Linear Controllers for Non-Linear Model of Hovering Autonomous Underwater Vehicles with Robotic Arm
Boris Braginsky and Hugo Guterman

Optimizing the PID Controller for Slow Ramp Set Point
Elroei Damri, Eli Shteimberg, Guy Zaidner, Tsachi Chana, Meir Arad and Yosef Cohen

Robust Terminal Filtering in an H-infty Application to Affine Functional Networks Training
Isaac Yaesh, Noelia Sanchez Marono and Uri Shaked

Power-Aware Networks: Balancing Motion with Communication Energy in Mobile Robotic Systems
Yorai Wardi and Usman Ali

Ophir Hall

Computers 1

Chair: Itzhak Birk

Cloud Computing Through Limited Bandwidth Inflight Airplane WiFi Communication
Shlomi Kushchi, Yehonatan Kfir and Shlomo Weiss

Designing of Single Precision Floating Point DSP Co-Processor
Evgeni Overchick and Binyamin Abramov

Massively Parallel Computations of the LZ-Complexity of Strings
Alexander Belousov and Joel Ratsaby

Accelerating Duplicate Data Chunk Recognition Using NN Trained by Locality-Sensitive Hash
Amit Berman, Yitzhak Birk and Avi Mendelson

Parallel Cycle-Accurate System C kernel
Lior Ainey, Avi Efrati and Shlomo Weiss

Dynamo and Big Table – Review and Comparison
Grisha Weintraub

Thursday, 4.12.14, 8:30-10:40

Eden Hall

Special Session on Coding in Memories

Chair: Eitan Yaakobi

Security Oriented Codes
Osnat Keren

New Bounds and Constructions for Granular Media Coding
Artyom Sharov and Ronny Roth

What can Codes do for Your SSD's Read/Write Performance?
Yuval Cassuto, Evyatar Hemo and Rami Cohen

Randomness Extractors and Data Storage
Ariel Gabizon and Ronen Shaltiel

Channel Upgradation for Non-Binary Input Alphabets and MACs
Uzi Pereg and Ido Tal

Optimal Fractional Repetition Codes for Distributed Storage Systems
Natalia Silberstein and Tuvi Etzion

Sapphire Hall

Signal Processing 2

Chair: Alex frid

Sparse Signal Separation with an Off-Line Learned Dictionary for Clutter Reduction in Echocardiography
Javier Turek, Michael Elad and Irad Yavneh

Differences in Phase Synchrony of Brain Regions between Regular and Dyslexic Readers
Alex Frid

Automatic Assessment of Parkinson's Disease From Natural Hands Movements Using 3D Depth Sensor
Ben Dror, Eilon Yanai, Alex Frid, Nimrod Peleg, Nadav Goldenthal, Ilana Schlesinger, Hagit Hel-Or and Shmuel Raz

A Shortest Path Based Interactive Segmentation Method of Putamen in MR Images
Zhenguo Li, Enqing Dong, Pei Yang, Wenyan Sun, Weichong Zhong and Huakui Sun

Equalization Strategies for Binaural Room Impulse Response Rendering using Spherical Arrays
Jonathan Sheaffer and Boaz Rafaely

Ricci Flow for Image Processing
Ezri Sonn, Emil Saucan, Eli Appelboim and Yehoshua Y. Zeevi

Topaz Hall

Communications 1

Chair: Itsik Bergel

A Novel Adaptive Logic for Dynamic Adaptive Streaming over HTTP Network
Amit Dvir, Ran Dubin, Ofer Hadar and Boaz Benmoshe

Statistically Optimal Routing Scheme in Multihop Wireless Ad-Hoc Networks
Yiftach Richter and Itsik Bergel

A Location Agnostic Network Architecture for Financial Stock Trading
Radu A. Badea

The Ergodic Rate Density of MIMO Ad-Hoc Networks
Yaniv George, Itsik Bergel and Ephraim Zehavi

Fixed Point Theorem and its Limitation for Derivation of Wi-Fi Networks Performance
Yoram Haddad, Frederic Robert and Gwendal Le Grand

An Energy Efficient Distributed Link Scheduling Protocol for Wireless Sensor Networks
Enqing Dong, Fulong Qiao, Jiaren Wang, Zongjun Zou and Dejing Zhang

In-Vehicle Hybrid Electrical Architecture
Tal Philosof and Moshe Laifenfeld

Thursday, 4.12.14, 11:00-12:50

Opal Hall

Power 1

Chair: Alon Kuperman

Optimal Control of Micro-Grid Autonomous Hybrid Power Station Based on Modeling of Stochastic Energy Consumption
Pavel Eliseevand Moshe Averbukh

Fault Location and Identification for Unmanned Distribution Substation using Bayesian Relationship Matrix and Fuzzy Logic
Indhumathi Chellaswamy and Joy Vasantha Rani S.P.

3-DOF Overhead Line Mechanical Dynamic Model
Miroslav Muller, Zdenek Muller and Josef Tlusty

Analytical Closed-Form Solution of Current Responses of Multilevel Converter Connected to Unbalanced Grid
Zdenek Muller, Jan Svec, Josef Tlusty and Viktor Valouch

Telecommunications: Paving the Way for PV and ORC Wide Spread Use of Electricity Production
Lucien Bronicki and Dov Berger

Simulation and Optimization of a Four Area Load AGC System after Deregulation with Generation Rate Constraints using Fuzzy Logic Controller
Pankaj Chawla and S K Gupta

Edom Hall

Special Session 3: Power Management Integrated Devices and Circuits

Chair: Shye Shapira

High Performance Integrated Inductors for Power Management Applications
Ayal Eshkoli, Sharon Bar-Lev, Gabi Peled, Shye Shapira and Yael Nemirovsky

700V integrated Power Management Platform with Record Density Logic
Allon Parag, Einat Ophir Arad, Moran Cohen Yasour, Eran Lipp, Ksenia Sirota, Shye Shapira and Efraim Aloni

Integrated High-Voltage (HV) Schottky Diode for Power Management ICs
David Mistele, Noel Berkovitch, Sharon Levin and Shye Shapira

Full IC Design of a PWM Controller with Integrated High-Resolution ADC and DPWM Peripherals using Digital Backend Tools
Timur Vekslender, Eli Abramov, Yevgeny Bezdenezhnykh, Alon Cerveraand Mor Peretz

An Analytical Calculation of the Silicon Limit for Two Dimensional RESURF Drift Layers
Morad Awad and Shye Shapira

Design and IC Implementation of a Fully Digital Power Management Delay-Line ADC
Yevgeny Bezdenezhnykh, Timur Vekslender, Eli Abramov, Alon Cervera andMor Peretz

Integrated Power over Ethernet Control Chip with on Chip Current Sensing
Nadav Barnea

Canaan Hall

Circuits 2

Chair: Ilan Rusnak

Fault-Tolerant Robust Capture Zone Construction: Hybrid Dynamics Approach
Josef Shinar, Vladimir Turetsky and Valery Y. Glizer

Optimal Joint Maximum Likelihood Estimation of Nonlinear Dynamic Systems
Ilan Rusnak

Efficient Newton Method for Optimal Viscous Dampers Design
Ido Halperin, Grigory Agranovich and Yuri Ribakov

Joint Kalman Filter for Formation Moving with Wiener Process Acceleration
Itzik Klein, Ilan Rusnak and Yaakov Bar-Shalom

Motion Planning in Dynamic Uncertain Environment using Probability Navigation Function
Shlomi Hacohen,Shraga Shovaland Nir Shvalb

Voltage-to-Digital Converter with Event-Driven Charge Redistribution
Dariusz Koscielnik, Jakub Szyduczynski and Marek Miskowicz

Ophir Hall

Computers 2 + Engineering in Medicine and Biology 1

Chair: Iaakov Exman

Scalable Cloud and Smartphones for Image based Indoor Navigation
Iaakov Exman and Eli Levi

Cube 3-D Orientation from Smartphone Pictures
Iaakov Exman and Eyal Ben David

Edge Preserving Multi-Modal Registration Based On Gradient Intensity Self-Similarity
Tamar Rott, Dorin Shriki and Tamir Bendory

An Algorithm for Processing and Analysis of Gas Chromatography–Mass Spectrometry (GC-MS) Signals for Early Detection of Parkinson's Disease
Yizhar Lavner, Soliman Khatib, Fadi Artoul and Jacob Vaya

Model-Based Protocol Engineering: Specifying Kerberos with Object-Process Methodology
Yaniv Mordecai and Dov Dori

Thursday, 4.12.14, 11:00-12:50

Eden Hall

Industrial Electronics and Applications + Power 3

Chair: George Weiss

Vibration of Induction Motors Operating with Variable Frequency Drives
Mikhail Tsypkin

Reconfigurable Controller for Electrical Machines based on Kron's Primitive Model
Saurabh Vinayak Lawate and Dr. M. S. Ali

Energy Losses Modeling in Induction Motors Fed by Danfoss VFD Micro Drive FC51
Assi Mohamed, Lokshin Yafem and Averbukh Moshe

Novel Differential Linear Electrostatic Motor with Light Weight Rotor
Saad Tapuchi and Dmitry Baimel

Using Synchronverters for Power Grid Stabilization
Eitan Brown and George Weiss

A method for Proving the Global Stability of a Synchronous Generator Connected to an Infinite Bus
Vivek Natarajan and George Weiss

Tracking Controller for Output Voltage Regulation in a Boost Converter
George Weiss and Vivek Natarajan

Sapphire Hall

Signal Processing 3

Chair: Stanley Rotman

Multi-Pixel Anomaly Detection in Multi-Temporal Thermography
Ilan Schvartzman, Stanley R. Rotman and Dan G. Blumberg

Anomaly Detection in Multi-Temporal Infrared Thermography
Ilan Schvartzman, Stanley Rotmanand Dan Blumberg

Effect of Correlation between Non-Local Means Patch Dissimilarities on Search Region Adaptation for Improved Image Denoising
Hila Berkovich, David Malah and Dr. Meir Bar-Zohar

Low Complexity Image Compression of Capsule Endoscopy Images
Aviv Barabi, Dvir Sason and Rami Cohen

Tone Mapping for Shortwave Infrared Face Images
Maya Harel and Yair Moshe

Topaz Hall

Communications 2

Chair: Dov Wulich

Mutual Information of OFDM Systems with Nonlinear Power Amplifier
Ilia Iofedov, Igor Levakov and Dov Wulich

Post-Distortion for Memoryless Power Amplifiers
Ziv Alina and Ofer Amrani

On Disaster Recovery in OFDMA Environment
Eyal Radiano and Ofer Amrani

Predictive Analog-Digital-Conversion in Fiber Optics Communication
Yaron Yoffe and Dan Sadot

Improved Electrical Dispersion Compensation for High-Speed Analog Dispersive Transmission Lines
Yanir London and Dan Sadot

High Throughput Transmitter Architecture for DVB-S2
Haim Malka, Shahar Hochma and Nir Lifshtiz

Wireless Controller Area Network For In-Vehicle Communication
Moshe Laifenfeld and Tal Philosof

Thursday, 4.12.14, 14:00-16:00

Opal Hall

Special Session 6: Renewable Energy and Energy Flow in Smart Grids

Chair: Yuval Beck

Recursive Solutions to Optimal Power-Flow Problems
Yoash Levron

Demand-Side Management in Smart Grid Using Game Theory
Eran Salfati and Raul Rabinovici

A Novel Algorithm and Software Tool for Energy Balance Correctness at Power Plants, PV farms, and Prosumers
Netzah Calamaro, Emil Koifman, Yuval Beck and Doron Shmilovitz

Statistical Analysis of Power Systems and Application to Load Forecasting
Yakir Loewenstern, Liran Katzir and Doron Shmilovitz

Solution of the Optimal Power Flow In Distribution Systems
Amir Beck and Yuval Beck

Smart Campus Concept
Gady Golan

Edom Hall

Pattern Analysis and Machine Intelligence 1

Chair: Alex Frid

Metric Learning Using Labeled and Unlabeled Data for Semi-Supervised/Domain Adaptation Classification
Hadas Benisty and Koby Crammer

Anomaly Detection Using the Knowledge-based Temporal Abstraction Method
Asaf Shabtai

Recognizing Deep Grammatical Information during Reading from Event Related fMRI
Haim Shalelashvili, Tali Bitan, Alex Frid, Hananel Hazan, Stav Hertz, Yael Weiss and Larry Manevitz

Genetic Algorithms on Genetic Data: The Motif-Finding Problem
Miriam Manevitz and Moshe Samson

Detecting, Modeling and Tracking of a Short-Term Mutual Awareness Activity
Meir Cohen, Ehud Rivlin and Ilan Shimshoni

Canaan Hall

Circuits 3

Chair: Eran Socher

RF CMOS Active Metamaterial Wide-Band Controllable Array
Iris Shtrasler, Eran Socher and Asher Madjar

Noise Figure Reduction Methodology of Near-Fmax Frequencies Millimeter-Wave Receivers
Jenia Elkind and Eran Socher

Analog Voltage and Current Mode Integrated Readout for Low-Cost Uncooled Passive IR sensors based on CMOS-SOI-NEMS Technology – 129
Alex Zviagintsev, Igor Brouk, Yael Nemirovsky and Ilan Bloom

Designing High-Speed Signal Distribution for Multi-Drop Connection Using Simulations
Shai Sayfan-Alman, Vladimir Vulfin and Moti Haridim

Robust Peak to Peak and H-Infty Feedback-Control Analysis of the Threonine Synthesis Pathway
Eli Gershon, Matan Navon and Uri Shaked

Exploring Back Biasing Opportunities in 28nm UTBB FD-SOI Technology for Subthreshold Digital Design
Ramiro Taco, Itamar Levi, Alex Fish and Marco Lanuzza

Digital Closed Loop Design for Wideband Envelope Tracking Systems
Elinor Kashani, Emanuel Cohen and Eran Socher

Ophir Hall

Engineering in Medicine and Biology 2

Chair: Arie Yeredor

Collaborative Detection Of Common Lines In Cryo EM Images
Mor Cohen, Yoel Shkolnisky and Arie Yeredor

Evaluation of Functional Brain Connectivity Abnormalities in Head Injured Patients Using fMRI Image Processing
Assaf Shocher, Yam Kushinsky, Ilan Shallom, Alon Friedman and Ronel Veksler

Ultrasound De-convolution using a Least Angle Regression Approach
Roie Pri-Or, Zvi Friedman and Moshe Porat

A Method for Quantifying Visual Search Scanpath Efficiency in Elucidating Cognitive Status Post-Traumatic Brain Injury
Gerry Leisman, James Gilchriest, Rafael Rodríguez-Rojas, Mario Estevez, Calixto Macahdo and Moshe Kaspi

Measurement of Disrupted Axonal Fiber Connectivity in the Evaluation of Consciousness
Gerry Leisman, Rafael Rodríguez-Rojas, Karla Batista, Yasser Iturria, Calixto Macahdo and Juan Morales

Thursday, 4.12.14, 14:00-16:00

Eden Hall

Information Theory 1

Chair: Yuval Kochman

Lossy Compression with a Short Processing Block: Asymptotic Analysis
Yuval Kochman and Gregory W. Wornell

Maximizing Rényi Entropy Rate
Christoph Bunte and Amos Lapidoth

Semi-Deterministic Broadcast Channels with Cooperation
Ziv Goldfeld, Haim Permuterand Gerhard Kramer

Tie Breaking for Singular Channels is Worth 1 Nat
Eli Haim, Yuval Kochman and Uri Erez

The Error Exponent of the Binary Symmetric Channel for Asymmetric Random Codes
Rami Cohen and Wasim Huleihel

Generating Error-Correcting Codes Based on Tower of Hanoi Configuration Graphs
Nadav Voloch, Elazar Birnbaum and Amir Sapir

Bounding Techniques for the Intrinsic Uncertainty of Channels
Or Ordentlich and Ofer Shayevitz

Sapphire Hall

Signal Processing 4

Chair: Sharon Gannot

A Study of 3D Audio Rendering by Headphones
Eran Hadad, Dmitry Fishman, Elior Hadad and Sharon Gannot

Sequential Voice Conversion Using Grid-Based Approximation
Hadas Benisty, David Malah and Koby Crammer

Speaker Localization by Humanoid Robots in Reverberant Environments
Vladimir Tourbabin and Boaz Rafaely

Voice Activity Detection in Presence of Transients Using the Scattering Transform
David Dov and Israel Cohen

Voice Activity Detection in Presence of Transient Noise Using Spectral Clustering and Diffusion Kernels
Oren Rosen, Saman Mousazadeh and Israel Cohen

Parameter Estimation from Multiple Sensors with Mixed Resolution of Quantization
Elad Heiman and Hagit Messer

Topaz Hall

Communications 3

Chair: Shlomo Shamai

On Layered Transmission in Flat-Fading Clustered Cooperative Cellular Architectures
Gil Katz, Benjamin Zaidel and Shomo Shamai

Bayesian Shadow Matching Algorithm for GNSS Positioning
Roi Yozevitchand Boaz Ben Moshe

Tackling the GNSS Jamming Problem Using a Particle Filter Algorithm
Roi Yozevitch, Boaz Ben-Moshe and Sergai Safrigin

Detecting Bottlenecks on-the-Fly in OLSR Based MANETs
Nadav Schweitzer, Ariel Stulman, Tirza Hirst, Roy David Margalit, Meir Armon and Asaf Shabtai

Iterative Decoding of Robust Analog Product Codes
Avi Zanko, Amir Leshem and Ephraim Zehavi

Lattice Interference Mitigation with Mixed Channel State Information
Itsik Bergel, Yoni Perets and Shlomo Shamai

Thursday, 4.12.14, 16:20-18:20

Opal Hall

Power 2

Chair: Alon Kuperman

Real-Time Adaptive Estimation of Supercapacitor
Noam Reichbach and Alon Kuperman

Implementation of Digital Control for Buck Converter by Means a Single DSP
Yuval Beck, Ilia Shulman, Liran Katzir, Jacob Fainguelernt, Dror Medini and Bishara Bishara

Low Cost Battery/Supercapacitor Emulator Design
Sharon Farag and Alon Kuperman

Implementation of a High Voltage Power Supply With The Matlab/Simulink Embedded Coder
Liran Katzir, Yakir Loewenstern, Bishara Bishara and Doron Shmilovitz

Edom Hall

Pattern Analysis and Machine Intelligence 2

Chair: Hugo Guterman

Light Source Separation from Image Sequences of Oscillating Lights
Amir Kolaman, Rami R. Hagege and Hugo Guterman

Classification of Synthetic Aperture Radar Images Using Markov Random Field and Textural Features
Ariel Benou, Stanely Rotman and Dan Blumberg

Adware Detection and Privacy Control in Mobile Devices
Ianir Ideses and Assaf Neuberger

Game Theoretic Approach for Automatic Speech Segmentation and Recognition
Ujwala Rekha J,Shahu Chatrapati Kand Vinaya Babu A

Occlusion Handling Method for Object Tracking Using RGB-D Data
Ariel Benou, Itay Benou and Rami Hagage

Verification of Safety for Autonomous Unmanned Ground Vehicles
Daniel Meltz and Hugo Guterman

Canaan Hall

Microwaves and Antennas 1 + Engineering management

Chair: Timor Melamed

High Power RF Devices Based on High Temperature Superconductors
Eldad Holdengreber, Moshe Mizrahi and Eli Farber

Simulation for a Crosstalk Avoiding Algorithm in Multi-Conductor Communication
Reuven Ianconescu and Vladimir Vulfin

Pulsed Beam Scattering by a Fast Moving PEC Wedge
Ram Tuvi and Timor Melamed

Measurement of Soil Moisture Content under Physical Crust by Millimeter-Wave Backscattering
Alon Eliran, Naftaly Goldshleger, Asher Yahalom, Eyal Ben-Dor and Menachem Agassi

Ophir Hall

Photonics

Chair: Zeev Zalevsky

Two-Photon Photoluminescence Imaging of Carbon Nanodots and its Conjugates with Porphyrin Dyes
Ji-Yao Chen

Thermally Enhanced Photoluminescence for Efficient Photovoltaics
Assaf Manor, Leopoldo Martin and Carmel Rotschild

RF Phase Amplification Based on Modulation-Phase Interferometry
Seva Rosenberg, Moran Biton, Daniel Gotliv, Arye Schwarzbaum, Liat Rappaport, David Mermelstein and Shmuel Sternklar

Design of a 1x4 Silicon Wavelength Demultiplexer Based on Multimode Interference Coupler in a Slot Waveguide Structures
Dror Malka, Yoav Sintov and Zeev Zalevsky

Collimated Backlight for Displays and Micro-Projectors
Zeev Zalevsky, Rajesh Menon and Arkady Rudnitsky

Optical Micro-Multi-Racetrack Resonator Filter Based on SOI Waveguides
Dror Malka, Moshik Cohen, Jarek Turkiewicz and Zeev Zalevsky

Sapphire Hall

Signal Processing 5

Chair: Simon Litsyn

Model Identification of a Robotic Arm with Joint PID Controller
Avishai Sintov and Amir Shapiro

Simplified GPS Tracking Loops Simulation with Analytical Expressions for the Integrate and Dump Stages
Tsvi G. Dvorkind and Li Rosenbaum

Multi-Channel Wafer Defect Detection Using Diffusion Maps
Gal Mishne and Israel Cohen

Performance Measures for Sparse Spike Inversion Vs. Basis Pursuit Inversion
Igal Rozenberg, Israel Cohen and Anthony Vassiliou

Localization of Lost Tag Transmitters Using a Yagi Antenna and a Telemetry Receiver
Amir Jevnisek, Yehudit Popov and Arie Yeredor

Topaz Hall

Communications 4

Chair: Arie Reichman

Improvement of DVB-S2 Spectral Efficiency Using Low Roll-Off
Nir Amira, Avihay Shirazi and Avraham Freedman

Enhanced Spread Spectrum Aloha (E-SSA) an Emerging Satellite Return Link Messaging Scheme
Arie Reichman

Characteristic Properties of Underground Radio Communications
Boris Levin and Motti Haridimer

Datacom Multi-Mode Optical Link Using 850nm VCSELs at 25 Gb/s
Akhilesh Kumar Mishra, Gadi Eisenstein and Alexander Gershikov

Correlation Based Phase Noise Compensation in 60GHz Wireless Systems
Nicholas Preyss, Radoslav Pantic and Andreas Burg

Friday, 5.12.14, 8:30-10:40

Opal Jall

Power 4

Chair: Doron Shmilovitz

UDE Controller for Current Loop in Buckboost Converter
Ilan Aharon, Alon Kuperman and Doron Shmilovitz

Boundary Controller for Switched Capacitor Converters
Alon Kuperman, Martin Mellincovsky, Yoram Horen and Saad Tapuchi

Analysis of Supercapacitor Bank with Uncontrolled Active Balancer
Vladimir Yuhimenko, Moshe Averbukh, Grigori Agranovich and Alon Kuperman

Matlab-Simulink Model of AC Grid with Non-Linear Load and Static Compensator for Power Quality Improvement
Yuval Beck and Yefim Berkovich

Edom Hall

Pattern Analysis and Machine Intelligence 3

Chair: Itshak Lapidot

Differentiation of Mixed Bacteria Samples in the Generic Level Using Infrared Spectroscopy and Multivariate Analysis
Ahmad Salman, Itshak Lapidot, Elad Shufan and Mahmoud Huleihel

Visual Predictive Architecture for Biologically Inspired Object Recognition
Dan Malowany and Hugo Guterman

Statistics of Stochastic Textures: Application in Pattern Analysis and Image Processing
Ido Zachevsky and Yehoshua Y. Zeevi

Randomization Effect on Iterative-Based Speaker Diarization System for Telephone Conversations
Tal Furmanov, Lidiya Aminov, Ami Moyal and Itshak Lapidot

Mahalanobis Based Emission Model for Speaker Diarization of Telephone Conversations
Tal Furmanov, Lidiya Aminov, Ami Moyal and Itshak Lapidot

Canaan Hall

Microwaves and Antennas 2

Chair: Yehuda Leviatan

Radiation Fields of THz Free Electron Laser: 3D EM Simulation and Experimental Study
Boris Kapilevich, Yuri Lurie, Boris Perutski, Boris Litvak, Ariel Etinger, Aharon Friedman and Yehiel Vashdi

Simulation and Optimization of Dummy Loads for Wideband Microwave Calorimeters
Vasily Kozhevnikov, Aleksey Klimov and Andrey Kozyrev

Design Of E-Plane T-Junction Dividers Using Substrate Integrated Waveguide (SIW)
Ido Aram, Khona Garb and Raphael Kastner

Effects of Polarization on Heterodyne Detection and FMCW Using Glow Discharge Detectors at 300 GHz
Avihai Aharon, Daniel Rozban, Amir Abramovich and Natan S. Kopeika

Edge Conditions for the Junction of Two Resistive Half-Planes with Different Surface Impedances
Igor Braver, Pinchos Fridberg, Khona Garb and Iosif Yakover

Ophir Hall

Electron Devices + Aerospace Systems

Chair: Gady Golan

Novel Lateral Mobility in Silicon Solar Cells
Gady Golan and Alex Axelevitch

Nanoscale Thick FD-SOI MOSFETs: a New Simple Modeling of the Electrical Behavior at Low Temperature
Avraham Karsenty and Avraham Chelly

Low Frequency Noise in Surface and Buried Channel Nanometric CMOS transistors
Maria Malits, Igor Brouk, Adi Birman, Asaf Lahav, Amos Fenigstein and Yael Nemirovsky

CMOS-SOI-MEMS Thermal Antenna and Sensors for Passive Uncooled THz Imaging
Alexander Svetlitza, Sara Stolyarova, Tatiana Blank, Igor Brouk and Yael Nemirovsky

Observability Analysis for Tracking of Coordinated Turn Maneuvers
Itzik Klein, Yaakov Bar-Shalom and Ilan Rusnak

On a Possible Division by Zero in the Interacting Multiple Model (IMM) Filter
Daniel Sigalov and Yaakov Oshman

Friday, 5.12.14, 8:30-10:40

Eden Hall

Information Theory 2

Chair: Shraga Bross

Worst Additive Noise: an Information-Estimation View
Ronit Bustin, H. Vincent Poor and Shlomo Shamai

The Listening-Helper Source-Coding Problem for a Doubly Symmetric Binary Source
Shraga Bross

LDPC Ensembles that Universally Achieve Capacity under BP Decoding: a Simple Derivation
Anatoly Khina, Yair Yona and Uri Erez

The Confidential MIMO Broadcast Capacity: a Simple Derivation
Anatoly Khina, Yuval Kochman and Ashish Khisti

Capacity of Wireless Systems under Distributed Scheduling of Time-Dependent Users
Ori Shmuel, Asaf Cohen and Omer Gurewitz

Sapphire Hall

Signal Processing 6

Chair: Mark Shtaif

Texture Enhancement using Diffusion Process with Potential
Emmanuel Cohen, Yehoshua Zeevi and Laurent Cohen

Computing Quasi-Conformal Maps in 3D with Applications to Geometric Modeling and Imaging
Alexander Naitsat, Emil Saucan and Yehoshua Zeevi

MSE Reduction in Digital Compensation for Non-Linear Analog Channels
Amir Weiss, Arie Yeredor and Mark Shtaif

Event-Driven Charge Redistribution Analog-to-Digital Converter with Simultaneous Sampling and Conversion
Dariusz Koscielnik and Marek Miskowicz

Topaz Hall

Special Session 7: Dependable and Energy Efficient SOC Design in Scaled Technologies

Chair: Adam Teman and George Karakonstatis

Towards a Black-Box Methodology for SRAM Stability Analysis
Robert Giterman and Alexander Fish

Low Power Radiation Hardened SRAM - Challenges and Leading Solutions
Lior Atias, Adam Teman and Alexander Fish

Variability-Aware Design Space Exploration of Embedded Memories
Shrikanth Ganapathy, Georgios Karakonstantis, Andreas Burg and Ramon Canal

Energy Efficient Parallel Computing on the PULP Platform with Support for Open MP
Davide Rosssi, Antonio Pullini, Igor Loi, Francesco Conti, Giuseppe Tagliavini and Andrea Marongiu

Battery Development for Ultra-Low-Voltage Systems
Lauri Koskinen, Markus Hiienkari, Tanja Kallio, Elina Pohjalainen and Matthew Turnquist

Friday, 5.12.14, 11:00-12:50

Opal Hall

Special Session 2: Power Electronics for Energy Systems 2

Chair: Sigmond Singer

Comparison of Large Photovoltaic Power Plants with Conventional Ones and Prospects for Photovoltaic Plants use in Israel
M Slonim, L Pregerman and B Medres

Fast Transition High Voltage Modulator using SiC MOSFETs Connected in Parallel
Nikolay Telzhensky and Ilya Zeltser

Robust Control of Photovoltaic Voltage
Moshe Sitbon, Shmuel Schacham and Alon Kuperman

Generalized Representation of Renewable Energy Generators
Sergei Kolesnik, Simon Lineykin and Alon Kuperman

Combined Current Sensor and Non-Invasive Displacement Measurement for Magnetic Actuators
Ofer Ezra and Mor Peretz

Edom Hall

Lasers and Electro Optics

Chair: Shmuel Sternklar

Application of Coupled-Mode Formalism to Analysis of Holey Photonic Crystals
Lidor Giladi, Elena Smith, Vladislav Shteeman, Eli Kapon and Amos A. Hardy

Fiber-optic Sensing Based on Brillouin Amplification and Processing of Rayleigh Scattering
David Mermelstein, Elyashiv Shacham, Moran Biton and Shmuel Sternklar

Optimum Design of an Optical Noise Radar System
Ohad Gavra, Moran Biton, Dan Ben Shitrit, David Mermelstein, Gil Ezrahi and Shmuel Sternklar

Analytical Approximation for Photonic Array Modes in 1D Photonic Devices
Elena Smith, Lidor Giladi, Vladislav Shteeman, Eli Kapon and Amos Hardy

Energy Efficiency of Laser Driven Structure Based Accelerators
Adi Hanuka and Levi Schächter

Continuous Wave Multi Wavelength Generator Based on Fiber Phase Sensitive Amplification
Alexander Gershikov and Gad Eisenstein

Canaan Hall

Microwaves and Antennas 3

Chair: Noam Kaminsky

E-band Frequency Quadrupler with High Harmonic Rejection

Nadav Mazor, Oded Katz, Roee Ben-Yishay, Roi Carmon, Benny Sheinman, Run Levinger and Danny Elad

DC to 110GHz Silicon to PCB Flip Cip Transition

Noam Kaminski, Keishi Okamoto, Hiroyuki Mori and Danny Elad

A wideband 95-140GHz High Efficiency PA in 28nm CMOS

Yuval Dafna, Emanuel Cohen and Eran Socher

Induced Currents on Omega and Chiral Particles

Anton Kogan and Reuven Shavit

Tel Aviv University

Technion – Israel Institute of Technology

Cambridge University

Technion – Israel Institute of Technology

Ben-Gurion University of the Negev

Keysight Technologies

Engineering School, Bar-Ilan University

The Hebrew University of Jerusalem

Holon Institute of Technology

Rafael, Advanced Defense Systems Ltd.

AFEKA – Tel-Aviv Academic College of Engineering

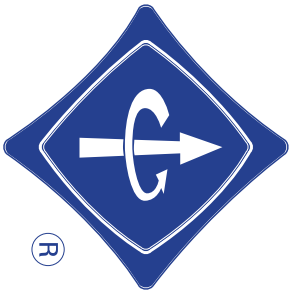
Israel Association of Electronics & Software Industries

Ariel University

Jerusalem College of Technology

StoreDot

Ormat



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