Data Science and Engineering in Healthcare, Medicine and Biology

OCTOBER 19 - 20, 2022 – FACULTY OF ENGINEERING, TEL AVIV UNIVERSITY, ISRAEL

Program at a Glance

Wednesday, October 19, 2022

OPENING REMARKS | **8:45 – 9 am**

Moderator: David Elad

- Metin Akay, President IEEE-Engineering in Medicine and Biology Society, Department of Biomedical Engineering, University of Houston
- Noam Eliaz, Dean, Faculty of Engineering, Tel Aviv University

SYMPOSIUM #1 | Moderator / Metin Akay | **9 am – 1 pm**

- Ali Tinazli, Lifespin
  "An End-to-End (E2E) Solution Bridging IVD and Cloud for Personalized Health Diagnostics Through Digital Metabolic Analysis"
- Thomas Wilckens, InnVentis Ltd
  "Precision Medicine, Data Hungry but Hard to Feed or What Major Efforts are Needed to Secure its Success"
- Josh Schulman, Joy Ventures
  "A Data Strategy for Next-Generation Brain Diagnostics and Therapeutics"

COFFEE BREAK | **10:30 am – 11 am**

- David Fenstermacher, Health Catalyst
  "Using FAIR Data Principles to Transform Healthcare Data for Advanced Analytics
- Yuval Shahar, Ben Gurion University
  "Knowledge-Based Integration of Multiple Types of Time Oriented Biomedical Data, for the Purpose of Clustering, Classification, and Prediction"

COFFEE BREAK continued

- Inbal Zafir-Lavie, Gina Life
  "Data Science and Machine Learning in Women's Health: Development of Early Detection Test for Ovarian Cancer"
- Ran Gilad-Bachrach, Tel Aviv University
  "Using Trees for Making Predictions on Graphs and Sets and Their Applications in the Bio-Medical Domain"

LUNCH & POSTER SESSION | **1 pm – 2 pm**

SYMPOSIUM #2 | Moderator / Paul Sajda | **2 pm – 6 pm**

- Hayit Greenspan, Tel Aviv University
  "AI in Medical Imaging – Initial Steps Towards Supporting Detection and Monitoring of Disease"
- Andrew Laine, Columbia University
  "Data Harmonization: An Imaging-Driven Omics Database / Repository for Retrospective Understanding of COPD and Planning for Future Care"
- Alex Frangi, University of Leeds
  "Computational Precision Imaging and Medicine in Regulatory Science"

COFFEE BREAK | **3:30 pm – 4 pm**

- Noam Shomron, Tel Aviv University
  "Bioinformatics Aiding Medical Decisions"
- Kira Radinsky, Diagnostic Robotics
  "The Next Frontier of AI-driven Triage and Preventive Care"
- May Wang, Georgia Institute of Technology
  "Challenges and Opportunities of Biomedical Big Data and AI in Digital Health Transformation"
- David Clifton, University of Oxford
  "Healthcare Interventions Based on Non-Imaging AI"

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Program at a Glance

Thursday, October 20, 2022

SYMPOSIUM #3 | Moderator / David Elad | **8:30 am – 1 pm**

- Ziv Bar-Joseph, Sanofi and Carnegie Mellon University
  "Developing a Spatially Resolved Human Single Cell Atlas"
- Chwee Teck Lim, National University of Singapore
  "Development of Extracellular Matrix-Based Prognostic and Predictive Biomarkers for Lung Cancer using Data Analytics"
- Gudrun Zahlmann, Quantitative Imaging Biomarker Alliance
  "Why Do We Need Data Sciences – Quantitative Imaging as Example"
- Shai Shen-Orr, Technion and CytoReason Ltd
  "Bridging the Data-Insight Gap"

COFFEE BREAK | **10:30 am – 11 am**

- Andreas Tolias, Baylor College of Medicine
  "Digital Twins of the Brain"
- Natalie Mrachacz-Kersting, Albert Ludwig University of Freiburg
  "Brain State Dependent Stimulation Improves Functional Recovery of Stroke Patients"
- Moti Freiman, Technion
  "Physics Driven Machine-Learning Models for MRI Reconstruction and Analysis"
- Neomi Singer, Tel Aviv Sourasky Medical Center
  "Music to My Brain: a Musical Neurofeedback Approach Guided by an fMRI Informed-EEG Model for Modulating the Reward System"

LUNCH & POSTER SESSION | **1 pm – 2 pm**

SYMPOSIUM #4 | Moderator / Yasemin Akay | **2 pm – 4:00 pm**

- Leo Joskowicz, The Hebrew University of Jerusalem, Israel
  "Deep Learning Based Radiological Longitudinal Volumetric Evaluation of Brain Metastases after Stereotactic Radiosurgery"
- Tammy Riklin Raviv, Ben-Gurion University
  "Diving Deep into Microscopy Imaging Data for Single Cell Analysis"
- Dimitris Fotiadis, University of Ioannina / FORTH
  "AI Platforms Integrating Medical Data and Federated Models for Precision Care"
- Paul Sajda, Columbia University
  "Personalized Non-Invasive Neurostimulation for Treating Depression"

COFFEE BREAK | **4 pm – 4:30 pm**

PANEL | Moderators / Paul Sajda and Metin Akay
4:30 pm – 5:30 PM

- Ofer Barnea, Tel Aviv University
- Orna Berry, Google Cloud, Israel
- Hayit Greenspan, Tel Aviv University
- Natalie Mrachacz-Kersting, Albert Ludwig University of Freiburg
- May Wang, Georgia Institute of Technology

CLOSING REMARKS | **5:30 PM**

- Metin Akay, President IEEE-Engineering in Medicine and Biology Society
- Paul Sajda, President-Elect IEEE-Engineering in Medicine and Biology Society

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SYMPOSIUM 1 SPEAKERS

Data Science and Engineering in Healthcare

Ali Tinazli
Lifespin

Dr. Ali Tinazli, joined in Summer 2021 Lifespin in Germany as CEO and has a deep background in the science and business of biomedicine and healthcare as well as technology convergence between digital/consumer technologies and healthcare. Tinazli received his Ph.D. in Biochemistry from J.W. Goethe University in Germany, and studied business at UC, Berkeley's Haas School of Business and MIT's Sloan School of Management. Ali has done extensive work in the field of the molecular biology of aging and nanobiotechnology and has authored about 20 publications. After receiving his Ph.D., Ali was in Corporate Development at Applied Biosystems (now: Thermo Fisher) where he conducted technology scouting and in-licensing. From 2008-2015, Dr. Tinazli built the biomedical consumables business at Sony DADC (part of SONY Corporation). As a member of the management team at Sony DADC BioSciences, he has headed as VP & Head of Business Development the Americas business based out of Cambridge, MA. From 2015-2019 Ali was leading Hewlett-Packard's global healthcare strategy in Palo Alto (CA, USA) and joined point-of-care diagnostics start-up Fluxergy in Irvine (CA, USA) as CCO after. In addition to his bioscience and industry domain expertise, Ali brings strong entrepreneurial experience and hands-on knowledge of the biosciences start-up community and serves as Board Member and Angel Investor in numerous start-ups ranging from cybersecurity to oncology.

Thomas Wilckens
InnVentis Ltd.

Dr. Thomas Wilckens is a medical doctor and a serial entrepreneur. He serves as the CEO of InnVentis Ltd. (Israel), with a focus on the convergence of multi-omics technologies with real-world clinical data and machine learning to enable Precision Medicine. Thomas is a recognized thought leader regarding emerging trends, technologies and the convergence of technologies and business models that drive the disruption of healthcare and related industries. Thomas was an early stage investor in the the award winning company Biome Diagnostics (Vienna), an AI & microbiome Dx & Research company (shares sold) and is a current investor in Cytoreason (Israel), AI and drug discovery and development.

Thomas obtained his MD at the Ludwig-Maximilian University in Munich and started his research career as a scholar of the Max-Planck Society and the Max-Kade Foundation in New York. He held several post-doctorate positions in the EU and US at leading academic institutions before becoming an entrepreneur.

Aside from his work in Precision Medicine he developed a novel concept for value creation in research intensive industries, i.e., "Symbiotic Innovation". Thomas is convinced that we will see a disruption of current diagnostics & therapeutic concepts and related business models. This paradigm shift will be induced by the advent of even greater communication and computing capabilities in concert with progress in omics and sensor technologies, i.e., Precision Medicine will ultimately be supported by algorithms for prevention, diagnostics and therapeutic decision making and become available anywhere 24/7.

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SYMPOSIUM 1 SPEAKERS *continued*

Data Science and Engineering in Healthcare

Josh Schulman
Joy Ventures

Josh Schulman, PhD, is the Chief Scientist at Joy Ventures. Before joining Joy, he worked for nearly two decades in the medical device and pharmaceutical industries, in roles spanning R&D, clinical research, regulatory affairs, business development and innovation.

In these roles he was involved in bringing novel biologics and drugs to market, introducing and leading the development of hardware and breakthrough-designated software devices.

Throughout, he has worked actively on policy and governance, taking an active role in FDA's software precertification and AI policy programs, as well as serving as a member of AAMI's working group on medical device software in the cloud.

He has also worked extensively with academic technology transfer companies, small businesses, and investors across the medical device and pharma industries as well as lecturing and assisting team projects in a university biodesign program.

His scientific and management training began with a PhD in neuroscience in the laboratory of Rodolfo Llinas at NYU which used magnetoencephalography to identify and study the impact of thalamocortical dysrhythmias. Following a postdoc on brain biomarker development, he worked with government agencies and private-sector companies on science strategy and program management.

David Fenstermacher
Health Catalyst

David Fenstermacher currently the Vice President, Health System Partnerships/Health Catalyst Research Network at Health Catalyst. Previously he was VP of Bioinformatics at MedImmune, the Chief Research Information Officer and Professor of Biostatistics at Virginia Commonwealth University, the Founding Chair of the Department of Biomedical Informatics at the H. Lee Moffitt Cancer Center, and Research Institute. He previously established and directed informatics shared resource facilities for more than nine years at the University of North Carolina at Chapel Hill and the Abramson Cancer Center at the University of Pennsylvania. During his tenure in biomedical informatics, Dr. Fenstermacher has designed and directed the implementation of several bioinformatics distributed computing systems to support basic and clinical research, including multiple institution research projects. He has also designed data management systems for more specialized projects including integrating clinical (patient and lab test data), genomics (SNP and microarray) and proteomics (mass spectrometry data) data to support studies focused on cancer and other human diseases.

Dr. Fenstermacher received his doctoral degree from the University of North Carolina at Chapel Hill. Prior to joining the fields of bioinformatics and biomedical informatics, Dr. Fenstermacher spent fourteen years as a molecular biologist/geneticist working on several projects, including phage display technologies, FISH for cytogenetic applications, cDNA cloning and transcriptional analyses. His background as a bench scientist brings a unique perspective to the design of computational tools to support basic and clinical research studies. Dr. Fenstermacher has held several previous faculty positions at the University of North Carolina, the University of Pennsylvania, and the University of South Florida.

SYMPOSIUM 1 SPEAKERS *continued*

Data Science and Engineering in Healthcare

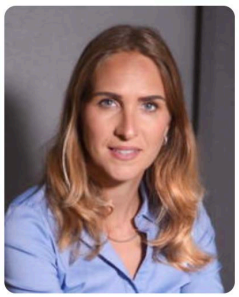
Yuval Shahar
Ben Gurion University

Professor Yuval Shahar holds advanced degrees in Medicine (M.D., Hebrew University), Computer Science with a focus on Artificial Intelligence (M.Sc., Yale), and Medical Informatics with a focus on Artificial Intelligence in Medicine (Ph.D., Stanford). After a decade as a researcher and as a full-time faculty member at Stanford University's School of Medicine and its Computer Science Department, he moved to Ben Gurion University to found and head its Medical Informatics Research Center and chaired for several years its Software and Information Systems Engineering Department.

Professor Shahar's research focuses on temporal reasoning, temporal data mining and Machine Learning, automated monitoring, diagnosis, and therapy, medical knowledge representation, decision analysis, and Decision Making. His work was applied mostly in biomedical domains, as well as in homeland security and information security.

In 1995, Prof. Shahar was a recipient of the NIH FIRST 5-year Young Investigator career award, ranked first in the USA. In 2005, he won an IBM Faculty Award, and in 2008, an HP Worldwide Innovation Program award. He was elected in 2005 as an International Fellow of the American College of Medical Informatics (ACMI), and in 2017, as a Founding Member of the International Academy of Health Sciences Informatics (IAHSI), a part of the International Medical Informatics Association (IMIA). Since 2014, Prof. Shahar is the Josef Erteschik Chair in Information Systems Engineering at Ben Gurion University.

Inbal Zafir-Lavie
Gina Life



Dr. Zafir-Lavie is the CEO of Gina Life, developing a machine learning based platform for improving women's healthcare. Dr. Zafir-Lavie has completed her PhD, cum laude, in 2010 at the Technion – Israel Institute of Technology, in antibody engineering and cancer immunology. Upon completing her PhD, Dr. Zafir-Lavie worked at Bio-Rad as project leader in Protein Technologies Unit.

In 2013 Dr. Zafir-Lavie joined Aevi Genomic Medicine as a team leader for the development of antibody gene-therapy platform and later as Israel R&D Site Head. Later on, she relocated to Philadelphia, PA USA to work as a Senior Scientist in translational medicine group at Aevi Genomic Medicine, collaborating with Center of Applied Genomics at CHOP. In her work in the US, Dr. Zafir-Lavie has developed an innovative diagnostic assay and was involved in the development of biological drugs for autoimmune diseases.
Upon returning from the USA, Dr. Zafir-Lavie has worked for Merck group as a senior scientist, and in 2020 Inbal joined Gina-Life as CEO and co-founder, She has been leading the company ever since. Inbal is an experienced leader, and an expert in immunology, biomarkers and antibody engineering. She brings vast experience in developing diagnostic assays and bringing biological drugs to IND and clinical trials. Through her career Dr. Zafir-Lavie is seeking to promote translational work, which prolong patients' lives. Dr. Zafir-Lavie is keen to promote technologies for improving women's health.

SYMPOSIUM 1 SPEAKERS *continued*

Data Science and Engineering in Healthcare

Ran Gilad-Bachrach
Tel-Aviv University

Professor Ran Gilad-Bachrach is leading the ML-Well lab, in the bio-medical engineering department at Tel-Aviv University. The lab studies machine learning and artificial intelligence and their applications for health and wellbeing. Prior to joining academia, Ran worked for ~15 years as a machine learning researcher in Microsoft Research and in Intel Research. Ran's work ranges from the development of AI algorithms that preserve privacy using homomorphic encryptions, through algorithms for handling diverse data types, such as graphs and sets that emerge in bio-medical applications of AI, to studies about the applications of AI in helping people to better cope with stress.

David Clifton
University of Oxford

David Clifton is Professor of Clinical Machine Learning at the University of Oxford, where he leads the Computational Health Informatics (CHI) Lab, with 32 members spanning disciplines between ML and medicine. He is OCC Fellow in AI & ML at Reuben College, Research Fellow of the Royal Academy of Engineering, Fellow of the Alan Turing Institute, Visiting Chair in AI for Health at the University of Manchester, and a Fellow of Fudan University, China. In 2018, the CHI Lab opened its second site, in Suzhou (China), within the Oxford-Suzhou Research Centre. In 2019, the Wellcome Trust's first "Flagship Centre" was announced, which joins CHI Lab to the Oxford University Clinical Research Unit in Vietnam.

In 2021, the Oxford-CityU Centre for Cardiovascular Engineering was opened in Hong Kong, of which he is associate director. His research has resulted in 38 awards and prizes, most recently including the IEEE EMBS "Early Career Achievement Award".

Metin Akay
University of Houston

Moderator

Metin Akay received his B.S. and M.S. in Electrical Engineering from the Bogazici University, Istanbul, Turkey in 1981 and 1984, respectively, and a Ph.D. degree from Rutgers University in 1990. He also received an honorary Ph.D. from the Aalborg University in 2015. He is currently the founding chair of the new Biomedical Engineering Department and the John S. Dunn professor of biomedical engineering at the University of Houston. He is currently the President of IEEE Engineering in Medicine and Biology Society.

He is the founding editor-in-chief of the Biomedical Engineering Book Series published by the Wiley and IEEE Press and the Wiley Encyclopedia of Biomedical Engineering. He is also the editor of the Neural Engineering Handbook published by Wiley/IEEE Press and the first steering committee chair of the IEEE Trans on Computational Biology and Bioinformatics.

He currently serves on the advisory board of several international journals including the IEEE T-BME, IEEE T-ITIB, Smart Engineering Systems, etc. and furthermore serves on several NIH and NSF review panels Dr. Akay is a recipient of the IEEE EMBS Early Career and Service awards as well an IEEE Third Millennium Medal and is a fellow of IEEE, the Institute of Physics (IOP), the American Institute of Medical Biological Engineering(AIMBE), and the American Association for the Advancement of Science (AAAS). His Neural Engineering and Informatics Lab is interested in developing a novel Brain Chip for precision medicine and an intelligent wearable system for monitoring and detecting coronary artery disease. In addition, his lab is currently investigating the effect of maternal alcohol and nicotine intake on the health risk in newborns.

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SYMPOSIUM 2 SPEAKERS

Data Science and Engineering in Medical Imaging and Informatics

Hayit Greenspan
Tel-Aviv University

Hayit Greenspan is a Professor of Biomedical Engineering focusing on medical image analysis using deep learning and multimodal prediction modeling for patient health. Dr. Greenspan received the B.S. and M.S. degrees in Electrical Engineering (EE) from the Technion, and the Ph.D. degree in EE from CALTECH – California Institute of Technology. She was a Postdoc with the CS Division at U.C. Berkeley following which she joined Tel-Aviv University and established the Medical Image Processing (MIP) Lab at the Biomedical Engineering Dept in the Faculty of Engineering.

From 2008 until 2011, she was a visiting Professor at Stanford University, Department of Radiology, Faculty of Medicine. She was also a visiting researcher at IBM Research in the Multi-modal Mining for Healthcare group, in Almaden CA. Currently on Sabbatical and Leave from Tel-Aviv University. As of 2021 she is affiliated with the Department of Radiology and Director of the AI Core at the BioMedical Engineering and Imaging Institute at the Icahn School of Medicine at Mount Sinai. She is also Co-founder of RADLogics Inc.

Dr. Greenspan has over 200 publications in leading international journals and conferences and has received several awards and patents. She is member of several journal and conference program committees, including SPIE medical imaging, IEEE_ISBI and MICCAI. She served as an Associate Editor for the IEEE Trans on Medical Imaging (TMI) journal. In 2016 she was the Lead Co-editor for a Special issue on Deep Learning in Medical Imaging in IEEE TMI. In 2017 she Co-edited the first Elsevier Academic Press book on Deep learning for Medical Image Analysis. She is co-Editor of the planned second edition of the Book. Hayit Chaired the Workshop sessions at MICCAI 2019, in Shenzhen, China. She was Program Chair for IEEE_ISBI in 2020 and is scheduled to be Program Chair of MICCAI 2023. Recently she was titled as one of the Top-30 Women AI leaders in Drug Discovery and Advanced Healthcare, by Deep Knowledge Analytics.

Andrew Laine
Columbia University

Andrew F. Laine received his D.Sc. degree from Washington University (St. Louis) School of Engineering and Applied Science in Computer Science, in 1989 and BS degree from Cornell University (Ithaca, NY). He was a Professor in the Department of Computer and Information Sciences and Engineering at the University of Florida (Gainesville, FL) from 1990-1997. He joined the Department of Biomedical Engineering in 1997 and served as Vice Chair of the Department of Biomedical Engineering at Columbia University since 2003 – 2011, and Chair of the Department of Biomedical Engineering (2012 – 2017). He is currently Director of the Heffner Biomedical Imaging at Columbia University and the Percy K. and Vida L. W. Hudson Professor of Biomedical Engineering and Professor of Radiology (Physics).

He was the founding chair of the SPIE conference on "Mathematical Imaging: Wavelet Application in Signal and Image Processing" and served as co-chair during the years 1993-2003. Dr. Laine has served as Chair of Technical Committee (TC-BIIP) on Biomedical Imaging and Image Processing for EMBS 2004-2009 and has been a member of the TC of IEEE Signal Processing Society, TC-BISP (Biomedical Imaging and Signal Processing) 2003-present. Professor Laine served on the IEEE ISBI (International Symposium on Biomedical Imaging) steering committee, 2006-2009 and 2009 – 2012. He is a Fellow of IEEE, AIMBE and IFMBE.

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Georgia Tech College of Engineering and Emory School of Medicine

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SYMPOSIUM 2 SPEAKERS *continued*

Data Science and Engineering in Medical Imaging and Informatics

Alex Frangi
University of Leeds

Professor Frangi is Diamond Jubilee Chair in Computational Medicine and Royal Academy of Engineering Chair in Emerging Technologies at the University of Leeds, Leeds, UK, with joint appointments at the School of Computing and the School of Medicine. He directs the CISTIB Center for Computational Imaging and Simulation Technologies in Biomedicine. He is Turing Fellow of the Alan Turing Institute. Prof. Frangi is the Scientific Director of the Leeds Centre for HealthTech Innovation and Director of Research and Innovation of the Leeds Institute for Data Analytics. He holds an Honorary Chair in KU Leuven in the Departments of Electrical Engineering and Cardiovascular Sciences.

Noam Shomron
Tel-Aviv University

Professor Noam Shomron is passionate about using basic science to advance better healthcare. Prof Shomron heads the Genomic Intelligence Research Laboratory at the Faculty of Medicine at Tel Aviv University, after training at MIT. He leads a multidisciplinary team of scientists: biologists, physicians, computer scientists and bioinformaticians. The team develops computational methods for parsing molecular and big-data in the bio-medical field using Artificial Intelligence, successfully publishing hundreds of scientific papers.

Kira Radinsky
Diagnostic Robotics

Dr. Kira Radinsky is the CEO and CTO of Diagnostic Robotics, where the most advanced technologies in the field of artificial intelligence are harnessed to make healthcare better, cheaper, and more widely available. In the past, she co-founded SalesPredict, acquired by eBay in 2016, and served as eBay director of data science and IL chief scientist. One of the up-and-coming voices in the data science community, she is pioneering the field of medical data mining.

Dr. Radinsky gained international recognition for her work at Microsoft Research, where she developed predictive algorithms that recognized the early warning signs of globally impactful events, including political riots and disease epidemics. In 2013, she was named to the MIT Technology Review's 35 Young Innovators Under 35, in 2015 as Forbes 30 under 30 rising stars in enterprise technology, and in 2016 selected as "woman of the year" by Globes. She is a frequent presenter at global tech events, including TEDx, Wired, Strata Data Science, Techcrunch and academic conferences, and she publishes in the Harvard Business Review. Dr. Radinsky serves as a board member in: Israel Securities Authority, Maccabi Research Institute, and technology board of HSBC bank. Dr. Radinsky also serves as visiting professor at the Technion, Israel's leading science and technology institute, where she focuses on the application of predictive data mining in medicine.

SYMPOSIUM 2 SPEAKERS *continued*

Data Science and Engineering in Medical Imaging and Informatics

May Wang
Georgia Institute of Technology

Dr. May Dongmei Wang is Wallace H. Coulter Distinguished Faculty Fellow and full professor in Schools of Biomedical Engineering and Electrical and Computer Engineering at Georgia Institute of Technology (GT) and Emory University (EU). She is Director of Biomedical Big Data Initiative, Georgia Distinguished Cancer Scholar, Petit Institute Faculty Fellow, Kavli Fellow, AIMBE Fellow, IAMBE Fellow, IEEE Fellow, and Board of Directors in American Board of AI in Medicine. Her research is in Biomedical Big Data with AI-Driven Intelligent Reality (IR) for predictive, personalized, and precision health (pHealth). During 20+ years academic and ~4 years industrial research, she published 270+ articles in referred journals and conference proceedings and delivered 260+ invited and keynote talks. Dr. Wang received BEng from Tsinghua University China, and MS with PhD degrees from GT. She is a recipient of GT Outstanding Faculty Mentor Award, and EU MilliPub Award (for a high-impact paper that is cited over 1,000 times).

Dr. Wang is the Senior Editor for IEEE Journal of Biomedical & Health Informatics (J-BHI, Impact Factor 7.02), an Associate Editor for IEEE Transactions for BME, and IEEE Reviews for BME, a panelist for NIH CDMA Study Section, NSF Smart and Connect Health, Brain Canada, and multiple European countries

Paul Sajda
Columbia University

Moderator

Paul Sajda is a Professor of Biomedical Engineering, Electrical Engineering and Radiology (Physics) at Columbia University. He is also a Member of Columbia's Data Science Institute and an Affiliate of the Zuckerman Institute of Mind, Brain and Behavior. He received a BS in electrical engineering from MIT in 1989 and an MSE and PhD in bioengineering from the University of Pennsylvania, in 1992 and 1994, respectively. Professor Sajda is interested in what happens in our brains when we make a rapid decision and, conversely, what processes and representations in our brains drive our underlying preferences and choices, particularly when we are under time pressure. His work in understanding the basic principles of rapid decision-making in the human brain relies on measuring human subject behavior simultaneously with cognitive and physiological state. Important in his approach is his use of machine learning and data analytics to fuse these measurements for predicting behavior and infer brain responses to stimuli. Professor Sajda applies the basic principles he uncovers to construct real-time brain-computer interfaces that are aimed at improving interactions between humans and machines. He is also applying his methodology to understand how deficits in rapid decision-making may underlie and be diagnostic of many types of psychiatric diseases and mental illnesses. Professor Sajda is a co-founder of several neurotechnology companies and works closely with a range of scientists and engineers, including neuroscientists, psychologists, computer scientists, and clinicians. He is a fellow of the IEEE, AMBIE and AAAS and Chair of the IEEE Brain Initiative. He is also a recent recipient of the DoD's Vannevar Bush Faculty Fellowship (VBFF).

Data Science and Engineering in Healthcare, Medicine and Biology

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SYMPOSIUM 3 SPEAKERS

Data Science and Engineering in Medical Imaging and Neuroscience

Ziv Bar-Joseph
Carnegie Melon University

Ziv Bar-Joseph is the Head, R&D Computational Sciences at Sanofi and the FORE Systems Professor at the Machine Learning Department and the Computational Biology Department in the School of Computer Science at Carnegie Mellon University (CMU). Dr. Bar-Joseph received his PhD in computer science from MIT in 2003. His work is focuses on the development of machine learning methods for the processing, analysis, visualization and modeling high throughput biological data. He has specifically focused on the analysis and modeling single cell data from several modalities and on methods for integrating this data with bulk interaction data to reconstruct networks within and between cells. Dr. Bar-Joseph is involved in a number of national efforts focused on using single cell data to create 3D reference human maps. He led the Computational Tools center for the NIH HuBMAP program and is a PI for the SenNet Data Coordination Center. He was also the director of the Joint CMU Pitt PhD Program in Computational Biology (CPCB). Dr. Bar-Joseph is the recipient of the Overton prize, the annual award of the Intentional Society for Computational Biology (ISCB) and the NSF CAREER award. He is also the recipient of several best papers awards including at the top computational biology conferences, Recomb and ISMB.

Chwee Teck Lim
National University of Singapore

Professor Chwee Teck Lim is is the NUSS Chair Professor at the Department of Biomedical Engineering and Director of the Institute for Health Innovation and Technology at the National University of Singapore. He conducts research in human diseases and develops medical sensing and wearable technologies for disease diagnosis and therapy. He has over 450 scientific publications, delivered over 420 plenary/lkeynote/invited talks and ha over 60 filed and granted patents. He also cofounded six startups. He and his team has garnered over 100 research awards and honours including elected fellowships in the US National Academy of Inventors, IUPESM, IAMBE, AIMBE, ASEAN Academy of Engineering and Technology, Academy of Engineering, Singapore and Singapore National Academy of Science.

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SYMPOSIUM 3 SPEAKERS *continued*

Data Science and Engineering in Medical Imaging and Neuroscience

Gudrun Zahlmann
Quantitative Imaging Biomarker Alliance

Gudrun Zahlmann, PhD, is an independent consultant and Vice-chair of the Quantitative Imaging Biomarker Alliance (QIBA). Her current interest is to d evelop and implement quantitative imaging procedures as part of data sciences in medicine.

Gudrun is trained in Biomedical Engineering and Computer Science and has worked in Academia as well as in Healthcare and Pharmaceutical Industry. More details can be found on LinkedIn.

Shai Shen-Orr
Technion & CytoReason Ltd.

Systems Biologist and Data Scientist Shai Shen-Orr is the Co-founder and Chief Scientist of CytoReason and a Professor in the Faculty of Medicine at the Technion—where he directs the laboratory of Systems Immunology and Precision Medicine.

Shai's research work laid the foundation of CytoReason in 2016, a company that uses an artificial intelligence model of the immune system to make predictions from biological data.

Andreas Tolias
Baylor College of Medicine

Dr. Andreas Tolias' research is focused on understanding how brains give rise to visual intelligence. His lab combines imaging, electrophysiological, molecular, and behavioral methods with machine learning approaches to decipher the neocortical circuit principles of perceptual inference. He obtained his B.A. from the University of Cambridge in Natural Sciences and a Ph.D. from the Massachusetts Institute of Technology in Systems and Computational Neuroscience and did postdoctoral training at the Max-Planck Institute for Biological Cybernetics. He has received numerous awards including the NIH Director's Pioneer Award, the Beckman Foundation Young Investigator Award, the McKnight Foundation Scholar Award, the McKnight Memory and Cognitive Disorders Award and the Michael E. DeBakey Excellence in Research Award. He is a Professor and Brown Foundation Endowed Chair of Neuroscience in the Department of Neuroscience at Baylor College of Medicine and the Founder and Director of the Center for Neuroscience and Artificial Intelligence. Dr. Tolias is also a co-founder of the Neuroscience-Inspired Networks for Artificial Intelligence organization (ninai.org) and is leading an international team of scientists and engineers working on the interface between brain research and machine intelligence with the goal of engineering less artificial and more intelligent algorithms. He is also a co-founder of Vathes Inc., Upload AI LLC & BioAvatar LLC.

SYMPOSIUM 3 SPEAKERS *continued*

Data Science and Engineering in Medical Imaging and Neuroscience

Natalie Mrachacz-Kersting
Albert Ludwig University of Freiburg

Professor Natalie Mrachacz-Kersting received her PhD in Biomedical Science and Engineering from The University of Aalborg, Denmark in 2005 and held several post-doctoral positions at the University of Auckland, New Zealand and Aalborg University, Denmark. From 2007 she was Associate Professor at the Center for Sensory-Motor Interaction, Aalborg University, and in 2019 Professor in Neuroscience and Medical Technologies at the University of Applied Sciences and Arts Dortmund, Germany. In June 2021 she accepted a position as full Professor in Neuroscience and Director of the Institute at the University of Freiburg, Germany.

Her research focuses on neurorehabilitation technology for the restoration and replacement of lost motor function, and neural control of movement. She has (co)-authored more than 80 manuscripts in peer-reviewed Journals and >170 conference abstracts andpapers. She was the recipient of the International Award in Brain-Computer-Interfaces in 2017 and received several prestigious grants from the Innovation Fond of Denmark, Kong Christian den Tiendes Fond and Lundbeck Fond of Denmark. She is currently Board Member of the Brain-Computer Interface Society where she also heads the fundraising committee and is part of the communications committee. She is Associate-Editor of several journals including Transactions on Neural Systems and Rehabilitation Engineering, Brain-Computer-Interfaces, Scandinavian Journal of Medicine and Science in Sports and Frontiers in Human Neuroscience. In Freiburg she was recently appointed director of the student health management group that collaborates with health insurances to provide the student body with innovative opportunities to improve health in all aspects from psychological stress to time management.

Moti Freiman
Technion

Dr. Freiman is an assistant professor and the director of the Technion's Computational MRI Lab (TCML) at the faculty of Biomedical Engineering of the Technion. He is also the academic director of the Technion's human MRI research center. Dr. Freiman long-term career goal is to improve patient care by leading the technical development of advanced algorithms to improve the capacity of medical imaging devices to diagnose diseases.

Previously, Dr. Freiman hold various positions in academia and industry. He is the author and co-author of more than 40 journal and full-length conference papers and holds several patents and patent applications. Dr. Freiman is serving as a program committee member for the MICCAI and IEEE ISBI conferences.

Dr. Freiman completed a post-doctoral fellowship at Harvard Medical School in Oct. 2012 and holds a PhD and MSc in Computer Science from the Hebrew University of Jerusalem, Israel (Dec. 2010, 2005, Magna cum laude), and a BSc (2003) in mathematics and computer science from Bar-Ilan university, Israel. Dr. Freiman is the recipient of the 2012 Crohn's and Colitis foundation of America research fellow award and an honorable mention paper award of MICCAI 2012 conference.

SYMPOSIUM 3 SPEAKERS *continued*

Data Science and Engineering in Medical Imaging and Neuroscience

Neomi Singer
Tel-Aviv Sourasky Medical Center

Dr. Neomi Singer (PhD) is a neuroscientist in the Sagol Brain Institute and the neurological department at Tel Aviv Sourasky medical center. Her academic focus is in cognitive neuroscience of music, aiming to understand how various aspects of the human musical experience affects brain function, and to translate this knowledge into tools for treatment and prevention of brain degeneration and neuropsychiatric manifestations. Her work employs multi-modal neuroimaging (EEG fMRI and MRI) along with advanced analytics and brain computer interface approach for the development of such clinical translations in music neuroscience. Dr. Singer earned her PhD at the Sagol School of Neuroscience at Tel Aviv University (TAU) and performed her thesis under the supervision of Prof Talma Hendler. Her PhD research focused on the neural and psychological mechanisms underlying human emotions as they unfold during music listening. These issues were examined using behavioral, musicological, physiological and converging neural measurements. Under a post-doctoral fellowship in the BrainBoost innovation center at TAU, she implemented an innovative fMRI-informed computational approach for picking up signals from major hubs in the 'reward related brain system' using EEG. In her post-doctoral studies at the Montreal Neurological Institute at McGill University, under the mentorship of Prof Robert Zatorre and Prof Alain Dagher, she further investigated the neurobehavioral effects of her novel neurofeedback tool that targets reward system imbalances and exploits music's fascinating ability to induce pleasure. Dr Singer has published scientific papers in first tier journals and received several academic awards.

David Elad Moderator
Tel-Aviv University

David Elad is a professor of Biomedical Engineering at Tel Aviv University in Israel since 1985. He received his D.Sc. in Biomedical Engineering on 1982 from the Technion, Israel. He was then awarded the Rothschild and Bantrell post-doctoral fellowships at Imperial College London and M.I.T. During 2014-2019, he was also affiliated with the Department of Biomedical Engineering of Columbia University. His research work in Respiratory Biomechanics and Reproductive Bioengineering spans from cellular to organ levels. In the late 80's he pioneered computational studies of transport phenomena in the nasal cavity. In the early 90's he initiated a research program in bioengineering of human reproduction, which he promoted worldwide. His current research is focused on the mechanobiology of the uterine wall and biomimetic active ventilation of indoors. David has been a visiting scholar in prestigious universities. He was a member of the World Council for Biomechanics (2002-14) and presently is a fellow of the AIMBE, BMES.

Data Science and Engineering in Healthcare, Medicine and Biology

OCTOBER 19 - 20, 2022 – FACULTY OF ENGINEERING, TEL AVIV UNIVERSITY, ISRAEL

SYMPOSIUM 4 SPEAKERS

Data Science and Engineering in Big BioData and Data Analytics

Leo Joskowicz
Hebrew University of Jerusalem

Leo Joskowicz is a Professor at the School of Computer Science and Engineering at the Hebrew University of Jerusalem, Israel since 1995. He is the founder and director of the Computer-Aided Surgery and Medical Image Processing Laboratory (CASMIP Lab). Prof. Joskowicz is a Fellow of the IEEE, ASME, and MICCAI (Medical Image Processing and Computer Aided Intervention) Societies. He is the Past President of the MICCAI Society (2019-22) and was the Secretary General of the International Society of Computer Aided Orthopaedic Surgery (CAOS) and the International Society for Computer Assisted Surgery (ISCAS). He is the recipient of the 2010 Maurice E. Muller Award for Excellence in Computer Assisted Surgery by the International Society of Computer Aided Orthopaedic Surgery and the 2007 Kaye Innovation Award. He has published over 270 technical works including conference and journal papers, book chapters, and editorials and has 15 issued patents. He is on the Editorial Boards of six journals, including Medical Image Analysis, Int. J. of Computer Aided Surgery, Computer Aided Surgery, and Nature Scientific Reports and has served on numerous related program committees.

Tammy Riklin Raviv
Ben-Gurion University

Prof. Tammy Riklin Raviv leads the Biomedical Image Computing lab. at the School of Electrical and Computer Engineering of Ben-Gurion University (BGU). Her lab. develops deep learning and computer vision algorithms for the analysis of medical and microscopy imaging data and computational neuroscience.

She is a TC member at the IEEE Bio Imaging and Signal Processing (BISP) Committee, a handling editor in Neuroimage, and an associate editor at the IEEE Transactions on Medical Imaging journal.

She holds a B.Sc. in Physics and an M.Sc. in Computer Science both from the Hebrew University in Jerusalem, and a PhD from the School of Electrical Engineering of Tel-Aviv University. Prior to establishing her own research group at BGU (2012) she was a research fellow and a post-doctorate associate at the Computer Science and Artificial Intelligence lab. (CSAIL), MIT, at Harvard Medical School, and at the Broad Institute of MIT and Harvard.

SYMPOSIUM 4 SPEAKERS *continued*

Data Science and Engineering in Big BioData and Data Analytics

Dimitris Fotiadis
University of Ioannina | FORTH

Prof. Dimitrios I. Fotiadis received the Diploma degree in chemical engineering from the National Technical University of Athens, Athens, Greece, and the Ph.D. degree in chemical engineering and materials science from the University of Minnesota, Minneapolis. He is currently a Professor of Biomedical Engineering in the Department of Materials Science and Engineering, University of Ioannina, Ioannina, Greece, where he is also the Director of the Unit of Medical Technology and Intelligent Information Systems and is also an Affiliated Member of Foundation for Research and Technology Hellas, Biomedical Research Institute. He was a Visiting Researcher at the RWTH, Aachen, Germany, and the Massachusetts Institute of Technology, Boston. He has coordinated and participated in more than 250 R&D funded projects (in FP6, FP7, H2020, and national Projects), being the coordinator (e.g., INSILC, TAXINOMISIS, HOLOBALANCE, CARDIOCARE, DECODE, etc.) and technical coordinator (e.g., SMARTOOL, KARDIATOOL, TO_AITION, etc.). He is the author or coauthor of more than 300 papers in scientific journals, 500 papers in peer-reviewed conference proceedings, and more than 50 chapters in books. He is also the author/editor of 30 books. His work has received more than 21,813 citations (h-index=70). He is IEEE EMBS Fellow, EAMBES Fellow, Fellow of IAMBE, member of the IEEE Technical Committee of information Technology in Healthcare, Editor in Chief of IEEE Journal of Biomedical and Health Informatics, Member of the Editorial Board in IEEE Reviews in Biomedical Engineering, Associate Editor for IEEE Open Journal in Engineering in Biology and Medicine and Computers in Biology and Medicine. He is the co-founder of PD Neurotechnology Ltd, UK.

Paul Sajda
Columbia University

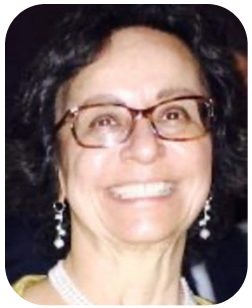
Paul Sajda is a Professor of Biomedical Engineering, Electrical Engineering and Radiology (Physics) at Columbia University. He is also a Member of Columbia's Data Science Institute and an Affiliate of the Zuckerman Institute of Mind, Brain and Behavior. He received a BS in electrical engineering from MIT in 1989 and an MSE and PhD in bioengineering from the University of Pennsylvania, in 1992 and 1994, respectively. Professor Sajda is interested in what happens in our brains when we make a rapid decision and, conversely, what processes and representations in our brains drive our underlying preferences and choices, particularly when we are under time pressure. His work in understanding the basic principles of rapid decision-making in the human brain relies on measuring human subject behavior simultaneously with cognitive and physiological state. Important in his approach is his use of machine learning and data analytics to fuse these measurements for predicting behavior and infer brain responses to stimuli. Professor Sajda applies the basic principles he uncovers to construct real-time brain-computer interfaces that are aimed at improving interactions between humans and machines. He is also applying his methodology to understand how deficits in rapid decision-making may underlie and be diagnostic of many types of psychiatric diseases and mental illnesses. Professor Sajda is a co-founder of several neurotechnology companies and works closely with a range of scientists and engineers, including neuroscientists, psychologists, computer scientists, and clinicians. He is a fellow of the IEEE, AMBIE and AAAS and Chair of the IEEE Brain Initiative. He is also a recent recipient of the DoD's Vannevar Bush Faculty Fellowship (VBFF).

SYMPOSIUM 4 SPEAKERS *continued*

Data Science and Engineering in Big BioData and Data Analytics

Yasemin Akay
University of Houston

Moderator



Yasemin M. Akay is currently an Associate Professor at the Department of Biomedical Engineering, Cullen College of Engineering, University of Houston. She received her B.S. in Pharmaceutical Sciences from the Hacettepe University, Ankara, Turkey in 1980 and M.S. and Ph.D in Biomedical Engineering from the Rutgers University, Piscataway, NJ, USA in 1991 and 1998, respectively.

Her research focuses on novel technologies for cost-effective high-throughput screening of novel cancer drugs and therapeutics and assessment of treatment responses. She is currently assessing the effectiveness of the optimal combination of anticancer drugs, obtained from the brain cancer chip, in treating GBM tumors in the respective mouse models. The ultimate goal of her research is to use the optimal drug combinations determined in vitro for each patient in their respective mouse model to show that the results from the in vivo mouse studies will support the results obtained from in vitro studies.

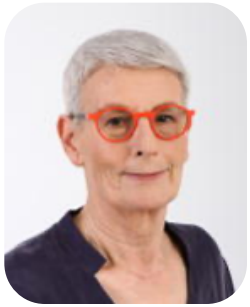
She is also currently exploring the effect of maternal nicotine and alcohol exposures on Dopamine neurons within the sub-regions of the VTA during early maturation at both cellular and molecular levels.

Data Science and Engineering in Healthcare, Medicine and Biology

OCTOBER 19 - 20, 2022 – FACULTY OF ENGINEERING, TEL AVIV UNIVERSITY, ISRAEL

Panel Discussion

Orna Berry
Google Cloud, Israel



Dr. Orna Berry is an entrepreneur, computer scientist, industry executive and the former chief scientist in the government of Israel.

In the last three years she has chaired planned research infrastructure in TELEM, established by the Israeli Academy of Sciences; the committees for (1) building the national programs for Quantum Science and Technology and (2) Artificial Intelligence and Data Science. Effective October 2021 Orna is a Technical Director at the office of the CTO at Google Cloud.

Throughout her career, Dr. Berry has been the recipient of various awards.

https://en.wikipedia.org/wiki/Orna_Berry

Hayit Greenspan
Tel-Aviv University

Hayit Greenspan is a Professor of Biomedical Engineering focusing on medical image analysis using deep learning and multimodal prediction modeling for patient health. Dr. Greenspan received the B.S. and M.S. degrees in Electrical Engineering (EE) from the Technion, and the Ph.D. degree in EE from CALTECH – California Institute of Technology. She was a Postdoc with the CS Division at U.C. Berkeley following which she joined Tel-Aviv University and established the Medical Image Processing (MIP) Lab at the Biomedical Engineering Dept in the Faculty of Engineering. From 2008 until 2011, she was a visiting Professor at Stanford University, Department of Radiology, Faculty of Medicine. She was also a visiting researcher at IBM Research in the Multi-modal Mining for Healthcare group, in Almaden CA. Currently on Sabbatical and Leave from Tel-Aviv University. As of 2021 she is affiliated with the Department of Radiology and Director of the AI Core at the BioMedical Engineering and Imaging Institute at the Icahn School of Medicine at Mount Sinai. She is also Co-founder of RADLogics Inc.

Dr. Greenspan has over 200 publications in leading international journals and conferences and has received several awards and patents. She is member of several journal and conference program committees, including SPIE medical imaging, IEEE_ISBI and MICCAI. She served as an Associate Editor for the IEEE Trans on Medical Imaging (TMI) journal. In 2016 she was the Lead Co-editor for a Special issue on Deep Learning in Medical Imaging in IEEE TMI. In 2017 she Co-edited the first Elsevier Academic Press book on Deep learning for Medical Image Analysis. She is co-Editor of the planned second edition of the Book. Hayit Chaired the Workshop sessions at MICCAI 2019, in Shenzhen, China. She was Program Chair for IEEE_ISBI in 2020 and is scheduled to be Program Chair of MICCAI 2023. Recently she was titled as one of the Top-30 Women AI leaders in Drug Discovery and Advanced Healthcare, by Deep Knowledge Analytics.

The Iby and Aladar Fleischman Faculty of Engineering, Tel Aviv University · Joy Ventures · Georgia Tech Wallace H. Coulter Department of Biomedical Engineering · Emory University · Department of Biomedical Engineering Columbia Engineering Since 2000 · Biomedical Engineering

Panel Discussion *continued*

Natalie Mrachacz-Kersting
Albert Ludwig University of Freiburg

Professor Natalie Mrachacz-Kersting received her PhD in Biomedical Science and Engineering from The University of Aalborg, Denmark in 2005 and held several post-doctoral positions at the University of Auckland, New Zealand and Aalborg University, Denmark. From 2007 she was Associate Professor at the Center for Sensory-Motor Interaction, Aalborg University, and in 2019 Professor in Neuroscience and Medical Technologies at the University of Applied Sciences and Arts Dortmund, Germany. In June 2021 she accepted a position as full Professor in Neuroscience and Director of the Institute at the University of Freiburg, Germany.

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May Wang
Georgia Institute of Technology

Dr. May Dongmei Wang is Wallace H. Coulter Distinguished Faculty Fellow and full professor in Schools of Biomedical Engineering and Electrical and Computer Engineering at Georgia Institute of Technology (GT) and Emory University (EU). She is Director of Biomedical Big Data Initiative, Georgia Distinguished Cancer Scholar, Petit Institute Faculty Fellow, Kavli Fellow, AIMBE Fellow, IAMBE Fellow, IEEE Fellow, and Board of Directors in American Board of AI in Medicine. Her research is in Biomedical Big Data with AI-Driven Intelligent Reality (IR) for predictive, personalized, and precision health (pHealth). During 20+ years academic and ~4 years industrial research, she published 270+ articles in referred journals and conference proceedings and delivered 260+ invited and keynote talks. Dr. Wang received BEng from Tsinghua University China, and MS with PhD degrees from GT. She is a recipient of GT Outstanding Faculty Mentor Award, and EU MilliPub Award (for a high-impact paper that is cited over 1,000 times).

Dr. Wang is the Senior Editor for IEEE Journal of Biomedical & Health Informatics (J-BHI, Impact Factor 7.02), an Associate Editor for IEEE Transactions for BME, and IEEE Reviews for BME, a panelist for NIH CDMA Study Section, NSF Smart and Connect Health, Brain Canada, and multiple European countries

Panel Discussion *continued*

Ofer Barnea
Tel-Aviv University

Ofer Barnea is a Professor Emeritus of Biomedical Engineering at Tel Aviv University. He received a BSc degree from Tel Aviv University in Electronics Engineering and a PhD in Biomedical Engineering from Drexel University. Ofer was among the founders of the BME department at TAU and served six years as Department Chair. He is the Director of the BioMedTech program for innovation and entrepreneurship in medical devices.

Academic research interests include biomedical measurements and instrumentation; mathematical models of physiological systems and their clinical applications; cardiovascular system dynamics; analysis and interpretation of biological signals. He is also an entrepreneur and inventor, involved in the MedTech industry, and consults in the early stages of concept and prototype development, proof of concept in animal experiments and clinical human trials.

Paul Sajda Moderator
Columbia University

Paul Sajda is a Professor of Biomedical Engineering, Electrical Engineering and Radiology (Physics) at Columbia University. He is also a Member of Columbia's Data Science Institute and an Affiliate of the Zuckerman Institute of Mind, Brain and Behavior. He received a BS in electrical engineering from MIT in 1989 and an MSE and PhD in bioengineering from the University of Pennsylvania, in 1992 and 1994, respectively. Professor Sajda is interested in what happens in our brains when we make a rapid decision and, conversely, what processes and representations in our brains drive our underlying preferences and choices, particularly when we are under time pressure. His work in understanding the basic principles of rapid decision-making in the human brain relies on measuring human subject behavior simultaneously with cognitive and physiological state. Important in his approach is his use of machine learning and data analytics to fuse these measurements for predicting behavior and infer brain responses to stimuli. Professor Sajda applies the basic principles he uncovers to construct real-time brain-computer interfaces that are aimed at improving interactions between humans and machines. He is also applying his methodology to understand how deficits in rapid decision-making may underlie and be diagnostic of many types of psychiatric diseases and mental illnesses. Professor Sajda is a co-founder of several neurotechnology companies and works closely with a range of scientists and engineers, including neuroscientists, psychologists, computer scientists, and clinicians. He is a fellow of the IEEE, AMBIE and AAAS and Chair of the IEEE Brain Initiative. He is also a recent recipient of the DoD's Vannevar Bush Faculty Fellowship (VBFF).

Panel Discussion *continued*

Metin Akay
University of Houston

Moderator

Metin Akay received his B.S. and M.S. in Electrical Engineering from the Bogazici University, Istanbul, Turkey in 1981 and 1984, respectively, and a Ph.D. degree from Rutgers University in 1990. He also received an honorary Ph.D. from the Aalborg University in 2015. He is currently the founding chair of the new Biomedical Engineering Department and the John S. Dunn professor of biomedical engineering at the University of Houston. He is currently the President of IEEE Engineering in Medicine and Biology Society.

He is the founding editor-in-chief of the Biomedical Engineering Book Series published by the Wiley and IEEE Press and the Wiley Encyclopedia of Biomedical Engineering. He is also the editor of the Neural Engineering Handbook published by Wiley/IEEE Press and the first steering committee chair of the IEEE Trans on Computational Biology and Bioinformatics.

He currently serves on the advisory board of several international journals including the IEEE T-BME, IEEE T-ITIB, Smart Engineering Systems, etc. and furthermore serves on several NIH and NSF review panels Dr. Akay is a recipient of the IEEE EMBS Early Career and Service awards as well an IEEE Third Millennium Medal and is a fellow of IEEE, the Institute of Physics (IOP), the American Institute of Medical Biological Engineering(AIMBE), and the American Association for the Advancement of Science (AAAS). His Neural Engineering and Informatics Lab is interested in developing a novel Brain Chip for precision medicine and an intelligent wearable system for monitoring and detecting coronary artery disease. In addition, his lab is currently investigating the effect of maternal alcohol and nicotine intake on the health risk in newborns.

Data Science and Engineering in Healthcare, Medicine and Biology

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Organizing Committee

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Organizing Committee *continued*

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Yasemin Akay
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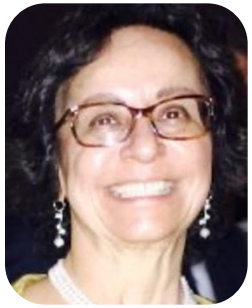

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