

**Machine Learning
Artificial Intelligence
Blockchain
Computational Medicine
Cybersecurity**



CEWIT2020 CONFERENCE

NOVEMBER 5, 2020



CONFERENCE GUIDE



Center of Excellence
WIRELESS AND INFORMATION TECHNOLOGY
AT STONY BROOK UNIVERSITY

WELCOME

Welcome to the 16th International Conference and Expo on Emerging Technologies organized by the Center of Excellence in Wireless and Information Technology (CEWIT) at Stony Brook University. The conference has gained international recognition as one of the premier conferences on the development and application of emerging technologies, and for bringing together academic research and industrial innovations at a single forum.

This year, CEWIT2020 is entirely virtual due to the unprecedented challenge that we all face caused by the pandemic. This pandemic is likely to go down as one of the most significant events of our generation. The virus seems like an accelerator for digital change that was already underway . . . the resistance to the digital change has suddenly evaporated. Information Technology, Artificial Intelligence (AI), Machine Learning (ML), IoT, Data Analytics, Computational Medicine, Edge Computing, Blockchain, and other emerging technologies will reshape a new world that will be vastly different from the one that existed just a year ago, and will also span new industries and create new opportunities. Information Technology is playing a major role in the pandemic mitigation. The scientific discoveries in these fields not only will enhance the economy, but will harbingers a totally new era in the way things will work in the new world. The security, connectivity, and privacy of data will be strengthened in this new world, and internal data streams will be combined with data streams coming from the external world such as social media and industry for data scientists to build new algorithms to make quick and intelligent decisions. It is critical that we drive technology commercialization by quickly moving technologies from research labs to the marketplace to help drive economic growth as we emerge from Covid-19. This conference will host a wide range of high-caliber speakers, including leading researchers, technologists, executives and policy makers, and with a broad international audience, will discuss innovations in Machine Learning, AI, Blockchain, and Computational Medicine. International panels in the medical field and on seeking capital for emerging technologies are highly relevant at this time. My heartiest congratulations to all of our Keynotes, Authors, and Panelists; and welcome to all of our participants.



Satya P. Sharma, PhD, MBA
Executive Director
The Center of Excellence in Wireless and Information Technology (CEWIT)



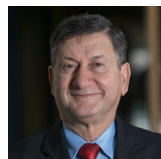
LEADERSHIP



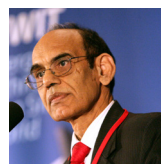
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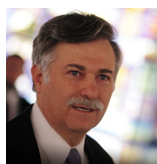
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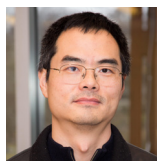
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Fan Ye, PhD
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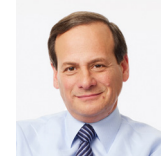


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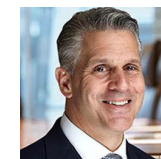
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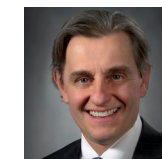
Satya Sharma, PhD, MBA
Executive Director
CEWIT



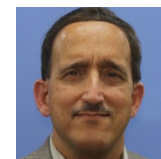
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Stony Brook University

CONFERENCE AGENDA

Time	Track One	Talk Title	Track Two	Talk Title	Track Three
8:00am	CEWIT2020 Conference Welcoming Remarks				
8:10am	Huamin Qu PhD- <i>Hong Kong University of Science and Technology</i>	AI+VIS: Magic Visualization and Explainable AI	Cecil Lynch, MD- <i>Accenture</i>	COVID-19 Clinical Analytics using Deep Learning and Graph Analytics – A deep dive on Deep Vein Thrombosis Complications	Venture Capital Trends Sessions: Michael Lane- <i>Long Island Capital Alliance- Moderator</i> Neil Callahan- <i>Pilot Growth Equity</i> Stav Erez- <i>Labs/02</i> Rajan Luthra- <i>Reliance Industries</i>
8:35am	Bruce Swett, PhD- <i>Northrop Grumman Mission Systems</i>	Commercial Artificial Intelligence Technologies and the Future of Warfare	Kimberly Noel, MD- <i>Stony Brook University Hospital</i>	Inclusive Innovation	
9:00am	Tao Wang, PhD- <i>Peking University</i>	Emotion Recognition & Attention Analysis by Affective Robots	Xuan Liu, PhD- <i>IBM Watson Health</i>	Preparing Return to Workplace with Data/AI Technology	
9:25am	Ye Zhao, PhD- <i>Kent State University</i>	Visual Design of Layer-wise Relevance Propagation Models for Deep Learning Explanation	Sharon Nachman, MD- <i>Stony Brook University Hospital</i>	COVID-19 NIAID'S Clinical Trial Plan	Funded Company Update Session: Sylvan Scheffler- <i>Tiger Financial Partners- Moderator</i> Rana Gujral- <i>Behavioral Signals</i> Mike Noonan- <i>MixComm</i> Dan Slagen- <i>ClimaCell</i> Jack Tawil- <i>Medpod</i>
9:50am	Moncef Gabbouj, PhD- <i>Tampere University</i>	Advanced Machine Learning for Biomedical Signal Analytics	Dan Holewinek- <i>Henry Schein, Inc.</i>	The Power of Low-Code / Pre-Trained ML in Healthcare	
10:15am	Tong Liu, PhD- <i>Shanghai University</i>	A Deep Reinforcement Learning Approach for Online Computation Offloading in Mobile Edge Computing			
10:40am	Song Han, PhD- <i>MIT</i>	Efficient Deep Learning with Once-for-All Network			
11:00am	BREAK - Visit the Virtual Exhibitor Booths				

Time	Track One	Talk Title	Track Two	Talk Title	Track Three
11:10am	Bin Xiao, PhD- <i>Hong Kong Polytechnic University</i>	Mining Attacks to the Blockchain System	Kristie Kuhl- <i>Finn Partners- Moderator</i> Seth Haberman- <i>Sense Education</i> John Kelly- <i>Graphika</i> Satish Rath, MD- <i>Aster MD Healthcare</i> Tania Yuki- <i>Sharablee</i>	Technology, Health + Society	*Track Three Ends at 11am
11:35am	Brian Merrill- <i>Deloitte Forensic Data Analytics Practice</i>	Applications of GANs for Anomaly and Fraud Detection in Employee Expenses			
12:00pm	James Xiaojiang Du, PhD- <i>Temple University</i>	e-SAFE: Secure, Efficient and Forensics-Enabled Access to Wireless Implantable Medical Devices			
12:25pm	Ambassador Ido Aharoni- <i>NYU/Emerson Rigby Ltd./Israeli Foreign Service</i>	Marketing Places in the Age of Coronavirus			
12:45pm	BREAK - Visit the Virtual Exhibitor Booths				
1:05pm	Satoshi Nagata- <i>NTT DOCOMO, INC.</i>	5G Standardization and Latest Trend	Levi Shapiro- <i>mHealth Israel- Moderator</i> Jonathan Goldstein- <i>Boston Scientific</i> Jeremy Sohn- <i>Novartis</i> Kevin Tracey, MD- <i>Northwell Health</i> John Whyte, MD, MPH- <i>WebMD</i> Avi Yaron- <i>Healthya Ventures Lab</i>	Medical Technology, Data & Healthcare Transformation	
1:30pm	Arie Kaufman, PhD- <i>Stony Brook University</i>	Reconstruction and Visualization of Neuronal Structures using Deep Learning			
1:55pm	Anthony Kelly- <i>Northrop Grumman Mission Systems</i>	Determining Machine Learning Model Maturity with Probability Intervals			

CONFERENCE AGENDA

Time	Track One	Talk Title	Track Two	Talk Title	Track Three
2:20pm	Milutin Stanacevic, PhD- <i>Stony Brook University</i>	Wearable Device with Multi-Modal Array Sensing and Deep Probabilistic Learning Methods for Early Noninvasive Identification of Dysphagia	Levi Shapiro- <i>mHealth Israel- Moderator</i> Jonathan Goldstein- <i>Boston Scientific</i> Jeremy Sohn- <i>Novartis</i> Kevin Tracey, MD- <i>Northwell Health</i> John Whyte- <i>WebMD</i> Avi Yaron- <i>Healthya Ventures Lab</i>	Medical Technology, Data & Healthcare Transformation	*Track Three Ends at 11am
2:40pm	BREAK - Visit the Virtual Exhibitor Booths				
2:50pm	Maurie McInnis- Stony Brook University President- Welcome Message				
3:05pm	KEYNOTE SPEAKER: Prof. Ada Yonath- Weizmann Institute, Israel				
	The Genetic Code Translation Machinery as a Therapeutical Target				
3:55pm	Kevin Ekyholt, PhD- <i>IBM Research</i>	Revisiting the Adversarial Machine Learning Threat Landscape: Is it Futile to Protect Against White-Box Attacks?	Yair Tauman, PhD - <i>Stony Brook University</i>	Matching Boys and Girls in Dating Clubs and its Applications to Kidney Exchanges and to the Allocation of Residents to Hospitals	
4:20pm	Bryan Reimer, PhD- <i>MIT</i>	Robots On Our Roads – Where Are We And Where Might We Be Going	Dejan Milojcic- <i>Hewlett Packard Labs</i>	Technology Predictions for Times of Pandemics	
4:45pm	Michael Grace, PhD- <i>Mojo Vision</i>	Security in Next-Generation AR Form Factors	Nicholas Nilan- <i>Verizon</i>	Realizing the Promise of 5G for Public Sector	
5:05pm					

SPEAKERS



Ambassador Ido Aharoni
Global Distinguished Professor
Co-Founder, Emerson Rigby Ltd.

Marketing Places in the Age of Coronavirus

Abstract

Expression is necessary to evolution. Humans cannot survive, or thrive, without communicating with each other. Understanding communications on all levels – verbal and non-verbal; inter-personal and mass communications; micro and macro – could serve as an essential tool to help people achieve their aspirations and goals in an effective and efficient manner. The rise of the digital age, also known as the age of information, turned humans from rather passive consumers into pro-active producers of content. The impact of readily accessible participation is profound on all the systems surrounding us – economy, politics, culture and society. Never before were we able to produce so much data, access and analyze it so easily and even self-design our own informational feed. This revolution signals a dramatic shift in the role of corporations, governments and civic institutions. In this talk, Ambassador Ido Aharoni, former press secretary to Israel's leaders, will address the profound changes that had occurred in the world of strategic communications.

Bio

Ambassador Ido Aharoni is a Global Distinguished Professor for International Relations at NYU, a member of International Advisory Council, APCO Worldwide, a 25-year veteran of Israel's Foreign Service, a public diplomacy specialist, and is a co-founder and principal at Emerson Rigby, where he developed their core methodology R-SWIM. He served 25 years in the Israeli Foreign Service, ending as the longest served Israeli Consul to NY. In 2016, New York Mayor Bill De Blasio proclaimed July 29, 2016, as "Ambassador Ido Aharoni Day" in New York.



James Xiaojiang Du, PhD
Professor and Director, Security and Networking (SAN) Lab
Temple University

e-Safe: Secure, Efficient and Forensics-Enabled Access to Wireless Implantable Medical Devices

Abstract

To facilitate monitoring and management, modern Implantable Medical Devices (IMDs) are often equipped with wireless capabilities, which raise the risk of malicious access to IMDs. Although schemes are proposed to secure the IMD access, some issues are still open. First, pre-sharing a long-term key between a patient's IMD and a doctor's programmer is vulnerable since once the doctor's programmer is compromised, all of her patients suffer; establishing a temporary key by leveraging proximity gets rid of pre-shared keys, but as the approach lacks real authentication, it can be exploited by nearby adversaries or through man-in-the-middle attacks. Second, while prolonging the lifetime of IMDs is one of the most important design goals, few schemes explore to lower the communication and computation overhead all at once. Finally, how to safely record the commands issued by doctors for the purpose of forensics, which can be the last measure to protect the patients' rights, is commonly omitted in the existing literature. Motivated by these important yet open problems, we propose an innovative scheme e-SAFE, which significantly improves security and safety, reduces the communication overhead and enables IMD-access forensics. We present a novel lightweight compressive sensing based encryption algorithm to encrypt and compress the IMD data simultaneously, reducing the data transmission overhead by over 50% while ensuring high data confidentiality and usability. Furthermore, we provide a suite of protocols regarding device pairing, dual-factor authentication, and accountability-enabled access. The security analysis and performance evaluation show the validity and efficiency of the proposed scheme.

Bio

Xiaojiang (James) Du, PhD is a Professor in the Department of Computer and Information Sciences at Temple University, Philadelphia, USA. He is the director of the Security and Networking (SAN) Lab at Temple University. Dr. Du received his BS and MS degree in Electrical Engineering from Tsinghua University, Beijing, China in 1996 and 1998, respectively. He received his MS and PhD degree in Electrical Engineering from the University of Maryland College Park in 2002 and 2003. His research interests are security, wireless networks, and systems. He has authored over 330 journal and conference papers in these areas, as well as a book published by Springer. He has been awarded more than 5 million US dollars research grants from the US National Science Foundation (NSF), Army Research Office, Air Force Research Lab, NASA, Qatar Foundation, the State of Pennsylvania, and Amazon. He won the best paper award at IEEE GLOBECOM 2014 and the best poster runner-up award at the ACM MobiHoc 2014. Dr. Du is a Senior Member of IEEE and a Life Member of ACM.

SPEAKERS



Kevin Eykholt, PhD
Researcher
IBM Research

Revisiting the Adversarial Machine Learning Threat Landscape: Is it Futile to Protect Against White-Box Attacks?

Abstract

"Hope for the best, but plan for the worse." A commonly heard phrase, that for security practitioners means they should design and evaluate their security measures to protect against the strongest possible adversary. This approach has generally worked well in security as the measures used to protect against a strong attack are also intrinsically assumed to work against weaker attacks. Adversarial machine learning researchers design and evaluate their defenses in a similar fashion. Many "defenses" proposed in top security venues seek to defend against a strong attacker using the "white-box threat model", a threat model in which an attacker has full knowledge of the model parameters, instead of a "black-box model", where this information is obscured. Nonintuitively, however, these defenses usually fail against a black-box attacker as they don't truly improve the model's performance on adversarial samples, but rather attempt to obfuscate the discovery of adversarial examples. In this talk, I argue that evaluating adversarial defenses against white-box attacks may not be the correct approach to securing machine learning systems and that we should instead focus on evaluating defenses against black-box attacks. First, I'll revisit the white-box and black-box threat model and review the assumptions and requirements for each model. Then, I'll discuss how each of these threat models might apply to real-world scenarios and examine fundamental problems that the community seems to ignore, before concluding with why black-box attacks are more useful for evaluation of adversarial defenses.

Bio

Kevin Eykholt, PhD earned his Ph.D in computer science at the University of Michigan Ann Arbor. During his time there, he designed one of the first physical adversarial attacks on computer vision classifiers and object detectors through the use of small adversarial stickers. These stickers, when placed on road signs, caused computer vision systems to mislabel or ignore objects it previously recognized. Now at IBM, Kevin continues studying adversarial machine learning as both an attacker and a defender. As an attacker, his interest is in the feasibility of current attack threat models. As a defender, he looks to create simple, scalable, and easily deployable techniques that improve the security and reliability of machine learning systems. Kevin believes that a complex technique isn't always the best technique, especially when trying to get others to use it.



Moncef Gabbouj, MS, PhD
Professor & Director
Tampere University

Advanced Machine Learning for Biomedical Signal Analytics

Abstract

In this talk, we shall discuss how we approach biomedical signal analytics from a signal processing, pattern recognition and machine learning point of view to solve pertinent problems in the field. We present a hierarchical layered approach that exploits different types of sensor and non-sensor signals and design suitable representation, processing and analysis algorithms in order to apply machine learning, including deep and shallow learning. We shall then exploit the layered approach in a wide array of applications, with specific emphasis on ECG classification, where we shall present a fast and accurate patient-specific electrocardiogram (ECG) classification and monitoring system. The proposed system uses an adaptive implementation of 1D Convolutional Neural Networks (CNNs) which is used to fuse the two major blocks of the ECG classification into a single learning body: feature extraction and classification. The proposed solution can be used for real-time ECG monitoring and early alert system on a light-weight wearable device.

Bio

Moncef Gabbouj, MS, PhD received his BS degree in electrical engineering in 1985 from Oklahoma State University, Stillwater, and his MS and PhD degrees in electrical engineering from Purdue University, West Lafayette, Indiana, in 1986 and 1989, respectively. He is a Professor of Signal Processing at the Department of Computing Sciences, Tampere University, Tampere, Finland. He was Academy of Finland Professor during 2011-2015. He was a visiting professor at the Department of Electronic and Computer Engineering, Hong Kong University of Science and Technology, Hong Kong, School of Electrical and Computer Engineering of Purdue University, West Lafayette, Indiana, and American University of Sharjah, UAE. He is currently the TUT-Site Director of the NSF IUCRC funded Center for Visual and Decision Informatics and member of the Science Council of Tampere University of Technology. His research interests include Big Data analytics, multimedia content-based analysis, indexing and retrieval, artificial intelligence, machine learning, pattern recognition, nonlinear signal and image processing and analysis, voice conversion, and video processing and coding. He is an IEEE Fellow. He is a member of the IEEE Fourier Award Committee. He is member of the Academia Europaea and the Finnish Academy of Science and Letters. He served as Distinguished Lecturer for the

IEEE Circuits and Systems Society in 2004-2005, and Past-Chairman of the IEEE-EURASIP NSIP (Nonlinear Signal and Image Processing) Board. He was chairman of the Algorithm Group of the EC COST 211quat. He served as associate editor of the IEEE Transactions on Image Processing, and was guest editor of Multimedia Tools and Applications, the European journal Applied Signal Processing. He was the recipient of the 2017 Finnish Cultural Foundation for Art and Science Award, the 2015 TUT Foundation Grand Award, the 2012 Nokia Foundation Visiting Professor Award, the 2005 Nokia Foundation Recognition Award. He published two books and over 700 journal and conference papers and supervised 47 doctoral and 58 Master theses.



Michael Grace, PhD
Director of Product Security
Mojo Vision

Security in Next-Generation AR Form Factors

Abstract

Augmented reality (AR) has the potential to radically change how we work, play and interact with technology. In a literal sense, AR is designed to change the way that users see the world around them. While this promises the ability to enhance the faculties of the human body, it also creates potential opportunities for misuse and harm. In this talk, I will introduce two new concepts within the AR ecosystem: Invisible Computing and Mojo Lens. As the world's first true smart contact lens, Mojo Lens contains an imaging sensor and high-resolution display, offering a discreet, transparent overlay over someone's vision with the advantage of context; an ability to perceive and understand a user's visual field without the size and weight of traditional headsets. The remainder of this session will focus on the strategies that bring the benefits of Mojo Lens to the world while reducing risks and concerns. I will provide an overview of the security challenges that must be considered, and in each case, I will describe mitigations to limit harm, ranging from well-understood system security principles to insight from the growing body of AR privacy literature

Bio

Michael Grace, PhD leads product security for Mojo Vision, the Invisible Computing company, where he works to ensure that the smart contact lens of the future is trustworthy. Previously, he led the Knox Security Team at Samsung, which defined the security architecture for Samsung Mobile's enterprise and regulated products as the Android ecosystem matured. His academic work and patents have revolved around themes of trusted computing, security testing frameworks, and small, context-rich devices. His career in security has wound up shaping government, financial, and consumer-protection standards and regulations, with medical devices being a logical next step. He holds a Ph.D. in Computer Science from North Carolina State University.



Song Han, PhD
Assistant Professor
MIT

Efficient Deep Learning with Once-for-All Network

Abstract

Last June, researchers released a startling report estimating that the amount of power required for training and searching a certain neural network architecture involves the emissions of roughly 626,000 pounds of carbon dioxide. That's equivalent to nearly five times the lifetime emissions of the average U.S. car, including its manufacturing. This issue gets even more severe in the model deployment phase, where deep neural networks need to be deployed on diverse hardware platforms, each with different properties and computational resources. I will present a new automated AI system for training and running neural networks efficiently, the once-for-all network. Results indicate that, by improving the computational efficiency of the system with weight sharing and progressive shrinking, the system can cut down the pounds of carbon emissions involved in neural architecture search by thousands of times. The produced model consistently outperforms state-of-the-art NAS methods including MobileNet-v3 and EfficientNet, receiving the first place in the 3rd and 4th Low Power Computer Vision Challenge (LPCVC).

Bio

Song Han, PhD is an assistant professor in MIT's Department of Electrical Engineering and Computer Science. His research focuses on efficient deep learning computing. He proposed "deep compression" technique that can reduce neural network size by an order of magnitude without losing accuracy, and the hardware implementation "efficient inference engine" that first exploited model compression and weight sparsity in deep learning accelerators. Recently he is interested in AutoML and NAS methods for efficient TinyML models. He is a recipient of NSF CAREER Award, MIT Technology Review Innovators Under 35, best paper award at the ICLR'16 and FPGA'17, Facebook Faculty Award, SONY Faculty Award, AWS Machine Learning Award. Many of the pruning, compression, and acceleration techniques have been integrated into commercial AI chips. He earned a PhD in electrical engineering from Stanford University.

SPEAKERS



Daniel Holewienko
*Executive Director, Big Data and Business Intelligence
Henry Schein, Inc.*

The Power of Low-Code / Pre-Trained ML in Healthcare

Abstract

Ai / ML has gained significant adoption in Healthcare in the last 5 years and continues to provide opportunities for new, innovative services as well as the optimization of existing services. Ai/ML has becoming a competitive advantage in Healthcare. Faster, more accurate diagnosis... More complete and diverse treatments... Better therapy planning... New predictive/preventive care... Improved drug discovery... Streamlined healthcare workflows... The list goes on... However, many small/mid-sized Healthcare organization struggle to bootstrap their Ai/ML initiatives due to Ai/ML's high project failure rates, high-complexity, high-cost, inadequate tech foundation, and inadequate staff/skills to make it viable. This session will explore this dilemma and posit The Power of Low-Code/Pre-Trained ML in Healthcare and how it can be used to:

1. Ramp-up quickly to "Get in the ML Game"
2. Avoid many of the pitfalls of inadequate Tech Foundations and Staffing
3. Reduce the Tech Complexities and Cost and remain Focused on outcomes
4. Form a virtual team with the skills needed to build, delivery, and support ML driven Healthcare offerings

This session will be led by Dan Holewienko, Executive Director, Big Data & Business Intelligence for Henry Schein. Joining him will be two colleagues from ElectrifiAi, LLC, who specializes in helping company rapidly adopt Ai through the use of its Data Scientists and Low-Code ML, Pre-Trained / Pre-Built ML models, Dr. Dmitry Pavlov, Senior Data Scientist, and Nancy Hornberger, EVP of Healthcare.

Bio

Daniel Holewienko is a 20+ year experienced Technology Executive in the Healthcare, Financial Services, Media, Education, and Retail industries. He started his career in software development and later focused on overall Technology Strategy, Transformation, and Management in mid to large-size regional and global organizations. Along the way, Dan has held Managing Director, Executive Director, Director, VP, CTO, and CIO titles at firms such as Seiko, CIT Group, WNET-Channel Thirteen, Lord Abbett & Co, Kaplan, Northwell Health System, Marlabs, and Henry Schein. He has also been contracted to coach and directed IT and business executives in technology transformation and strategy in such firms as Practising Law Institute, Mizuho Securities, Univision, Roundabout Theater, AppNexus, International Rescue Committee, Ryder, and other brand names clients as Managing Director of TBT Management Consulting. Dan is presently the Executive Director, Big Data and Business Intelligence at Henry Schein, where he is boot-strapping their Big Data program to consolidate internal and external data globally and use advanced ML & AI technologies, data science, and advance analytics to create higher customer value and new business opportunities. Dan is an active member of the New York Chapter CTO Club and author of numerous industry articles. He has been a guest speaker, panelist, and moderator at dozens of user groups and conferences throughout his career. Dan holds a BA from CUNY and several management and tech-related accreditations/certifications.



Arie Kaufman, PhD
*Distinguished Professor & Chief Scientist
Stony Brook University, CEWIT*

Reconstruction and Visualization of Neuronal Structures using Deep Learning

Abstract

The understanding of neuron morphologies that underline brain function is central to neurobiology research. Recent advances in micro- and nano-resolution microscopy technologies, coupled with powerful machine learning techniques can enable neuroscientists to gain novel insights into the complex neural connections maps, thus leading to breakthrough understanding of human brain diseases. In this work, we present a novel end-to-end framework that can segment, reconstruct, predict, and visualize changes in neural fiber morphologies of biological specimens, imaged using micrometer resolution optical microscopes. Due to its inherent design, images from optical microscopes suffer from degraded contrast between the foreground and background, making it difficult to apply existing rendering techniques to effectively visualize the intricate neuronal structures. To this end, we have developed 2D and 3D convolutional neural networks to segment neurites using only a limited number of annotated ground-truth datasets. Using the results of our segmentation model, we can visualize weak neurites that were not visible in most neurobiology visualization frameworks. Moreover, the technical limitations of carrying out biological experiments preclude specimens from being sampled at more than one age time-point. We provide neuroscientists with the unique ability to predict changes in the structure of neuronal fibers across age time-points. This work is currently being used by our neurobiology collaborators to study the neurodegeneration in mice brains affected by Alzheimer's Disease.

Bio

Arie Kaufman, PhD is Distinguished Professor of Computer Science, Director of the Center of Visual Computing (CVC), Chief Scientist of the Center of Excellence in Wireless and Information Technology (CEWIT), and Site Director of the NSF Industry University Cooperative Research Center (IUCRC) for Visual and Decision Informatics (CVDI) at Stony Brook University. He served as Chairman of the Computer Science Department 1999-2017. He has been conducting research for 40 years in visualization, virtual-reality, medical imaging, machine learning and their applications, has published more than 350 refereed manuscripts, has delivered more than 20 invited keynote talks, has been awarded/ filed more than 100 patents, and has been a principal/co-principal investigator on more than 130 research grants. He is a Fellow of the National Academy of Inventors (NAI), Fellow of IEEE, Fellow of ACM, a recipient of the IEEE Visualization Career Award, and of numerous other awards. He was also elected to the European Academy of Sciences, and was inducted into the Long Island Technology Hall of Fame and the IEEE Visualization Academy. He was the founding Editor-in-Chief of the IEEE Transaction on Visualization and Computer Graphics (TVCG), 1995-1998. He has been the co-founder/papers co-chair of IEEE Visualization Conferences, Volume Graphics Workshops, Eurographics/SIGGRAPH Graphics Hardware Workshops, and ACM Volume Visualization Symposia. He served as Chair and Director of IEEE CS Technical Committee on Visualization and Graphics. He received a PhD in Computer Science from the Ben-Gurion University, Israel, in 1977.



Anthony Kelly
*Data Scientist
Northrop Grumman Mission Systems*

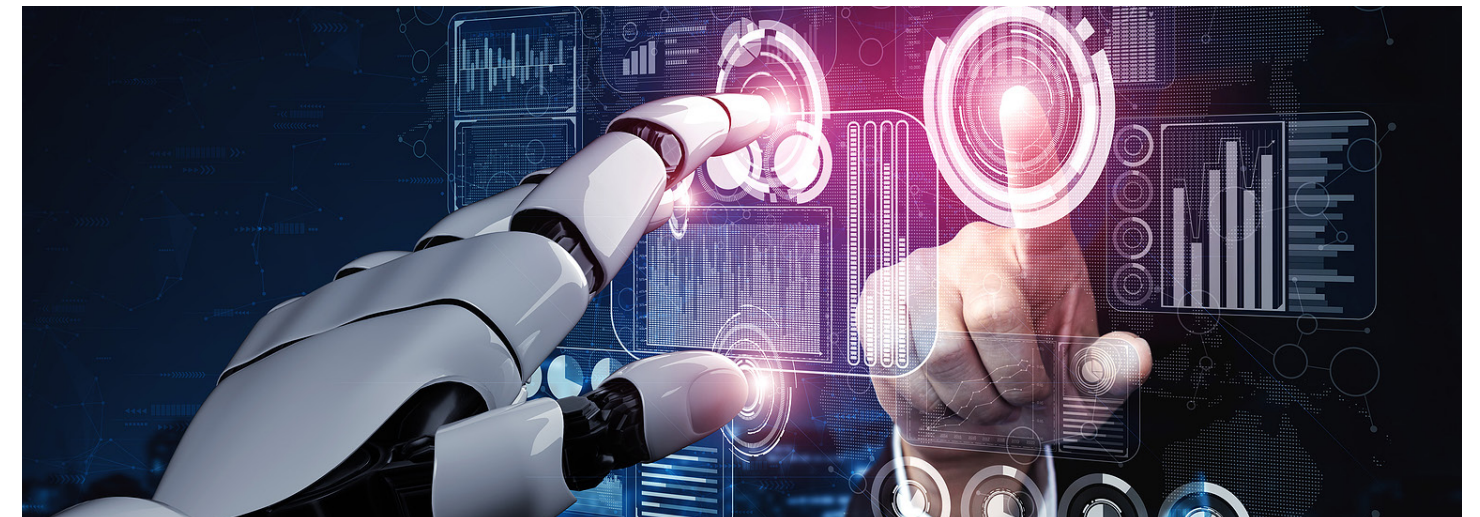
Determining Machine Learning Model Maturity with Probability Intervals

Abstract

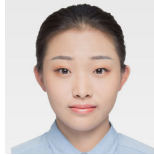
The evaluation and interpretability of machine learning models continues to be a field evolving with different techniques, visualizations, and approaches to understanding the mechanics of black box models. One of the primary challenges faced by industry applications of machine learning is the understanding of these black box models and when to know they are ready for production deployment. Gauging the maturity and strength of a machine learning model outside of prediction accuracy is often an overlooked, but critical task for the development, deployment, and integration of industry-best machine learning models. Optimization techniques like genetic algorithms, gridsearch, and randomsearch are common in attempting to optimize the hyperparameters of a model, but there exists no way to consistently test whether a model has reached peak performance, and when optimization can stop. Recent applied industry practice has indicated a novel way to determine candidacy for optimization. This technique applies the use of probabilistic confidence intervals. By determining the probabilities associated with the predictions of a machine learning model, there is an observable confidence and inherent risk, furthering an understanding of how "confident" a model is in its own predictions, thus encouraging (or discouraging) future optimization. This understanding of a model's general confidence can be generalized to overall model maturity; once a model has reached a high confidence in all of its predictions, its performance can no longer be improved. An example of this using two popular gradient boosting methodologies will be discussed.

Bio

Anthony (Tony) Kelly is a Data Scientist supporting the Northrop Grumman Corporation Mission Systems Sector Analytics and Insights organization, where he is responsible for providing advanced analytical support to various homerooms across the Northrop Grumman enterprise. He holds an Honors B.S. in Information Technology from La Salle University and is a forthcoming graduate of Johns Hopkins University, completing his M.S. degree in Computer Science with specializations in Artificial Intelligence and Software Engineering in August of 2020. Tony has worked in various roles at Northrop Grumman including as a data analyst, systems engineer, and cyber software analytics engineer. He has been responsible for leading executive-level data science projects and is the lead inventor on 7 NG IP Trade Secret technologies.



SPEAKERS



Tong Liu, PhD
Assistant Professor
Shanghai University

A Deep Reinforcement Learning Approach for Online Computation Offloading in Mobile Edge Computing

Abstract

With the explosion of mobile smart devices, many computation intensive applications have emerged. Mobile edge computing is put forward, as an extension of cloud computing, to meet the low-latency requirements of the applications. Considering heterogeneous computation tasks are successively generated on a mobile smart device, we propose an online task offloading and resource scheduling strategy, aiming to minimize both task completion latency and energy consumption in a long-term. Inspired by reinforcement learning, we firstly transform the problem into a Markov decision process, and then propose an online approach based on a double deep Q network.

Bio

Tong Liu, PhD received her B.Eng degree and PhD degree in the Department of Computer Science and Engineering at the Shanghai Jiao Tong University, Shanghai, China, in 2012 and 2017 respectively. Now, she is an assistant professor in the School of Computer Engineering and Science at the Shanghai University. Her research interests include mobile crowdsensing, edge computing and urban computing.



Xuan Liu, PhD
Director of Innovation
IBM Watson Health

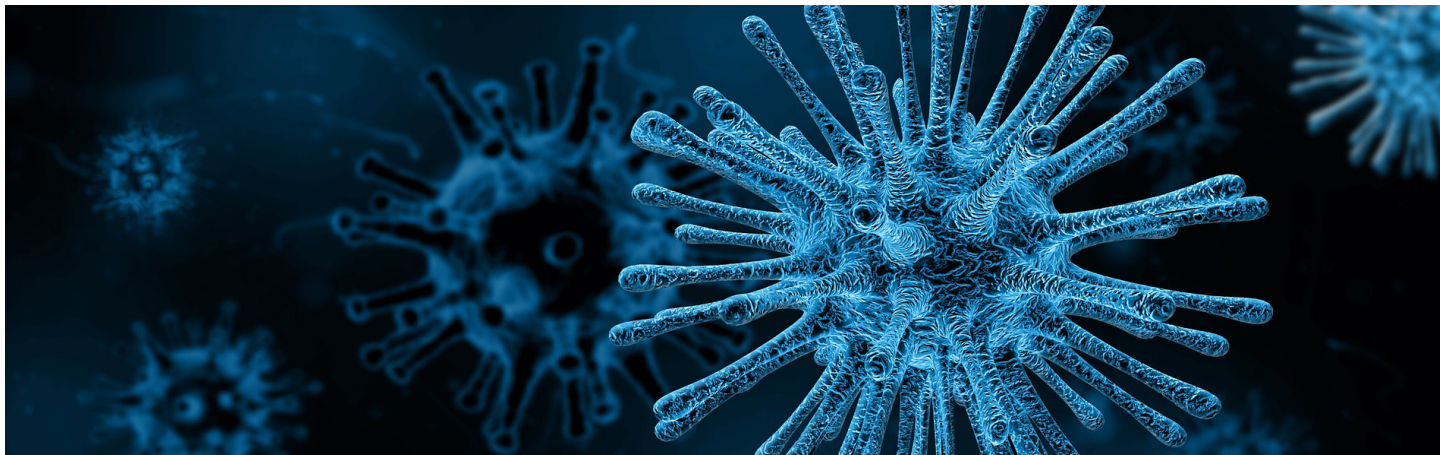
Preparing Return to Workplace with Data / AI Technology

Abstract

The COVID-19 pandemic has caused widespread disruption to pretty much every aspect of our daily life, and has profound impact cross all industries. Business leaders globally are rethinking the business and workforce operating models to grow business while combating Covid-19 and beyond. In this talk, I will provide an overview of various AI/data driven technology that IBM is developing to help companies plan and manage return to workplace effort, ranging from community risk modeling, contact tracing, testing management and etc. I will also dive into an AI-enhanced epidemiology framework that can incorporate various signals for second wave detection.

Bio

Xuan Liu, PhD is the Director of Innovation at IBM Watson health. She is leading the effort of developing differentiating AI/analytics driven healthcare solutions and driving sustainable and destructive innovations across payer & provider business. Most recently, she was the Chief of Staff for the office of IBM Executive Vice President overseeing IBM Research and Cognitive Solutions. Prior to that, she held multiple leadership positions in IBM Yorktown Research center. She was the global lead for cognitive solution research effort, developing AI/ML and optimization solutions across multiple industries including commerce/supply chain, IOT, smarter cities, and etc. Her work has launched multiple key IBM products, and has delivered significant business value to customers. She received many awards for her work, including IBM Corporate Award, Outstanding Technical Award, Research Division Award, best paper awards, and etc.



Cecil Lynch, MD, MS
Chief Medical Information Officer
Accenture

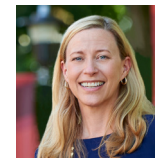
COVID-19 Clinical Analytics using Deep Learning and Graph Analytics – A Deep Dive on Deep Vein Thrombosis Complication

Abstract

The COVID-19 pandemic has affected every one of us in some way but for the unfortunate people that are infected with the disease, the clinical course can be devastating. There are several long-term complications of the viral infection and of our body's reaction to that virus. One of the most severe is the development of coagulation complications that lead to deep vein thrombosis (DVT), pulmonary embolism (PE) or stroke. There is a need to understand the incidence, risk factors and mitigation strategies for this complication that can lead to long-term need for anti-coagulation management or death. To that end we have developed an analytic approach that combines clinical data on over 20K COVID-19 patients, the corpus of literature on DVT COVID-19 and related coronaviruses, and genomic mutations associated with DVT and infection susceptibility. Our goals are to identify the most at risk populations, the driving factors that make these individuals high risk, and suggest a mitigation strategy that can be implemented clinically to reduce the risk of DVT, PE and stroke. I will present our analytic efforts around site of care optimization as this novel approach to analysis of DVT complications.

Bio

Cecil Lynch, MD, MS has a unique blend of deep clinical knowledge and technological expertise. At Accenture he is a Subject Matter Advisor on Big Data in Healthcare, Health and Clinical Analytics, Health Data Exchange and Connectivity. He serves as a domain expert in data standards, interoperability and enterprise architecture and is the Product Owner and Architect for the Accenture Microsoft Business Group H365 Health Platform. He serves as a National and International advisor on Health Informatics and has served numerous government agencies.



Maurie McInnis
President
Stony Brook University

Bio

Maurie McInnis is the sixth President of Stony Brook University, one of America's leading public universities and an internationally recognized research institution. As chief executive for Stony Brook, McInnis also oversees Stony Brook Medicine, Long Island's premier academic medical center, encompassing five health sciences schools, four hospitals, and 200 community-based healthcare settings. She plays a key role in economic development on Long Island and in Stony Brook's role as part of the management team of Brookhaven National Laboratory.

President McInnis most recently served as the executive vice president and provost for the University of Texas at Austin, a top public research university serving more than 50,000 students, where she acted as chief academic officer, led strategic planning for the university's academic mission, and made significant advancements in equity, diversity, and inclusion initiatives. Prior to that, she spent nearly 20 years at the University of Virginia in various academic and administrative appointments, including vice provost for academic affairs, associate dean for undergraduate academic programs in the College of Arts and Sciences, director of American studies, and professor of art history.

Her academic scholarship has focused on the cultural history of the American South. She has published extensively on American art history, including five books on the subject. She most recently published *Educated in Tyranny: Slavery at Thomas Jefferson's University* (University of Virginia Press, 2019).

She earned her bachelor's degree with highest distinction in art history from the University of Virginia, and received her master's degree and PhD in art history from Yale University.

SPEAKERS



Brian Merrill
Managing Director
Deloitte Forensic Data Analytics Practice

Applications of GANs for Anomaly and Fraud Detection in Employee Expenses

Abstract

In order to discover underlying patterns and processes of complex systems, typical process mining algorithms heavily rely on historic observed event logs and therefore fail to capture the impact of potential unobserved behaviors from the system. Generative Adversarial Networks (GANs) and the adversarial training process can be leveraged in producing system variants to assist with approximating the underlying system behaviors. GANs have shown promising results in detecting anomalies and rare-events in complex systems in recent studies. They can assist in surfacing hidden system behaviors and propose potential future anomalies which may enable stakeholders to take required precautions to avoid or mitigate them. We will describe the approach of using GANs and the comparison to traditional anomaly detection techniques to detect potential fraud.

Bio

Brian Merrill is a Managing Director in the New York Data Analytics practice of Deloitte Transactions and Business Analytics LLP with more than 15 years of experience in data management, forensic analysis, and advanced analytics services for various clients including forensic accounting and financial investigations of fraud, corruption, and bribery. Brian has led data analytics engagements for clients analyzing hundreds of millions of records to identify and extract key business insights to better understand trends, issues and anomalies within a business to respond to corporate as well as regulatory inquiries. Brian is a Certified Fraud Examiner (CFE) and Certified Analytics Professional (CAP) who specializes in fraud detection for both reactive and proactive monitoring needs. With a focus on systems and relational database analysis, his technical experience includes the design, development, and implementation of software solutions with extensive experience in data mining, data analysis, and machine learning/artificial intelligence. Brian has demonstrated expertise working domestically and internationally on sensitive client service matters regarding internal investigations, forensic and corporate investigations, intellectual property litigation, trade analysis and FCPA matters across a number of industries, while managing the privacy, information security, analysis and execution performed by large multinational teams serving these clients. Brian has also written expert reports regarding the technical evaluation and analysis of data to support and respond to legal matters.



Dejan Milojicic, PhD
Distinguished Technologist
Hewlett Packard Labs

Technology Predictions for Times of Pandemics

Abstract

Predicting the future is never easy, it always entails a degree of uncertainty, if not luck. Predicting technology trends is even harder as it requires both technical and business acumen, e.g., whether the technology will be developed, productized, and ultimately adopted on the market. It is almost an art to distill between a fashion and a true scientific trend. At the same time, the public likes to read predictions and many individuals and organizations regularly write technology predictions, such as Gartner, MIT, Forbes, and many others. Predicting technology in times of pandemics carries even more weight as it deals with human lives, economies of many nations, and the humanity as a whole. IEEE Computer Society started its technology predictions informally in early 2010 and formally via annual press releases in 2014. In 2016 we introduced scorecards for previous year. Our predictions reached substantial audience, e.g., in 2018, it was picked up by 300 media outlets (84.6M audience), entirely different from classical publishing. We consider predictions a new type of publication, a lightweight, short, approximately a paragraph per prediction. The predictions triggered other media outreach, such as blogs, interviews, panel sessions, and special issues of IEEE Computer magazine. In this talk, I will present history of predictions, followed by 10 technologies that make a difference in addressing pandemics.

Bio

Dejan Milojicic, PhD is a distinguished technologist and director at Hewlett Packard Labs, Palo Alto, CA [1998-]. Previously, he worked in the OSF Research Institute, Cambridge, MA [1994-1998] and Institute "Mihajlo Pupin", Belgrade, Serbia [1983-1991]. His areas of expertise include system software and distributed systems. He received his PhD from University of Kaiserslautern, Germany (1993); and MSc/BSc from Belgrade University, Serbia (1983/86). Dejan was a managing director of the Open Cirrus Cloud Computing testbed (2007-2011). He has over 200 papers, 2 books and 54 granted patents. Dejan is an IEEE Fellow (2010), ACM Distinguished Engineer (2008), and HKN and USENIX member. He was president of IEEE Computer Society (2014) and IEEE Presidential candidate (2019). He has been on many conference program committees and journal editorial boards.



Sharon Nachman, MD
Professor of Pediatrics, Associate Dean for Research
Stony Brook University Hospital

COVID-19 NIAID's Clinical Trial Plans

Abstract

Dr. Nachman will give attendees an update on what is being developed by NIAID with regard to COVID-19 clinical trials; treatment, prevention and vaccines.

Bio

Sharon Nachman, MD is a scientist and clinical investigator with more than 25 years of continuous NIH support (U mechanism from the IMPAACT network) dedicated to developing and implementing clinical therapeutic trials for infants, children, adolescents and pregnant women. She has had leadership roles in over 25 clinical trials developed through our network, including 20 as either protocol chair or vice chair. All studies have enrolled, analyzed, and published results that have changed the way we evaluate and treat HIV infected and exposed children and women worldwide. While much of her work has centered around these populations, she has also developed studies helping to define the dose and PK for new antibiotics, evaluate new vaccines and understand the long term issues that develop in infants born to HIV+ women worldwide. With the COVID-19 pandemic epicenter in New York, and as Chair of the Stony Brook Medicine's COVID Research Committee, she has been at the front lines of care and research for patients with COVID-19. She is currently serving as the PI of a novel therapeutics study "Phase II Clinical Trial of Estradiol to reduce severity of COVID19 infection in COVID19+ and Presumptive COVID19+ Patients", opened and enrolling at our institution. She is the PI for the NIH NOSI funded IMPAACT Study 2032: Safety and PK of Remdesivir in pregnant and non pregnant women.



Satoshi Nagata
Manager, Network Innovation laboratories
NTT DOCOMO, INC.

5G Standardization and Latest Trend

Abstract

5G is expected to provide new value as a basic technology supporting future industry and society, along with artificial intelligence (AI) and the Internet of Things (IoT), as well as further upgrading of the multimedia communication services with its technical features such as high speed, high capacity, low latency, and massive connectivity. In this presentation, we show the latest status of 5G standardization and also show NTT DOCOMO's activity towards 5G.

Bio

Satoshi Nagata received his B.E. and M.E. degrees from Tokyo Institute of Technology, Tokyo, Japan, in 2001 and 2003, respectively. In 2003, he joined NTT DOCOMO, INC. He worked for the research and development for wireless access technologies for LTE, LTE-Advanced, and 5G. He is currently a manager working for 5G/6G and 3GPP standardization. He had contributed to 3GPP over 10 years, and contributed 3GPP TSG-RAN WG1 as a vice chairman during November 2011 to August 2013, and also contributed as a chairman during August 2013 to August 2017. He is currently a vice chairman of 3GPP TSG-RAN since March 2017.



SPEAKERS



Nicholas Nila
Director, Public Sector Product Management
Verizon

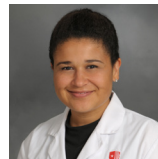
Realizing the Promise of 5G for Public Sector

Abstract

Technology solutions have always evolved at the speed of networks. The world saw the consumerization of IT, everything as a service and the sharing economy grow dramatically on the backbone of 4G LTE connectivity powering the latest smartphones. 5G has the potential to introduce new economic models and opportunities but also new ways to govern, to ensure security, to improve transportation, to learn and prepare for and respond to crises. This presentation is aimed at preparing our cities and government agencies to effectively leverage the power of 5G.

Bio

Nicholas Nilan is the Director of Product Management for Public Sector at Verizon. He is responsible for the development and deployment lifecycle of innovative and mission impacting products and solutions for Federal, State and Local, and Education customers. Previously, he led Federal Marketing strategy at Verizon, and before that, engineering teams supporting mobility and Internet of Things deployments in the Department of Defense. He has been in the telecommunications industry for over 17 years and holds an MBA in Finance and Accounting from Regis University and an undergraduate degree in Political Science from York College of Pennsylvania. Additionally, he is on the Board of Directors for AFCEA DC



Kimberly Noel, MD
Stony Brook Medicine Telehealth Director
Stony Brook University Hospital

Inclusive Innovation

Abstract

During the coronavirus pandemic, Dr. Noel's efforts helped Stony Brook Medicine to quickly respond in the current state of emergency and advocate healthcare accessibility with diverse digital tools. During the global coronavirus pandemic, Telehealth became a key strategy in addressing the public health emergency, incentivizing rapid development of Telehealth solutions through changes of law and reimbursement policies. Rapid deployments have raised concerns for equity as many solutions fail to address accessibility, increasing risk of compounding existing health disparities. This talk will discuss Telehealth strategy and clinical workflow design that complements emerging medical technologies and engineering.

Bio

Kimberly Noel, MD is the Deputy CMIO and Telehealth Director and of Stony Brook Medicine, whereby she provides leadership to all telehealth activities of the health system. She is also the Chief Quality Officer of the Patient Centered Medical Home (PCMH) for the Family Medicine Department, working on quality improvement and population health management, for NCQA designation. She is an appointee of the New York State Department of Health Regulatory Modernization Initiative Telehealth Advisory Committee, and has won many service and innovation awards for healthcare. She is a published author with research areas in machine learning, preventive medicine and remote patient monitoring. She is an active public speaker presenting at national conferences and has spoken on the main stage at the American Telemedicine Association. Her work is featured in Nature Digital Medicine, Bloomberg Business Week, Newsday among other press. She is a pioneer in medical education forming the institution's first Telehealth course for medical students and co-Chairs the Interprofessional Telehealth Board developing Telehealth education for the Renaissance School of Medicine, Health Technology and Management, Nursing, Dentistry and Social Work. She is a board certified preventive medicine physician and graduate of Duke, George Washington, and Johns Hopkins Universities. She is part of the New England Journal Catalyst Insights Council and consults regarding digital health solutions for the technology industry. Speaking with Kimberly Noel is Brooke M Ellison, PhD, MPP, an Associate Professor at Stony Brook University.



Huamin Qu, PhD
Professor
Hong Kong University of Science and Technology

AI+VIS: Magic Visualisation and Explainable AI

Abstract

The interactions between AI and visualisation have dramatically changed the landscape of data visualisation. On the one side, AI technology can help automate the development of visualisation system, making it look like magic. On the other side, visualisation plays an important role in explainable AI. In this talk, I will introduce our research works which integrate AI and VIS. The first part of my talk will focus on how to use deep learning technology to tackle visualization tasks such as graph layout evaluation and generation, automated infographic design, and colormap recommendation. The second part of my talk will focus on visual analytics for explainable AI. I will introduce how to use visual analytics technology to help people understand different AI technologies like iForest, CNN, RNN, and Automated Machine Learning (ATL).

Bio

Huamin QU, PhD is the Director of Interdisciplinary Programs Office (IPO) and a professor in the Department of Computer Science and Engineering (CSE) at the Hong Kong University of Science and Technology (HKUST). His main research interests are in visualization and human-computer interaction, with focuses on urban informatics, social network analysis, E-learning, text visualization, and explainable artificial intelligence (XAI). He has co-authored about 200 refereed papers including 50 papers published in the IEEE Transactions on Visualization and Computer Graphics (TVCG). He has supervised and is supervising more than 40 PhD students. He obtained a BS in Mathematics from Xi'an Jiaotong University, China, an MS and a PhD in Computer Science from the Stony Brook University.



Bryan Reimer, PhD
Research Scientist
MIT Center for Transportation and Logistics

Robots On Our Roads – Where Are We And Where Might We Be Going

Abstract

The concept of automating vehicles and removing the driver from direct control of the throttle, brake, and steering wheel was first explored nearly 100 years ago. Over the decades since, automation of various features has gradually infiltrated the automobile. Today, on the heels of the DARPA Urban Challenge and Google's Self-Driving Car Project, we are closer than ever to realizing aspirations of a century ago, but challenges remain and timelines for the technology increasing. This talk will center on elements of what is known about automation in the vehicle today and our evolution towards self-driving. Topics will include: observations on the use of Advanced Driver Assistance Systems (ADAS) and production level automated driving features (Autopilot, Pilot Assist, Super Cruise, etc.); the shifting nature of what we do in modern vehicles, challenging what is today's distraction - secondary tasks or driving; and key points to consider regarding the future of robots on our roads. How might the intersection of artificial intelligence embodied in one the most complex activities humans perform - intersect with society's interest in an economical, efficient, clean and safe automated and electrified mobility system?

Bio

Bryan Reimer, PhD is a Research Scientist in the MIT Center for Transportation and Logistics. Bryan's research seeks to develop theoretical and applied insight into driver behavior and the future of mobility. His work aims to find solutions to the next generation of human factors challenges associated with driver attention management, distraction, automation and the use of advanced driver assistance systems to maximize mobility and safety. He founded and leads the Advanced Vehicle Technology (AVT) consortium an academic industry partnership seeking to understand how drivers use emerging, commercially available vehicle technologies. He is the recipient of the 2019 Jack A. Kraft Innovator Award from the Human Factors and Ergonomics Society and a 2018 Autos2050 Impact Award.

SPEAKERS



Milutin Stanacevic, PhD
Associate Professor
Stony Brook University

Wearable Device with Multi-Modal Array Sensing and Deep Probabilistic Learning Methods for Early Noninvasive Identification of Dysphagia

Abstract

We envision a new direction in the design of wearable devices that would address the issues of the reliability and long-term performance of these devices for early detection and diagnostics. We address the early detection of dysphagia or impaired swallowing. Dysphagia is well-recognized as a cause of aspiration pneumonia, dehydration and malnutrition, prolonged hospitalization and/or hospital readmissions, and death. The ground truth in assessing the swallowing process is obtained using videofluoroscopic swallowing study, a costly and invasive technique that has to be performed in a hospital. We propose a multi-modal sensing platform that combines the monitoring of muscle activity and microphone array that captures the acoustic events. The wearable device leverages these high-resolution sensing arrays and deep probabilistic learning methods. To demonstrate the functionality of the proposed device, we present results with a prototype device that has been used for differentiating swallowing while consuming food of different textures. In addition to the use as an early detection device, we also envision use of the device as an in-home monitoring tool that patients can use during meals to assess the risk of aspiration. The monitoring device could significantly reduce the incidence of aspiration pneumonia in the geriatric population.

Bio

Milutin Stanacevic, PhD received the M.S. and Ph.D. degrees in electrical and computer engineering from Johns Hopkins University, Baltimore, MD, USA, in 2001 and 2005, respectively. In 2005, he joined the faculty of the Department of Electrical and Computer Engineering, Stony Brook University, Stony Brook, NY, USA, where he is currently an Associate Professor. His research interests include mixed-signal VLSI circuit design for RF energy harvesting in implantable devices and tag networks, ultra-low power biomedical instrumentation, and acoustic source separation. Dr. Stanacevic is a recipient of the National Science Foundation CAREER award and IEEE Region 1 Technological Innovation Award. He was an Associate Editor of the IEEE Transactions on Biomedical Circuits and Systems and serves on several technical committees of the IEEE Circuits and Systems Society.



Bruce Swett, PhD
Chief Artificial Intelligence Architect & NG Fellow
Northrop Grumman Mission Systems

Commercial Artificial Intelligence Technologies and the Future of Warfare

Abstract

Recent research on Artificial Intelligence (AI) has demonstrated super-human performance on increasingly complex games within constrained, simulated environments. These rapid advances in AI capability have implications for the future of warfare, including increasing the speed and scale of battle, as well as changing the roles of humans and machines. Creating decisive advantage for U.S. and Coalition partners using AI is problematic, given the global availability of AI hardware and software technologies, and the relatively low barrier to entry for AI. There are also significant technical challenges in applying AI technologies to the battlefield that are not present for commercial AI developers, an military AI software has vulnerabilities beyond non-AI software. In an adversarial environment, the ethical use, safety, security, robustness, and operational effectiveness of U.S. military AI must be assured. AI models that are used for information analysis and autonomous behaviors in the environment need to be retrained and updated frequently, necessitating a military AI ecosystem for algorithm and model management and assurance. And, because military engagements are bound by U.S. law and policy, having accountability and governance capabilities for military AI is critical. Framing the operational needs to transitioning commercial AI technology for military use will provide a framework for ethical and responsible use of AI on the future battlefield.

Bio

Bruce Swett, PhD is the Chief Artificial Intelligence Architect within the Mission Systems sector of Northrop Grumman, a leading global provider of security systems and solutions. In this role, he is responsible for the design and implementation of integrated cloud computing and artificial intelligence (AI) capabilities across the enterprise. This capability dramatically increases the speed of innovation from Northrop Grumman's commercial and academic partners to fieldable systems. He serves as a subject matter expert and consultant in the areas of AI, brain-computer interfaces, and robotics both nationally and internationally. He recently served on the Pontifical Academy of Science, advising Pope Francis on AI and robotic technologies. He has created intellectual property and patent applications on seven topics related to neurally-inspired AI. He completed his Ph.D. in Neuroscience and Cognitive Sciences at the University of Maryland College Park, and completed his Post-Doctoral studies at the National Institute of Deafness and Communications Disorders at the National Institutes of Health.

His experimental and computational research focused on using high performance computing to understand how the brain learns and automates sequences, a topic that applies to novel forms of AI. Northrop Grumman solves the toughest problems in space, aeronautics, defense and cyberspace to meet the ever-evolving needs of our customers worldwide. Our 90,000 employees define possible every day using science, technology and engineering to create and deliver advanced systems, products and services.



Yair Tauman, PhD
Leading Professor and Director
Stony Brook University

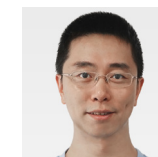
Matching Boys and Girls in Dating Clubs and its Applications to Kidney Exchanges and to the Allocation of Residents to Hospitals

Abstract

Techniques of artificial intelligence have Alvin Roth (Stanford) and the late Lloyd Shapley (UCLA), both members of the Stony Brook Center for Game Theory, were awarded the Nobel Memorial Prize in Economic Science in 2012 for their work on market design and matching theory. The theory relates to how people and companies find and select one another in everything from marriage to school choice to jobs and to organ donations. Their work primarily applies to markets without prices. The laureates' breakthroughs involve figuring out how to properly assign people and things to stable matches when prices are not available to help buyers and sellers pair up. My talk will introduce briefly a simple and clever algorithm behind the theory and will emphasize its real-life applications.

Bio

Yair Tauman, PhD is a Professor of Economics at State University of New York, Stony Brook and the Director of the Stony Brook Center for Game Theory. He studied at the Hebrew University of Jerusalem where he obtained his B.Sc. in Mathematics and Statistics and M.Sc. and Ph.D. in Mathematics, the latter two under the supervision of Robert Aumann. His areas of research interests are game theory and industrial organization. He has published, among others, in Econometrica, Games and Economic Behavior, Journal of Economic Theory, Quarterly Journal of Economics and RAND Journal of Economics. Tauman has been the organizer of the longest and most established series of International Summer Conferences in Game Theory (for over 25 years at Stony Brook University) and has been on the Faculty at the Kellogg Graduate School of Management and served as the dean of the business school at the Interdisciplinary Center in Hertzliya, Israel. Since 2009 he has served as the academic director of the Zell entrepreneurship program in the Interdisciplinary Center in Hertzliya. In 2005, Tauman led a small group of Israeli investors to interfere with a takeover of online auction company QXL which was then sold for \$1.9 Billion dollars. Tauman co-founded Bidorbuy.com and has served as a member of the board of directors for the following companies: ADFVN, Digi-block, Radware, and Expo-bee.



Tao Wang, PhD
Associate Professor
Peking University

Emotion Recognition & Attention Analysis by Affective Robots

Abstract

Techniques of artificial intelligence have entered a new round of rapid development since recent years. Intelligent robots are natural carriers of artificial intelligence. Affective robots are those intelligent robots that can accompany and interact with people with the capabilities of understanding and expressing emotions. Such robots will have a broad market prospect and play an important role in many application fields. Emotion recognition and attention analysis are techniques that make affective robots interact with human beings in a natural way. This report will introduce the basic techniques of emotion recognition and attention analysis and present some work done in the Laboratory for Affective Intelligent Robotics in Peking University.

Bio

Tao Wang, PhD is associate professor in Peking University, and Director of the Laboratory for Affective Intelligent Robotics. He is Vice President of the Advanced Institute of Information Technology, Peking University. He received B.S. and Ph.D. degrees from Peking University in 1999 and 2006, respectively. From 2006 to 2008, he worked as Post-Doc researcher at Intel China Lab. Then he continued to work at Intel as Staff Research Scientist. He joined Peking University as a faculty member in Nov. 2010 (Executive Director of the Center for Energy-Efficient and Applications at PKU, from December 2010 to August 2016). He has published 70+ research papers, many of which were in top-conferences such as IROS, ISCA, MICRO, HPCA, MobiCom, and MobiSys, and in premier journals including IEEE TC, IEEE TMC, IEEE TWC and IEEE TCAD. He won Best Community Paper Award in MobiCom'17 (contributes the most to the broader research community), and some Best

SPEAKERS

Paper Awards in other conferences. He has filed many authorized patents. He has also received many research funding supports from premier funding agencies. He won the award of "2008 Intel China Employee of the Year," the highest individual award at Intel China. He also won many research/education awards in Ministry of Education and Beijing City. He has served as a TPC member on multiple international conferences. He is currently serving as Secretary-General of Beijing Computer Federation. He is also on the editorial board of "China Communications" and is the Leader of the Talent Development Working Group, Green Computing Consortium (China). His current research interests are: affective intelligent robotics, computer architecture and intelligent robot networks.



Bin Xiao, PhD
Associate Professor
Hong Kong Polytechnic University

Mining Attacks to the Blockchain System

Abstract

The blockchain technology can be extensively applied in diverse services, ranging from online micro-payment, supply chain tracking, digital forensics, health-care record sharing to insurance payment. The blockchain system needs the mining process to generate new blocks. However, mining attacks can severely ruin the system, e.g., creating double spending. In this talk, we will first review previous mining attacks, e.g., block withholding (BWH), fork after withholding (FAW), and selfish mining. Then, we will propose two new mining attacks, Power Adjusting Withholding (PAW) and Bribery Selfish Mining (BSM). Both attacks can increase the reward of attackers. We propose some countermeasures to mitigate the new attacks, but a practical and efficient solution remains to be an open problem.

Bio

Bin Xiao, PhD is an associate professor at Department of Computing, the Hong Kong Polytechnic University, Hong Kong. He received the B.Sc and M.Sc degrees in Electronics Engineering from Fudan University, China, and Ph.D. degree in computer science from University of Texas at Dallas, USA. His research interests include AI and network security, data privacy, and blockchain systems. He has published more than 180 technical papers in international top journals and conferences. His Google H-index is 35. He is the IEEE Senior member, CCF and ACM member.



Prof. Ada Yonath
Director
Weizmann Institute, Israel

The Genetic Code Translation Machinery as a Therapeutical Target

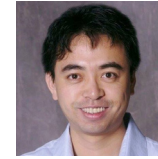
Abstract

Ribosomes are the universal cellular machinery that translate the genetic code to proteins. We design a novel technology exploiting unique peripheral structural features of ribosomes for the creation of an eco-friendly unified platform, capable of species-specific inhibition of pathogenic bacteria alongside diagnosis and selective elimination of cancer cells. In parallel, inspection of ribosome structures from all domains of life led to identification of a semi-symmetric highly conserved region, in which the peptide bonds are formed. As it is evolution independent, this region is suggested to present the prebiotic molecular machine for forming peptide bond, hence called the proto-ribosome, namely being the origin of life.

Bio

Prof. Ada Yonath focuses on genetic code translation by ribosomes, on antibiotics paralyzing this process, on designing novel antibiotics for fighting resistance, on ribop and on the origin of life. She graduated from Hebrew University, earned PhD from Weizmann Institute (WIS) and completed postdoctoral studies at CMU and MIT, USA. In 1971 she established the first biological-crystallography laboratory in Israel, which was the only lab of this kind in the country for almost a decade and became a WIS faculty member. Since 1989 she is the Director of Kimmelman Center for Biomolecular Structures at WIS. In 1978-9 she spent a Sabbatical in Chicago U, and during 1980-2004 she headed the Max-Planck-Research-Unit in DESY, Hamburg, in parallel to her activity at WIS. Among others, she is a member of Israel Academy of Sciences & Humanities; US National Academy of Sciences; German Academy for Sciences; The Royal Society, European Molecular Biology Organization; Pontifical Academy of Sciences; The Korean Academy, Royal European Academy and Accademia Nazionale dei Lincei, Rome.

She holds honorary doctorates from over 20 universities worldwide, in Israel, USA, Latin America, Europe, UK and the Far East. Her awards include the Israel Prize; Linus Pauling Gold Medal; Albert Einstein World Award for Excellence; UNESCO-L Oréal Award; the Wolf Prize; the Golden DESY Pin; the Paul Ehrlich Medal; the Erice Peace Prize and the 2009 Nobel Prize for Chemistry.



Ye Zhao, PhD
Professor
Kent State University

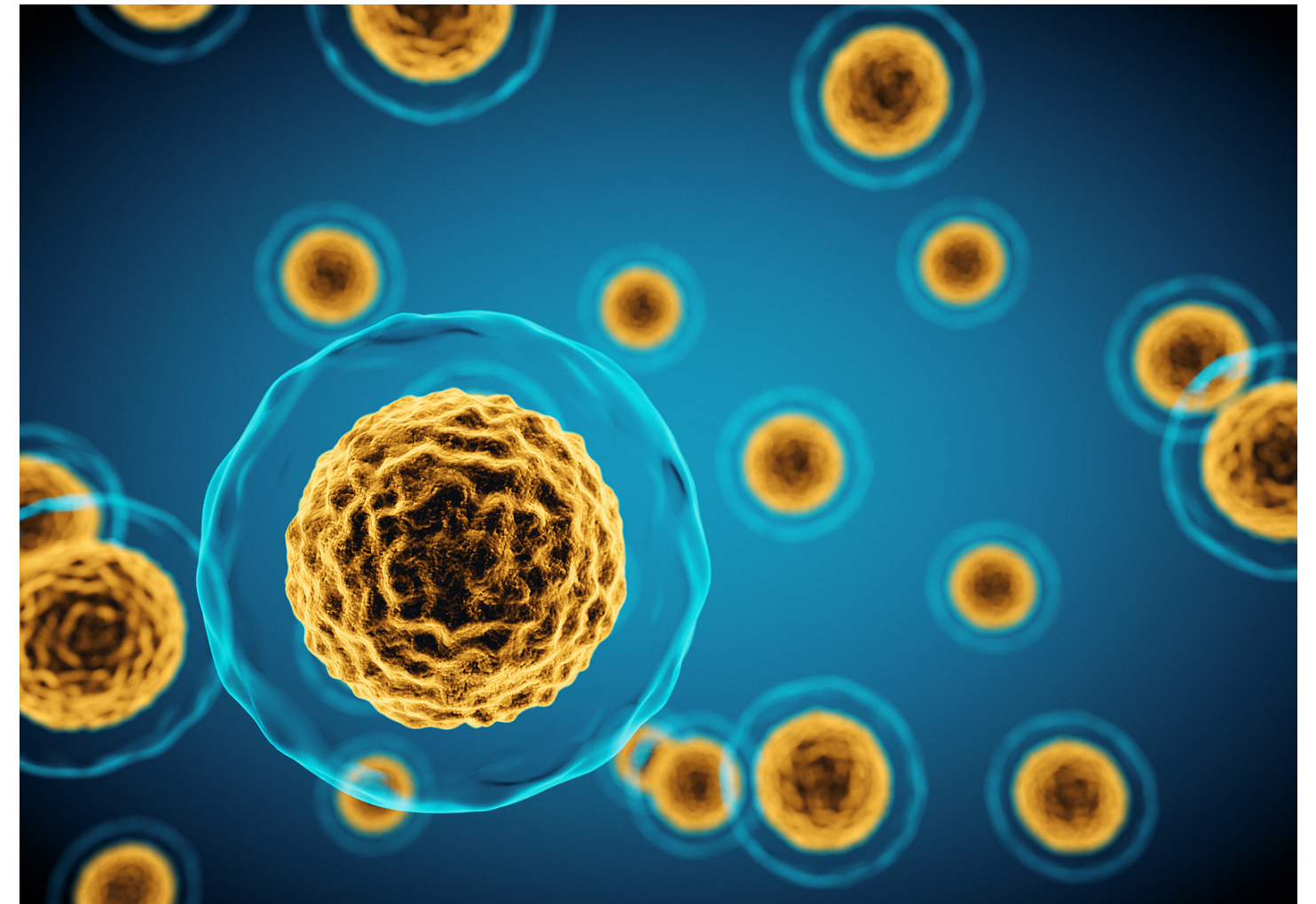
Applications of GANs for Anomaly and Fraud Detection in Employee Expenses

Abstract

Layer-wise Relevance Propagation (LRP) methods are widely used for interpreting the prediction results of convolutional neural networks (CNN). Multiple LRP variations utilize a set of relevance backpropagation rules with various parameters. Moreover, composite LRPs apply different rules on segments of CNN layers. These features impose great challenge for users to design, explore, and find suitable LRP models. We develop a visual model designer, named as VisLRP, which helps LRP designers and students efficiently perform these tasks. Various LRPs are unified into an integrated framework with an intuitive workflow of parameter setup. Therefore, VisLRP allows users to interactively configure LRP models, change parameters, and then study the relevance information. Moreover, VisLRP facilitates relevance based visual analysis with two important functions: relevance-based pixel flipping and neuron ablation.

Bio

Ye Zhao, PhD is a professor in the Department of Computer Science at Kent State University, Ohio, USA. He has been working on computer graphics and visualization for more than 20 years. His current research interests include visual analytics of urban data, multidimensional, text, and multimedia data visualization. He has published numerous refereed technical papers and served in many program committees of data visualization conferences. He received his PhD degree in computer science from Stony Brook University in 2006.



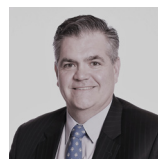
VENTURE CAPITAL TRENDS PANELISTS



Michael Lane
Director
Long Island Capital Alliance
Moderator

Bio

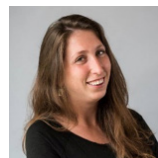
Michael Lane has been a Director of the Long Island Capital Alliance since 2013, and was recently elected Chairman. He has held various leadership positions throughout his career in global consulting firms (Accenture), technology companies (Pegasystems, Bottomline Technologies), and some of the world's largest financial institutions (Bankers Trust, Chase). He has raised multiple rounds of capital for his early stage companies from private investors, venture capital firms, and strategic partners such as Accenture, Bank of New York, and Microsoft, with successful exits delivering significant investment returns for shareholders. His experience and counsel are frequently sought to advise on the challenges relating to business start-ups, funding and capitalization, operations, sales and marketing, leadership, and other organizational opportunities. Mr. Lane also serves as CEO of a new venture called SteriLux Systems, as well as positions on various company and industry boards. He earned a BA degree from UCLA and an MBA from Columbia Business School.



Neil Callahan
Co-Founder and Managing Director
Pilot Growth Equity

Bio

Neil Callahan is a Co-Founder and Managing Director at Pilot Growth Equity and is based in New York City. Neil has over 25 years of technology investing and operating experience and is a successful bootstrapped software entrepreneur. He has advised many of the world's leading technology companies on strategy, product management, sales & marketing, infrastructure and operations. Neil serves on the boards of Bizzabo, CB Insights, Perthera, r4 Technologies and Velocidi Counsyl, Metabiota and Webgility. Prior to Pilot Growth, Neil was the Co-founder and CEO of Sitaro LTD., a leading DAM software company with customers including Adobe, AT&T, Cisco, CA, eBay, eHarmony, IBM, Philips and SAP, which was acquired by CoActive Marketing Group (CMKG, now part of Dentsu, Inc). At CoActive, Neil was a member of the executive team as the President of the Digital Business Unit and as the EVP of Business Development where he led M&A and strategic partnership initiatives and completed several acquisitions. While at CoActive, Neil expanded the client portfolio into the automotive, technology, financial services and sports & apparel verticals. Prior to co-founding Sitaro, Neil was a Vice President of Marketing Technology & Strategy for Young & Rubicam / Wunderman where he created integrated digital and media investment strategies for AT&T, Citibank, IBM and Sony. Neil began his career with Andersen Consulting as a software developer and an engagement manager, where he created technology solutions for the Fortune 50. While at Andersen, Neil developed a global trade management and reconciliation platform for an international bank, created the financial and customer management systems for a large global wireless carrier, led the product management of a local telephony product for a large global telecommunication company and reengineered the supply chain for a large North American retailer.



Stav Erez
Partner
Labs/02

Bio

Stav Erez is a partner at Labs/02, OurCrowd's seed stage fund and incubator in collaboration with Reliance Industries and the Israeli Innovation Authority. Prior to joining Labs/02, Stav was an entrepreneur focused on building startup accelerators and helping founders build businesses from scratch. Stav has a knack for taking ideas she is passionate about and bringing them to life. She co-founded SifTech, the first entrepreneurship center and accelerator program in greater Jerusalem and also founded Jnext. In 2016 Stav joined OurCrowd as Director of Business Development. Stav is a graduate of Hebrew University's prestigious PPE program and was featured in Forbes 30 under 30 in 2015.



Rajan Luthra
Head of Special Projects
Reliance Industries

Bio

Rajan Luthra heads Special Projects in the Chairman's Office at Reliance Industries Ltd., a Fortune 100 company, and India's largest private sector corporation. Being engaged in the start-up and growth phases of Reliance's multiple hydrocarbon and consumer businesses for over two decades, he has unique experience in envisioning, planning, and executing large-scale technology, innovation, and digital transformation initiatives. Across the RIL group, he has led the adoption of advanced IoT solutions, benchmarking of risk management protocols and launch of REFERS – a unique employee engagement and exigency support initiative. Rajan is deeply engaged with global innovation and start-up ecosystems internationally, including startup company incubators internationally, and having leveraged a keen interest in drones to spear-head Reliance Aerospace Technologies and associated investment.

FUNDED COMPANY UPDATE PANELISTS



Sylvan Scheffler
Vice Chairman and an Investment Banker
Tigress Financial Partners
Moderator

Bio

Sylvan Scheffler is a Vice Chairman and an Investment Banker focusing on providing growth capital and M&A advisory services to public and private middle market companies. He has over forty years' experience in all aspects of investment banking. Prior to joining Tigress Financial Partners, he was a Managing Director, Investment Banking, at Burnham Securities. He began his career at Drexel Burnham Lambert in 1959. He became a partner of the firm in 1968 and a member of The Board of Directors and The Executive Committee in 1971. He joined the High Yield group in 1983 where he was involved in billions of dollars of financings and corporate finance activity. He was Chairman of his own firm Maxima Group LLC and then rejoined Burnham Securities where he was responsible for Investment Banking. He has served on the Board of Directors of many public and private companies. He also served on many charitable boards including The Simon Wiesenthal Center. Mr. Scheffler received a BA from Cornell University then served as a Lieutenant in the US Army. Mr. Scheffler holds FINRA Series 7, 24, and 63 licenses.



Rana Gujral
CEO
Behavioral Signals

Bio

Rana Gujral is an entrepreneur, speaker, investor, and CEO of Behavioral Signals, an emotion AI and behavioral analysis software company that focuses on voice and speech recognition. He is listed in Inc. as a "Top AI Entrepreneur to Watch" and in HuffPo as a "Top Entrepreneur to Follow in 2017". He has led keynotes and participated in panel discussions at conferences such as the World Government Summit and AI Everything in Dubai, the Silicon Valley Smart Future Summit, and IEIE in New York. You can find his writing in publications such as Inc, TechCrunch, and Forbes.



Mike Noonon
CEO
MixComm

Bio

Mike Noonon, CEO of MixComm, a millimeter wave semiconductor startup spun out of Columbia University. He has 25 years of experience leading technology businesses resulting in two IPOs and multiple acquisitions. Mike has led multiple turnarounds and advised numerous companies such as Ambiq Micro, SiFive, Silego, Mythic, and Rambus. Previously, Noonon was: Chairman and co-founder of Silicon Catalyst (the World's 1st semiconductor incubator, EE Times 2015 Start-up of the Year) -EVP, Global Products, Design, Sales, & Marketing at GlobalFoundries EVP, Worldwide Sales & Marketing, at NXP Noonon has held executive product line, sales and marketing roles at National Semiconductor, Cisco Systems and 8x8. He started his career at NCR Microelectronics teaching mixed-signal ASIC design. He was elected to the Global Semiconductor Alliance Board of Directors and was Chairman of the Board of Socle in Taiwan (acquired by Foxconn). He holds a BSEE from Colorado State University.



Dan Slagen
CMO
ClimaCell

Bio

Dan Salgen is currently CMO at ClimaCell and has been featured in The New York Times, WSJ, Forbes, CNBC, Bloomberg TV, and is a 4 time start-up executive specializing in scaling global go-to-market functions from early stage to \$100M+ in annual recurring revenue.

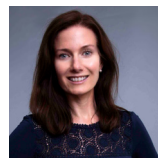


Jack Tawil
CEO
Medpod

Bio

Jack Tawil is the founder, Chairman and CEO of Medpod. Medpod is leading the way in the creation of a more efficient and well distributed global healthcare delivery system through the deployment of the company's proprietary and exclusive technologies. Medpod's purpose built Medical Access Points (MAP'S) coupled with its aggregated cloud based telemedicine and efficiency systems enable remote reimbursable healthcare on par with face to face visits. Prior to founding Medpod Jack was the founder, chairman and CEO of CheckUps, which pioneered Wal-Mart's convenient care program and became the largest operator with 23 locations across multiple states. Jack began his career in retail. He founded Swatch Express in 1990, and subsequently created Suisse American, a multi-national corporation with offices in Zurich, London, and New York. He has worked closely with some of the most renowned retailers in the world including Harrods, the famous London-based department store; and Faconnable.

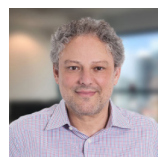
TECHNOLOGY, HEALTH + SOCIETY PANEL



Kristie Kuhl, J.D.
Managing Partner
Finn Partners
Moderator

Bio

Kristie Coney Kuhl, J.D., is head of New York Health, Chicago Health and US health product communications for Finn Partners. Utilizing her legal and public relations background, Kristie is a counselor on orphan and ultra-orphan drugs, biotechnology, specialty pharma, dietary supplements and medical devices, and she specializes in helping clients build business.



Seth Haberman
CEO
Sense Education

Bio

Seth Haberman is responsible for strategy, product strategy, and financing at Sense. He has built and sold three companies - most recently Visible World, a developer of viewer-customized television advertising, which was acquired by Comcast in 2015. Among his achievements is the Emmy awarded to the company in 2007 for advances in dynamic customized TV advertising. Prior to founding Visible World, Seth was the CEO of Montage Group, an innovator in non-linear editing, networking video, and tactile feedback, and licensor of technology to leading manufacturers such as Avid and Apple. Montage's innovative work earned an Academy Award for technological achievement in 1987, and several Emmys. Seth left his position as senior vice president at Comcast to join Sense. He studied Physics and Computer Science at Columbia and is the holder of more than 85 US patents.



John Kelly, PhD
Founder & CEO
Graphika

Bio

John Kelly, PhD is the founder and CEO of Graphika, a social media analysis firm founded on technology he invented that blends social network analysis, content analysis, and statistics to make complex online networks understandable. John is also a recognized expert on advanced computational techniques for measuring online behavior. Most recently, he was invited to provide his expert testimony on foreign interference in the U.S. presidential election before the Senate Select Committee on Intelligence. He is also an affiliate at the Berkman-Klein Center for Internet and Society at Harvard University, where he works with leading academics to design and implement empirical studies of the Internet's role in business, culture, and politics around the world. A quantitative social scientist by training, John earned his Ph.D. in Communications from Columbia University, and has also studied at Stanford and at Oxford's Internet Institute. Today, he leads a team of business professionals and data scientists to bring new analytic technologies to market via the Graphika platform.



Satish Rath, MD
Group Chief of Innovation & Research
Aster DM Healthcare

Bio

Satish Rath, MD is the Group Chief of Innovation and Research at Aster DM Healthcare, one of the unique comprehensive health care providers in GCC and India. He is a physician as well as a digital health scientist with multiple patents and publications. Recently, he has found the Xhealth Innovation Labs, India's first global digital healthcare and life sciences incubator and accelerator. In past, he has worked at Philips Labs, Intel Labs and Xerox Labs. He is visiting faculty at telemedicine school of India and board member cum advisor at various incubators like MBX capital (FundRx), AI Ventures Australia, DERBI foundation, etc.



Tania Yuki
Founder & CEO
Sharablee

Bio

Tania Yuki is Founder and CEO of Shareablee, the most trusted provider of actionable competitive social intelligence from 55 countries. She began her career as a media and internet attorney, specializing in digital rights management, IP and film financing. Since moving to the US from Australia, Tania has run an online video content network as Head of Acquisitions and Branding, led product management for comScore's Video Metrix and has become an active member of the World Economic Forum's Media and Entertainment Council. Tania also founded Wimlink in 2008, an organization that holds regular events and seminars in the New York, promoting entrepreneurship, leadership and the professional development of women.

MEDICAL TECHNOLOGY, DATA AND HEALTHCARE TRANSFORMATION



Levi Shaprio
Founder
mHealth Israel
Moderator

Bio

Levi Shapiro is Head of the Digital Health Program at Hebrew University's BioMED MBA program and teaches Digital Health in prominent programs like Stanford BioDesign. As the Founder of mHealth Israel (8,000+ members), he leads Israel's largest community of health technology innovators. His articles appear in leading industry publications, holds Board positions with health technology startups and provides strategic advisory to prominent global healthcare organizations. He also maintains the mHealth Israel LinkedIn community (12,000+ members) at <https://www.linkedin.com/groups/6929224>. In a career spanning Beijing, Tokyo, Milan and Tel Aviv, Mr. Shapiro launched new business units (IBM), new products and services (Toyota) and a variety of technology startups. He is an investor and Board Member in Israeli health tech startups and formerly a General Partner in the venture capital firm, Veritas. Mr. Shapiro holds degrees from Tulane (BA), Cornell (Asian Studies) and MIT (MBA).



Jonathan Goldstein
Director
Boston Scientific

Bio

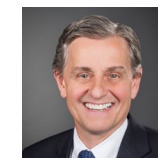
Jonathan is a Director, Corporate R&D and Ventures, at Boston Scientific Corporation (BSC), focusing on collaborations and investments in Europe and Israel. He has been working for BSC since 2012, initially interfacing with Israeli technology and projects, and generating collaborations across the spectrum of BSC's R&D, Venture and Business Development functions. Jonathan manages the Corporate Research Division's Worldwide Scouting Team, supporting Divisional and Corporate teams in identifying relevant next generation technologies and companies for the company's pipeline. Jonathan holds a BSc. in Chemistry & Biochemistry from Imperial College, London, and an MBA from the University of London.



Jeremy Sohn
VP, Head of Digital Business Development & Licensing
Novartis

Bio

Jeremy Sohn joined Novartis in 2015 as VP, Head of Digital Business Development & Licensing reporting to our Chief Digital Officer and supporting Novartis' global digital innovation programs. While serving in this role, Jeremy has also served as ad-interim Global Head of Commercial Digital Medicines (2017), overseeing the digital brand leads within the global franchises, and Global Head of Digital Development (2016), leading Novartis' clinical trial innovation efforts within Global Drug Development.



Kevin Tracey, MD
Executive Vice President, Research
Northwell Health

Bio

As president and CEO of Northwell Health's research arm, the Feinstein Institutes for Medical Research, Kevin J. Tracey oversees research for the health system. He is a leader in the study of the molecular basis of inflammation and bioelectronic medicine. His scientific contributions include identifying the neural mechanism for controlling the immunological responses to infection and injury, and studying how devices can replace anti-inflammatory drugs.



John Whyte, MD, MPH
Chief Medical Officer
WebMD

Bio

John Whyte, MD, MPH is a popular physician and writer who has been communicating to the public about health issues for nearly two decades. He is currently the Chief Medical Officer, WebMD. In this role, Dr. Whyte leads efforts to develop and expand strategic partnerships that create meaningful change around important and timely public health issues. Prior to WebMD, Dr. Whyte served as the Director of Professional Affairs and Stakeholder Engagement at the Center for Drugs Evaluation and Research at the U.S. Food and Drug Administration. Dr. Whyte worked with health care professionals, patients, and patient advocates, providing them with a focal point for advocacy, enhanced two-way communication, and collaboration, assisting them in navigating the FDA on issues concerning drug development, review, and drug safety. Dr. Whyte is a board-certified internist and continues to see patients.



Avi Yaron
Executive Chairman
Healthya Ventures Lab

Bio

Avi Yaron is a visionary entrepreneur & Executive Chairman, well versed in medical / Neuro technology. Invented, founded & led disruptive companies. Most notable, Visionsense, after being diagnosed with an inoperable brain tumor. Israeli, 8200 lieutenant, BScEE, MSM. Lived in NJ/NY and CA in 2004-2013. Passionate about personalized predictive preventative solutions (please see my TEDxAmsterdam talk). Co-Founded Joy Ventures in 2016. Co-Founded HealthYA Ventures Lab in 2020 - Investing & serving as Executive Chairman in disruptive HealthTech startups, targeting significant unmet needs.

EXHIBITORS



AEC ThINC FACILITY

Thermomechanical & Imaging Nanoscale Characterization (ThINC) is a comprehensive core facility at the Advanced Energy Research and Technology Center at Stony Brook University. ThINC provides sample preparation, thermo-mechanical characterization and multiscale imaging services for innovation and research in engineering, chemistry, physical and life science communities (pharmaceuticals, materials design & manufacturing, agtech, etc.).



AKAI KAERU, LLC integrates advanced machine learning and AI into a unified interactive data visualization platform to allow informed decision making with complex multivariate data.



CARTER DELUCA & FARRELL LLP a leader in intellectual property law, provides cost effective services to clients around the world, protecting innovations in a wide range of technologies. Throughout the phases of product or brand development, we form a critical part of our client's development teams to provide preparation, prosecution and clearance services to maximize protection while navigating through freedom-to-operate challenges. We also provide extensive IP due diligence services and IP asset assimilation to help our clients achieve their business objectives.



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INTELIBS develops and provides unique 3G, 4G and WiFi wireless coverage and capacity solutions with products and services for Distributed Antenna Systems (DAS) to meet U.S. carrier and enterprise wireless needs



IPVIDEO CORPORATION harnesses the power of the Internet of Things (IoT) and incorporates artificial intelligence (AI) and machine learning to deliver a range of open platform physical security, sensor, weapons detection and audio/visual solutions that provide maximum flexibility, performance, ease-of-use and value. We design and manufacture solutions for a smarter and safer world! IPVideo Corporation is a subsidiary of Advance Convergence Group.

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Manufacturing and Technology Resource Consortium (MTRC)

AT STONY BROOK UNIVERSITY

MTRC is Empire State Development's Regional Manufacturing Extension Partnership (MEP) center for the Long Island region. MTRC is one of the ten centers within the NIST NY-MEP program, designed to support small to medium sized manufactures by matching their cash investments in business growth and development programs.



VERIZON is here to help the public sector. Verizon serves as a trusted partner to the public sector, from rural communities to the largest State and Federal agencies. We enable better government through our best-in-class networks, innovative solutions, exceptional customer experience, and decades of success helping get mission-critical projects done right. With Verizon on their team, our customers can serve their constituents better, work more efficiently and remotely, create smart communities, empower young learners, help ensure public safety, and respond quickly to emergencies.



XDEMIC the best credential services. We are a Competency-based Credentials Data Hub, the ultimate place for all kinds of academic and professional credentials. Mainly to faster the application process, credential verification, and credit validation within high schools and universities, or within universities and the employer globally.



ZEBLOK COMPUTATIONAL is a SaaS startup – deploys a turnkey cloud native Artificial Intelligence Platform-as-a-Service, with an algorithms marketplace and high performance computing (HPC) orchestration, in enterprise data centers or third party clouds, enabling integration of AI into mission-critical processes. We lower the cost and improve the operational efficiency of AI model development and integration into enterprise business processes by over 50%, while significantly lowering the failure rate of AI projects, which Gartner says stands at 84%.



ZYDOC solves physician documentation problems with smartphone dictation and section-level EHR insertion within 1 hour by US background-checked, HIPAA certified staff with 24x7x365 support.