IBM SPEAKERS

This catalog contains a list of talks and lecturers bound to mesmerize any audience.

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Neural Networks with External-Memory
Guy Lev

Category: Artificial Intelligent (AI)

Abstract
In this lecture we will discuss architectures which extend the capabilities of neural networks by coupling them to external memory resources, which they can interact with using the attention mechanism. We will review models from the domains of language understanding and program induction.

Speaker
Guy Lev is a research staff member at the Machine Learning Technologies group at IBM Haifa Research Lab, where he works on Machine Learning and Deep Learning approaches for NLP tasks. Prior to joining IBM, Guy completed his M.Sc. in computer science at Tel Aviv University, under the supervision of Prof. Lior Wolf, where he explored methods for semantic representations of sequences, such as sentences or videos, and connecting between Computer Vision and NLP. Before his M.Sc. studies, Guy was a software and algorithm developer at Broadcom.
Challenges in the Chatbot
Ateret Anaby Tavor

Category: Artificial Intelligent (AI)

Abstract
Chatbots will probably predominantly own the future of man-machine interface. We see them progressively taking over in Customer Care centers, Command and Control systems, and as Personal assistance. From the underlying framework point of view, one of the most interesting and challenging aspect is how to support bot builders in their quest for modularity and reuse, while at the same time keep the robustness of the bot intact, and the usage by the end user seamless and smooth. In this talk we will discuss these industry challenges, and see how IBM Watson Conversation tackles them.

Speaker
Ateret Anaby Tavor is a research staff member and the manager of the Decision Analytics team at IBM’s flagship cognitive division, Watson Group. Her main responsibly focuses on devising the next generation of Virtual Agents. Applying Machine Learning, NLU, and Algorithmic approaches to revolutionize the way people make decisions, and engage with businesses.

Since joining the Watson group Ateret has led the team on launching IBM Watson Tradeoff Analytics, an innovative cognitive service in the Watson Developer Cloud. Tradeoff Analytics combines smart visualization and analytical recommendations for easy and intuitive exploration of decision tradeoffs. Prior to this assignment Ateret’s research was focused on the future of business modeling tools leveraging the Business Analysts and Business Architects’ work and teamwork. Ateret has gained a lot of experience in Software Engineering, Business Intelligence, Decision Analytics, and Operational Research.

Ateret has numerous academic publications and patents. She received M.Sc in Information Management Engineering (Cum Laude) from the Technion – Israel Institute of Technology.
Inter-Dataset Variability Modeling for Speaker Recognition

Dr. Hagai Aronowitz

Category: Artificial Intelligent (AI)

Abstract

Speaker recognition in a mismatched domain was the main focus of the recent NIST speaker recognition evaluation. In my talk I will introduce a novel approach for addressing this challenge. The main principle is to learn the inter-dataset variability in the development data and generalize to unseen conditions. The first method described is to learn a subspace in the high-level feature space that is most sensitive to dataset mismatch and remove it. The second method described is to optimize the recognition model to directly minimize the error in scoring (log-likelihood ratios) of target trials when dataset-dependent models are replaced by a dataset-independent model. The result we obtain in the latter method is a correction term for the commonly estimated within-speaker variability covariance matrix. The correction term is proportional to the normalized inter-dataset variability of the within-speaker variability covariance matrices.

H. Aronowitz, "Inter Dataset Variability Modeling for Speaker Recognition", in Proc. ICASSP, 2017.
H. Aronowitz, "Compensating Inter-Dataset Variability in PLDA Hyper-Parameters for Robust Speaker Recognition", in Proc. Speaker Odyssey, 2014.

Speaker

Dr. Hagai Aronowitz received the B.Sc. degree in Computer Science, Mathematics and Physics from the Hebrew University, Jerusalem, Israel in 1994, and the M.Sc. degree, Summa Cum Laude and Ph.D. degree, both in Computer Science from Bar-Ilan University, Ramat-Gan, Israel, in 2000 and 2006 respectively. In 2006-2007 he has been a postdoctoral fellow in the advanced LVCSR group in IBM T. J. Watson Research Center, Yorktown Heights, NY. He currently is working at IBM Haifa Research Lab, leading the multi-modal biometrics research team. His research interests include speaker identification, speaker diarization, face identification, audiovisual processing, and spoken language identification. Dr. Aronowitz is an author of 50 peer reviewed publications in major conferences and journals.
Text dependent speaker recognition
Dr. Hagai Aronowitz

Category: Artificial Intelligent (AI)

Abstract

Speaker
Dr. Hagai Aronowitz received the B.Sc. degree in Computer Science, Mathematics and Physics from the Hebrew University, Jerusalem, Israel in 1994, and the M.Sc. degree, Summa Cum Laude and Ph.D. degree, both in Computer Science from Bar-Ilan University, Ramat-Gan, Israel, in 2000 and 2006 respectively. In 2006-2007 he has been a postdoctoral fellow in the advanced LVCSR group in IBM T. J. Watson Research Center, Yorktown Heights, NY. He currently is working at IBM Haifa Research Lab, leading the multi-modal biometrics research team. His research interests include speaker identification, speaker diarization, face identification, audiovisual processing, and spoken language identification. Dr. Aronowitz is an author of 50 peer reviewed publications in major conferences and journals.
A Deep Learning emotion predictor from speech signals
Dr. Aharon Satt

Category: Artificial Intelligent (AI)

Abstract

Statistical (machine learning) methods have been applied successfully to speech signals in order to predict the emotional state from the nonverbal speech content. Common approach is based on extracting features that were shown to represent the required information (emotions), and then applying a classifier to the feature data.

We suggest a novel approach: applying Deep Learning-based classifier directly to the time-frequency representation of the raw speech. We describe the considerations of the network topology design, inspired by the biological speech perception mechanism, using common building blocks such as Convnets and LSTM.

Next, we present and analyze the classification results, and demonstrate improvement to the previously reported state of the art. We conclude that speech emotion recognition is another area where applying Deep Learning methods directly to the raw information improves the traditional use of hand-crafted feature extraction as a preceding step to the classification itself.

Speaker

Dr. Aharon Satt received the B.Sc., M.SC. and D.Sc. degrees in Electrical Engineering from the Technion, Israel Institute of Technology. His expertise areas include signal and speech processing, information theory, and applications of machine learning. He fulfilled multiple research, industrial and technology-leadership positions in several companies across the hi-tech industry in Israel. He was involved in European and bi-national research projects. He is currently active in research and development of emotion recognition technology.
Deep Learning Frameworks: The Good, the Bad & the Ugly
Dror Porat

Category: Artificial Intelligent (AI)

Abstract
In recent years, deep learning has become an important and useful machine learning tool, often outperforming the state of the art in a wide variety of domains. The number of frameworks and software libraries available for researchers and developers in this area has also grown significantly, and the variety can be overwhelming at times. The purpose of this talk is to provide an overview of this growing landscape of frameworks for deep learning, and to describe the advantages and limitations of the more popular and useful libraries.

Speaker
Dror Porat is a research scientist and Algorithms team leader in the Video and GIS Analytics group at IBM Research - Haifa. He received a B.Sc. degree (Summa Cum Laude) and an M.Sc. Degree (Cum Laude) in electrical engineering from the Technion - Israel Institute of Technology. He joined IBM Research in 2012, and prior to that he was a senior algorithm engineer at Given Imaging Ltd. (now Medtronic), since 2006. His main research interests are computer vision, machine learning, artificial intelligence, and image and video processing.
Video Scene Detection
Daniel Rotman

Category: Artificial Intelligent (AI)

Abstract

Video scene detection is the task of dividing a video into semantic sections. I will present our novel and effective method for temporal grouping of scenes using an arbitrary set of features computed from the video. This task is formulated as a general optimization problem and an efficient solution is provided using dynamic programming. Our unique formulation allows us to directly obtain a temporally consistent segmentation, unlike many existing methods, and has the advantage of being parameter-free. I will also present how we expanded the method to incorporate features from multiple modalities, and I will present a novel technique to estimate the number of scenes in the video using Singular Value Decomposition (SVD) as a low-rank approximation of a distance matrix. This method proved to perform outstandingly and resulted in three published papers.

Speaker

Daniel Rotman is a research scientist in the Video and GIS Analytics group at IBM Research - Haifa. Daniel received his B.Sc and M.Sc. at the Technion in the Electrical Engineering department.
Cognitive Radiology Assistance

Dr. Rami Ben-Ari

Category: Artificial Intelligent (AI)

Abstract

Radiologists nowadays are overwhelmed by the visual data coming from numerous screening and diagnostic imaging tools. In several clinical routines such as mammography, the early detection of breast cancer has an enormous impact in the patient survival. This puts pressure on the radiologists to be highly sensitive while keeping false positive rate low. Mammography examination constitute the most basic type of screening for breast cancer, and as such there is a need for reliable automatic or computer-aided diagnostic (CADx) tools. There are numerous use cases raising from such system such as coincidental diagnosis, telemedicine and training. In this talk I will describe our works and vision for the future cognitive system to assist radiologists in breast imaging. In my talk I'll describe our system design and deep dive into several computer vision and machine learning algorithms presented in recent team publications, particularly using novel deep learning methods.

Speaker

Dr. Rami Ben-Ari is a research staff member in Medical Imaging Solutions group at IBM Haifa Research Lab. He joined IBM Research in 2014 after holding several research positions at Israeli companies. Rami holds a PhD in Applied Mathematics from Tel-Aviv University in computer vision. Prior to IBM, his research interests were in shape from X, optical flow and visual tracking as well as machine learning based gesture recognition. His current research deals with detection and classification of clinical findings in radiological images using deep learning. Rami has authored and co-authored over 20 papers in peer-reviewed journals and conferences.
Unsupervised Summarization Techniques
Dr. Guy Feigenblat

Category: Artificial Intelligent (AI)

Abstract

The abundance of unstructured information raises the need for automatic systems that can “condense” information from various documents into a shorter length, readable summary. Such summaries may further be required to cover a specific information need (e.g., summarizing web search results, question answering). Various methods have been proposed for the query-focused summarization task. These methods can be categorized based on two main dimensions namely: extractive vs. abstractive and supervised vs. unsupervised.

In this talk we will focus on extractive, query focused, unsupervised mutli-document summarization techniques. We will survey some of the recent works and their applications in the industry in general and in IBM in particular. I will then describe a state of the art summarization approach that is being developed in our lab. This talk is based on a work published in SIGIR 2017.

Speaker

Dr. Guy Feigenblat is a research staff member at the Information retrieval group at IBM Haifa research lab. He is leading a research around Natural Language Generation (NLG). Specifically, his main research the last two years has been on the study of automatic machine generated summaries with a focus on quality, performance and readability. Prior to that Guy was part of the Affective computing team. His research focused on developing cognitive bots that can express and predict human emotions during a textual dialogue. In addition, worked on studies that analyzed emotion expressions in a large scale organizational social network

Guy received his PhD from the computer science department at Bar Ilan University, under the supervision of Professor Ely Porat. His main academic research interest was in the field of computer science theory, with a focus on processing and analyzing massive data sets, succinct data structures and pattern matching.
Abstract

Apache Spark is an open-source scalable in-memory computation framework. It is widely used across the industry and supports a variety Big Data Analytics use cases. In this talk we describe Spark's main components, its rich set of libraries and operation modes. The talk will be accompanied with examples and insights from our experience with Spark in the development of Big Data Security applications in IBM.

The speaker can adjust the talk content to the course subject: for IoT course provide more info about architecture aspects of our Spark solution in IoT setup; for machine learning course - give more focus to Machine Learning libraries of Spark.

Speaker

Lev Greenberg is a Research Staff Member in the Data Privacy and Security group at IBM Research - Haifa Lab (HRL). His industrial experience includes data security, software and algorithms development, systems engineering. Lev's current research is focused on Spark-based Big Data Analytics and Anomaly Detection systems for IoT Security. Lev is actively involved in development of scalable anomaly detection systems for IBM security products.
Detecting and expressing affect in text
Dr. Michal Shmueli-Scheuer

Category: Artificial Intelligent (AI)

Abstract

Humans experience the world can be decomposed into Cognition (what we think), Affects (what we feel) and Action (what we do). Until now, computers have been very successful in the Cognitive and Action domains: computers replace, extend and analyze how we act and think. Much less has been achieved in the domain of computerized recognition, interpretation, processing and simulation of affects and in particular human emotions. In this talk I'll present our work on affects in text. The talk will cover both detection and expression of affect in textual messages. The first part will include emotion detection using word-embeddings, and detection in more advance settings of conversations. The generation will show how to express personality traits using deep learning approach.*

*The material for this talk was published during 2016-2017 in top conferences.

Speaker

Dr. Michal Shmueli-Scheuer is the senior researcher of the Information Retrieval research group (Cognitive Analytics and Solutions department) in IBM Research - Haifa, with over 10 years of industry experience. She holds a Ph.D (2009) degree in Information and Computer Science from the University of California, Irvine, USA.

Her area of expertise is in the fields of affective computing, user modeling, large scale analytics, database, and information systems, focusing on user behavior analytics and information management on the web.

She has published more than 20 academic papers in leading conferences, and journals, and book chapters. She has served as a PC member and a reviewer of numerous leading conferences and journals.

Within IBM, she has lead numerous user modeling related projects and has been recognized for her significant contributions. She has been an adjunct lecturer in the IE&M faculty in the Technion -Israel Institute of Technology, where she has taught undergraduate level course.
Creating Smart Personal Assistants

Dr. Segev Wasserkrug

Category: Artificial Intelligent (AI)

Abstract

There is a proliferation of products being labeled as smart personal assistants, including Siri, Amazon Echo and Google Assistant. However, currently, such assistants are quite limited, and are able to carry out interact with users on a small number of topics.

In this talk, I will present some of the technologies underlying these assistants and present the challenges associated with making them more intelligent. I will also present a technology being developed in IBM for creating much more advanced assistants - assistants that are personalized, proactive as well as reactive, and portable, i.e., are able to follow the user around to wherever he goes. I will also discuss some of the implementation details underlying this technology.

Speaker

Dr. Segev Wasserkrug is a Senior Technical Staff Member at the IBM Haifa Research Lab, and the technical leader of the Cognitive IoT work in the IoT and Mobile Platforms Area in the lab. Segev has over fourteen years practical experience in leading, developing and applying advanced optimization and analytical techniques to customer problems in a variety of domains, including workforce, logistics, scheduling, and water and wastewater operations. Over the past two years, Segev has worked on enhancing IoT and Mobile driven solutions with cognitive capabilities, focusing on automated reasoning, semantic knowledge representation, and natural human/machine interaction.

Segev has a strong background in a variety of areas including probabilistic reasoning, machine learning, optimization, simulation, stochastic modeling, and computer science. Segev received his Ph.D. in information systems engineering, and his M.Sc. and B.A.in computer science from the Technion - Israel Institute of Technology. Segev has numerous academic publications and patents.
Creating a smart diagnosis system
Dr. Segev Wasserkrug

Category: Artificial Intelligent (AI)

Abstract

There are many cases in which experts are required to carry out diagnosis, i.e., given a list of observed symptoms, find the problem that is causing these symptoms. Examples include medical diagnosis, where a healthcare professional needs to discern the ailment causing a set of symptoms, and white goods repair, where a technician must decide on the repair procedure for a dishwasher. In many cases, making such diagnosis requires significant expertise, acquired over years of experience. Therefore, any system which can help professionals make such diagnosis decisions would be of great benefit.

Applying analytical models to such tasks seems natural. However, applying such techniques face a unique challenge in that they must be able to incorporate unstructured information.

In this talk, I will describe a decision support technology created by IBM that helps diagnose problems. I will describe how combining a variety of advanced AI and analytical techniques can result in a formal probabilistic model that incorporates both the structured and unstructured information sources into a decision support system, or, in other words how we can teach Watson to repair electronic appliances such as washing machines.

Speaker

Dr. Segev Wasserkrug is a Senior Technical Staff Member at the IBM Haifa Research Lab, and the technical leader of the Cognitive IoT work in the IoT and Mobile Platforms Area in the lab. Segev has over fourteen years practical experience in leading, developing and applying advanced optimization and analytical techniques to customer problems in a variety of domains, including workforce, logistics, scheduling, and water and wastewater operations. Over the past two years, Segev has worked on enhancing IoT and Mobile driven solutions with cognitive capabilities, focusing on automated reasoning, semantic knowledge representation, and natural human/machine interaction.

Segev has a strong background in a variety of areas including probabilistic reasoning, machine learning, optimization, simulation, stochastic modeling, and computer science. Segev received his Ph.D. in information systems engineering, and his M.Sc. and B.A.in computer science from the Technion - Israel Institute of Technology. Segev has numerous academic publications and patents.
Large Scale Labelling Methodology
Yoav Kantor

Category: Artificial Intelligent (AI)

Abstract

Machine learning is the science of getting computers to act without being explicitly programmed.

While traditional software solutions rely on sets of rules for executing an algorithm in order to solve a problem, machine learning based systems rely on given examples, aka labeled data, from which the algorithm "learns" how to correctly identify new instances. The quality and quantity of the labeled data significantly effects the precision and recall of the resulting solution. Collecting large amounts of high quality labeled data is well known challenge that involves various questions. E.g. what labeled data is required for solving a specific task? How can we measure the quality of the generated labeled data? How can we measure the quality of the labeling output of a specific labeler? In this lecture we will understand the importance of high quality labeled data, compare two main labeling data procedures (exhaustive and retrospective labeling), and discuss the unique issues that arise when outsourcing large scale labeling tasks to the crowd, e.g. on an outsourcing platform such as Crowdflower.

Speaker

Yoav Kantor finished his M.Sc. degree at the Technion in 2013 and works at IBM Research - Haifa lab since. He is part of the Debating Technologies team, that develops a Machine-Learning based system that given a controversial topic can automatically generate relevant persuasive arguments by scanning massive text corpora. He will be happy to share his experience and insights gained via implementing an automatic large scale labeling mechanism, which is used on a daily basis by the project team.
From Neural Networks to Deep Learning

Yuval Lapidot

Category: Artificial Intelligent (AI)

Abstract

Artificial intelligence has become the hottest talk of the 21st century, bringing us self-driving cars, speech recognition and early disease diagnosis. Deep Learning specifically, has become one of the most popular buzz-words in the field. Deep Learning capabilities are utilized to solve numerous problems in various domains. In this talk, we will look under the hood of Deep Learning, starting with introduction to Neural Networks (Deep learning basic block) and reviewing different network types. Then we will delve into Deep Learning by exploring common implementations such as Convolutional Neural Networks and Deep Auto Encoders. The implantations will be followed by examples of dimensionality reduction, anomaly detection and image recognition. we will understand the math behind deep learning and the secrets to its success.

*Basic understanding of statistics and machine learning is required.

Speaker

Yuval Lapidot is a cyber security data researcher at the IBM Cyber Center of Excellence (CCoE) in Be’er Sheva (Israel).

Yuval is an enthusiast in the domain of machine learning and is focused on neural networks and deep learning.

Yuval holds a B.Sc in Software Engineering and M.Sc in Information Systems Engineering both from Ben Gurion University.
Function as a service: a new cloud programming model
David Breitgand

Category: Cloud & Data

Abstract
Function as a service (FaaS) is the latest major addition to the already complex and diverse cloud computing landscape. Initially introduced by Amazon in 2014, it now rapidly evolves by vendors and open source projects. I will describe FaaS, its advantages, its use in event-driven IoT scenarios. Since FaaS is in its early stage - I will discuss research challenges with this approach.

Speaker
Dr. David Breitgand received his B.Sc., M. Sc, and Ph.D. in Computer Science from the Hebrew University of Jerusalem. He has been with IBM Haifa Research since 2003, and leads research in areas related to optimization on the cloud, Cloud-based Factories of the Future (FoF), and performance analysis distributed middleware, network protocols and architectures, operating systems.
David serves as a senior adjunct faculty at the School of Computer Science at the Technion.
Messaging for Big Data in the Cloud: Apache Kafka

Dr. Paula Ta-Shma

Category: Cloud & Data

Abstract

Apache Kafka is an increasingly popular open source framework for Big Data messaging. This talk will introduce Kafka's basic concepts and design points and provide some "hello world" examples of Kafka usage. It will conclude with an example of an end-to-end Internet of Things use case using Kafka and a comparison of Kafka with other messaging systems.

Speaker

Dr. Paula Ta-Shma leads research efforts on data ingestion and analytics for the Internet of Things, in the IBM Cloud and Data Technologies group at IBM Research. She led efforts on smart cities and Continuous Data Protection. Her work has been presented at multiple industry conferences including the Apache Spark Summit, the OpenStack summit and IBM InterConnect, as well as academic conferences such as FAST and SYSTOR. She holds Ph.D and M.Sc degrees in computer science from the Hebrew University of Jerusalem.
Cloud object stores: distributed storage for the cloud
Dalit Naor

Category: Cloud & Data

Abstract

I will describe Object Stores, which replaced the traditional (POSIX) file systems to store large volumes of new data types created in the Cloud era, e.g. text, video/image, CSV logs. Object stores are distributed, very scalable and cost-effective storage systems, exposed via REST APIs. I will review the evolution of such systems over the past decade, how they are built and used today, and some advanced research around object stores.

Speaker

Dr. Dalit Naor is a Senior Technical Staff Member in the Cloud Platforms department at IBM Research - Haifa. She specializes in cloud storage, data services, and infrastructure for big data analytics. Dalit holds M.Sc and PhD degrees from the University of California, Davis, and a B.Sc. degree from the Technion, all in computer science.
What's new in IBM Cloud Functions Land?
Ronen Siman-Tov

Category: Cloud & Data

Abstract

Serverless computing or FaaS (Function as a Service) provides developers with a "server less" deployment and operational model relieving them from the need to worry about complex infrastructure and operational tasks. FaaS enables developers to focus on developing and executing code (actions) in response to events while paying only for actual consumed resources and not for idle resources. In this presentation we will present IBM Cloud Functions powered by OpenWhisk Apache project, deep dive into its architecture and core components, and discuss some practical design patterns and best practices for common business use cases scenarios.

Speaker

Ronen Siman-Tov is the CTO of IBM Alpha Zone Accelerator. One of the Elite accelerators globally. From July 2016 Ronen is also the IBM Israel Blockchain development advocate leader, focusing on finance, insurance, government and supply chain solutions. Ronen joined IBM on 2011 as a senior IT Architect, and was recognized as IBM Thought Leader IT Architect on December 2016. From 2014 to 2016 Ronen Managed the IBM Innovation Center in Israel and on July 2014 was part of the team that launched IBM Alpha Zone Accelerator. Prior to that, from 2009 until 2010, Ronen was the Technical Manager and Chief Architect of an exceptionally large scaled command & control project with the IDF at Ness TSG (Technologies and Systems Group). From 2006 until 2009, Ronen was the VP R&D and CTO of two startups in the fields of Commerce and Media & Entertainment
Data Center Network Virtualization for the Cloud
Katherine Barabash

Category: Cloud & Data

Abstract

This is an introduction to cloud connectivity challenges and solutions. First, the lecture describes why and how networking in cloud environments differs from the traditional networking. Next, it presents specific requirements for connectivity in the cloud and gives a generic overview of the solution design space. Then, it gives concrete solution examples and discusses their pros and cons, providing links and pointers for deeper learning.

Speaker

Katherine (Kathy) Barabash is the manager of the Cloud Architectures and Networking group in HRL. Kathy holds B.Sc. in Applied Mathematics and M.Sc. in Computer Science, both from the Technion. She is with IBM Research since 1997, focusing on Systems research. Today she works on cloud, data center network, and virtualization research.
A deep dive into Biometrics

Dr. Hagai Aronowitz

Category: Security & Privacy

Abstract

With the rapid growth in the use of mobile devices and pervasive computing on one hand, and the rise of deep learning on the other, biometric recognition has become an even more exciting field. In this talk, I will give an overview on speaker and face recognition focusing on deep learning. I will talk about spoofing and countermeasures and on privacy issues (cancelable biometrics).

G. Heigold, I. Moreno, S. Bengio, N. Shazeer, "End-to-End Text-Dependent Speaker Verification", in Proc. ICASSP 2016

Speaker

Dr. Hagai Aronowitz received the B.Sc. degree in Computer Science, Mathematics and Physics from the Hebrew University, Jerusalem, Israel in 1994, and the M.Sc. degree, Summa Cum Laude and Ph.D. degree, both in Computer Science from Bar-Ilan University, Ramat-Gan, Israel, in 2000 and 2006 respectively. In 2006-2007 he has been a postdoctoral fellow in the advanced LVCSR group in IBM T. J. Watson Research Center, Yorktown Heights, NY. He currently is working at IBM Haifa Research Lab, leading the multi-modal biometrics research team. His research interests include speaker identification, speaker diarization, face identification, audiovisual processing, and spoken language identification. Dr. Aronowitz is an author of 50 peer reviewed publications in major conferences and journals.
Trust services with Hardware support (Intel SGX)
Danny Harnik

Category: Security & Privacy

Abstract
The talk will describe new paradigms for securely running code on commodity hardware, with a focus on the Intel SGX technology. I will describe the basic concepts, the main use-cases and deployment challenges.

Speaker

Dr. Danny Harnik is a researcher in the cloud storage group at IBM Research - Haifa. He holds a PhD from The Weizmann Institute of Science, and his main fields of research are storage systems, compression, security and cryptography. Danny also spent 1.5 years as a post-doc at the Technion.
Cyber Challenges as an Education Tool
Prof. Oded Margalit

Category: Security & Privacy

Abstract
There is a huge skills shortage in the cyber domain. We propose a way to solve it by using cyber challenges as a way to teach. It serves as a gamification of the learning process. In the cyber security field there are two additional unique obstacles: the first is that we don't want to teach criminal activities and the second is that we don't really know what the future cyber world will actually need. Both these problems are solved by asking to solve hard out-of-the-box computer programming tasks that are correlated to the current cyber security techniques.

Speaker

Prof. Oded Margalit, a full adjunct professor at computer science department of the Ben Gurion University has a PhD in Computer Science from Tel-Aviv University. He worked at IBM’s Haifa research lab on machine learning, constrain satisfaction, verification and more. Currently he is the CTO of the IBM Cyber security center of excellence at Ben Gurion University of the Negev. Oded participates in organizing several computer science competitions (like the international IEEEXtreme and the national CodeGuru). He loves riddles and authors the monthly challenge corner of IBM research: "Ponder-This".
Securing (?) Internet Communications
Avishay Bartik

Category: Security & Privacy

Abstract
The Internet – with 2.5 billion users – was never designed to be a secure system. Protocols like DNS or HTTP, the main building blocks of the Internet, were not designed with security in mind. Security protocols and extensions, such as SSL, were built upon these layers in order to provide protection against malicious attacks.

In this talk, we will focus on SSL/TLS: the most prominent Internet security protocol today. We will discuss what security issues it solves, and what limitations it has. We will then describe some relevant attacks like various SSL-stripping techniques and other MitM (Man-in-the-Middle) attacks, and learn to identify the suspicious signs that we should beware of.

This talk is 90 minutes long and is intended for people with a relevant background in computer networks/web.

Speaker
Avishay Bartik is a security researcher in IBM CCoE – Cyber Security Center of Excellence in Beer-Sheva, working on various aspects of network and system security. Prior to joining IBM, Avishay served as a security software engineer in the PMO.
Using keystrokes as Biometric Tool
Itay Hazan

Category: Security & Privacy

Abstract

A growing number of internet services, such as banking, digital healthcare, social networking etc., requires service providers to offer trustworthy means for identity authentication and verification. However, with this growing and critical need, users also demand that authentication will be secured and seamless. One of the most promising ways to transparently verify the identity of the user is based on profiling of users’ keystrokes dynamic, which means the unique way of the user to enter his credentials. In this lecture, we will present several problems related to profiling keystrokes in real time, and show the state of the art research in this field, based on novel anomaly detection algorithms and clustering analysis.

Speaker

Itay Hazan is a data scientist and a team leader at the IBM Cyber Center of Excellence (CCoE) in Beer Sheva, Israel. IBM CCoE is a relatively small but influential team of security researchers with strong academic and industrial background, dedicated to solving hard security problems that are at the forefront of the industry. Itay’s focus is behavioral biometrics, a field dedicated to develop algorithms to differentiate users through their traits and habits. Itay holds a B.Sc. in Software Engineering and M.Sc. in Information System Engineering, both from Ben-Gurion University, Israel.
Malware obfuscation and anti-debugging tricks

Cindy Eisner

Category: Security & Privacy

Abstract

Modern malware uses a variety of techniques to impede human or automated, static or dynamic analysis of its (machine) code. Ranging from the trivial to the ingenious, what these techniques share is a tendency to misuse interfaces and flout coding conventions, in a way that breaks the assumptions of many tools and renders them useless. In this talk I'll present a selection of such techniques, all gleaned from recently analyzed malware samples, and show what they break and how they do it.

Speaker

Cindy Eisner holds a B.Sc. in computer science from the Technion. Her first job, a million years ago, was porting a PL/M compiler from 16 to 32 bits at Intel. That was followed by a number of years working on CAD tools and supporting methodologies for electrical engineers at Intel and Zoran. She joined IBM in 1994, and spent more than 20 years working on various aspects of formal technologies, including formal specification and verification and their application to hardware and software development. Today she is a Senior Technical Staff Member at IBM Research - Haifa, where she works on a security analysis project that builds on her expertise in compilers, hardware architecture and formal verification technology.

Cindy is the author of over 20 peer reviewed publications, mostly in the field of formal specification and verification, and of a book published by Springer on the property specification language PSL.
How Do You Like Your Phish?
Alon Freund

Category: Security & Privacy

Abstract
Phishing is one of the early, simple and cost-effective scams in the internet.

Using Social engineering, an attacker aims to acquire sensitive information like passwords and credit card details, for malicious reasons. The attacker is doing so by masquerading as a trustworthy entity (Hi There, It’s Shula from your bank speaking...)

We will see how easy it is, for an attacker, to create a phishing web site with a very(!) small budget, what kind of technics he uses to make us think that a phishing web site is legitimate, and how to avoid from falling a pray to a phishing scam.

Speaker
Alon Freund is working at the Cyber Security Center of Excellence, located in Beer-Sheva. His main fields of interest are network security and data science. Alon received his B.Sc. From the communication systems engineering department at Ben Gurion University.
What is between 20 million euros and your privacy?
Tomer Zuker

Category: Security & Privacy

Abstract

In May 2018 two important and revolutionary information protection and privacy regulations will come into force:

The Privacy Protection (Information Security) Regulations detailing the manner in which the data protection requirement of the Israeli Privacy Protection Law and the European Union's General Data Protection Regulation (GDPR) is implemented.

In this lecture, you will recognize the commonalities between the two new regulations, how information security and privacy protection will become part of the business routine, including new reporting requirements for serious security incidents, familiarity with technologies that help minimize risks, and more.

Speaker

Tomer Zucker, Manager of the Information Security and Cyber Security Solutions Group at IBM Israel, has over 18 years of experience in marketing, advertising, sales management, distribution channels and business development in hi-tech companies. He specializes in marketing, digital and social networks in the B2B world and lectures on these subjects in the business and academic world.
QRadar Apps
Bar Haim

Category: Security & Privacy

Abstract

The proposed talk provides a practical introduction to the development of interactive security applications, using a specialized framework designed by IBM to help overcome the ever-growing number of cyber-attacks on commercial and government computer infrastructures.

The business problem – securing corporate networks. A typical corporate network contains thousands of devices and applications, a very large number of complex connections, and an undetermined number of unprotected vulnerabilities. Those networks are under constant attacks. To be successful, an attacker needs to exploit only one weakness. The defenders of the attacked network, however, must address them all. Thus, attackers essentially have an “asymmetrical advantage” in their favor, which they are exploiting it to their definite advantage. To counter this threat, security analysts need effective methods to detect security breaches and, equally importantly, to respond to security incidents.

In this talk, I will present a capability called QRadar App Framework, that is used to develop new application modules on top of IBM’s QRadar SIEM system. This framework enables easy development of new application modules that integrate with the existing SIEM user interface and expose new capabilities, thereby injecting new UI and workflow content to significantly expand the base platform. Moreover, by developing applications within the SIEM system, information from multiple sources can be integrated so as to add context to existing information stored in the therein. An added benefit of the QRadar App Framework is the ability to share GUI apps, through an App exchange, among other security analysis, even in different organizations, and across other systems.

Speaker

Bar Haim is a research scientist at the IBM Cybersecurity Center of Excellence at Beet Sheva lab, where he is responsible for the Center’s UI design activities. Mr. Haim routinely supports IBM clients on developing applications on top of the QRadar App Framework, and has taken a key part in the development of IBM’s well-publicized User Behavior Analytics product, which leverages the App Framework. A recent graduate of Ben-Gurion University, Bar is deeply involved with the Israeli programmer community and takes a special pleasure in promoting and contributing to rapid prototyping through local hackathons.
IoT Employee Safety solution
Omer Arad

Category: Digital Reinvention

Abstract

How a First-of-a-kind initiative that was conceived in Haifa has led us to develop and implement the Employee Safety solution prototype that was deployed at a client site in Canada where temperature drops down to below-freezing level of -40C.

In this lecture we will tell the story of this research project, elaborate on its challenges and difficulties, and how we had to deploy technologies in an unconventional Oil & Gas refinery environment. We will showcase a live demo of this solution using wearable devices & Beacons.

https://www.youtube.com/watch?v=EAe0DzfWYZQ&index=6&list=WL

Speaker

Omer Arad is an experienced researcher and developer working on global projects related to the Internet of Things and Wearable Devices. Passionate about using technology to improve people's lives, Omer works at IBM Research on making hazardous workplaces safer.
Are you ready for the Digital Era?
Tal Shahar

Category: Digital Reinvention

Abstract

Do the Right things, Do the things Right, Do it Right the first time

Digital is the new Holy Grail. The battleground between companies has moved from the physical world to the Digital one and Transformation is the Enabler for winning the Digital Era. But organizations have major challenges adapting and transforming. Any big transformation encapsulates big risks. These risks, unless well managed, might even threaten the survivability of the business.

Our challenge is to plan the right transformation to win in the Digital Era.

In this talk we will discuss these challenges and the path to successful transformation.

Speaker

Tal Shahar holds an MBA from Recanati School of Management (TA University). His expertise areas are Information technology, Digital Transformation and Large Complex transformation programs. He fulfilled multiple roles in leading companies, in his current role he leads the Banking and Financial Services Sector and Cloud Advisory in IBM Services.
Blockchain is ready for Business
Ronen Siman-Tov

Category: Digital Reinvention

Abstract

IBM is interested in exploring the broader business application of Blockchain technology. This is a transformational opportunity for many of IBM’s clients since it touches most of the industries. In this presentation we will explain IBM Blockchain offering, deep dive into the core building blocks of the IBM Blockchain architecture, discuss strategic use cases and how IBM can help in applying the Blockchain technology on real business use cases.

Speaker

Ronen Siman-Tov is the CTO of IBM Alpha Zone Accelerator. One of the Elite accelerators globally. From July 2016 Ronen is also the IBM Israel Blockchain development advocate leader, focusing on finance, insurance, government and supply chain solutions. Ronen joined IBM on 2011 as a senior IT Architect, and was recognized as IBM Thought Leader IT Architect on December 2016. From 2014 to 2016 Ronen Managed the IBM Innovation Center in Israel and on July 2014 was part of the team that launched IBM Alpha Zone Accelerator. Prior to that, from 2009 until 2010, Ronen was the Technical Manager and Chief Architect of an exceptionally large scaled command & control project with the IDF at Ness TSG (Technologies and Systems Group). From 2006 until 2009, Ronen was the VP R&D and CTO of two startups in the fields of Commerce and Media & Entertainment
Speech synthesis with voice transformations

Alexander Sorin

Category: Digital Reinvention

Abstract

A text-to-speech synthesis (TTS) system can speak in few voices, each is derived from audio recordings of a real person. TTS voice transformations that change a perceived speaker identity in a controllable way is an attractive alternative to expensive, lengthy and human labor consuming recording and processing of new speech datasets. Foreseen entertainment applications in particular will require multitudes of distinct TTS voices to be created on demand which makes the voice transformation the merely viable option.

I’ll present a state of the art in the research area of TTS voice transformation and our work on endowing a product level TTS system with instant, externally configurable voice transformation capabilities.

Speaker

Alexander Sorin is a senior researcher in the Speech Technologies group at IBM Haifa Research Lab. He is an author of numerous articles and holds 7 patents. He received his M.Sc. degree in Applied Mathematics from the Automation and Computers Department of Moscow Oil and Gas Institute, USSR in 1979. Since 1988 he works at IBM HRL on numerous research projects in speech and image processing including concatenative and statistical text-to-speech synthesis, voice-based emotion detection, automatic speech transcription and distributed speech recognition. He led the IBM team in several European research projects. He is currently leading a research project in the area of speech synthesis and modeling.
Digital Re:Invention – why companies has to do it?

Merav Spektorovsky-Sasson

Category: Digital Reinvention

Abstract

Digital Transformation is a widely known concept, and a bit worn out. Everyone are doing that, but in today's disruptive arena companies need to reinvent themselves, with digital.

We will understand the path from digitization, to digital transformation, all the way to digital reinvention, and what are the differences strategically and technologically wise.

We will look at companies like Ford, the Japanese postal authority, Orange bank, Starbucks and more, and we will learn why they had to digital reinvent, and what exactly have they done.

And than we will look closely at the Digital Reinvention model of IBM – the model that starts from customer experience, and looks for new business focus, new ways to work, and new expertise to be developed.

Speaker

Merav Spektorovsky – Sasson is a Digital Strategy and customer experience Leader In IBM Israel


6 Years of Experience as a Strategic Business Consultant and CEO in one of Israel's Leading consulting firms

14 Years of Experience in Bank Hapoalim As Head of Digital, Head of Marketing and Head of the Retail Strategy.
Agile – don't just do. Be.
Avital Benisty & Tamir Hagashi

Category: Digital Reinvention

Abstract

The methodology of Agile, originally used in Software Development, has spread its wings, as business community starts to talk about Business Agility and Agile leaders.

The purpose of this lecture is to provide an initial introduction to the world of Agile, its culture and environment. Agile changes the way we think, observe, plan and undertake tasks in order to deliver outstanding results.

We discuss the main values, principles and practices of Agile and demonstrate how it can be useful in undertaking tasks in all areas of life: whether at work, university or at home with our families.

Tasks may simple or complex. One time, such as planning a vacation or longer-term, such as building a house. Topics introduced during the lecture include:

Agile values, Dealing with mistakes, Key questions that should be asked, Formulating strategy, Agile execution techniques

Speakers

**Avital Benisty** is Transformation & Operations Team Leader at IBM Petach Tikva site. Avital has been working in IBM for the past 20 years in different job roles. She has successfully completed the IBM Project Management program and managed various Networking projects.

**Tamir Hagashi** is Transformation & Operations Team Leader at IBM Petach Tikva site. Tamir has an M.A. degree in Hebrew and Semitic Languages from Bar-Ilan university.
IBM's Transformation
Mazal (Mazi) Galor

Category: Digital Reinvention

Abstract

IBM is the only information technology company that has succeeded in leading and thriving in the world marketplace for over 100 years. The global corporation is unique in its ability to reinvent itself anew over the course of its lifetime. The story of IBM is a case study for how to successfully manage an organization and redefine its focus and strategies as the world changes. Over the years, IBM has learned how to change business models, products, and even what it stands for, to generate an environment and culture of innovation from within.

Speaker

Mazal (Mazi) Galor is Manager of Marketing and Communications for IBM in Israel, reporting to the Country General Manager. Mazi leads the marketing strategy and execution for IBM Israel, using her extensive experience in local and international marketing. She is passionate about using innovative technologies alongside a wide range of classic marketing tools and news media to achieve results and gain an in-depth understanding of the marketplace. Her areas of responsibility cover the company's marketing campaigns inside Israel, including all public and media relations efforts. Before serving as leader of marketing and communications, Mazi was the ITS leader for IBM in Israel, managing both the services and maintenance business. Prior to that, she held various managerial roles in Europe and Israel, embracing both technical and sales positions, for IBM and in the Israeli Ministry of Defense. Mazi received her BSc in mathematics and computer science from Bar-Ilan University and her MBA from Bradford University.
Cognitive Marketing
Mazal (Mazi) Galor

Category: Digital Reinvention

Abstract

Artificial intelligence (AI) started out as a field of study at MIT in the '50s, focused on getting computers to act like humans. Today, AI is helping humans get a jump on everything from data analysis to decision-making and insight into what people are thinking or expecting. Cognitive marketing platforms is setting new trends when it comes to analyzing customer data and planning marketing strategies. This talk introduces the new opportunities and options for marketing using AI and cognitive computing. It explains how AI can be used to help build successful marketing campaigns, how AI can help us gain insight into our clients' behavior, and how you can make the most out of artificial intelligence when it comes to marketing and public relations.

Speaker

Mazal (Mazi) Galor is Manager of Marketing and Communications for IBM in Israel, reporting to the Country General Manager. Mazi leads the marketing strategy and execution for IBM Israel, using her extensive experience in local and international marketing. She is passionate about using innovative technologies alongside a wide range of classic marketing tools and news media to achieve results and gain an indepth understanding of the marketplace. Her areas of responsibility cover the company's marketing campaigns inside Israel, including all public and media relations efforts. Before serving as leader of marketing and communications, Mazi was the ITS leader for IBM in Israel, managing both the services and maintenance business. Prior to that, she held various managerial roles in Europe and Israel, embracing both technical and sales positions, for IBM and in the Israeli Ministry of Defense. Mazi received her BSc in mathematics and computer science from Bar-Ilan University and her MBA from Bradford University.
LinkedIn- the #1 social network for professionals
Tomer Zuker

Category: Digital Reinvention

Abstract

Do you want to control the world's leading professional social network? In this lecture, you will gain familiarity with the LinkedIn platform, winning content creation principles, personal branding, creating business opportunities and promoting career opportunities. The lecture will be accompanied by practical examples and tips that will enable you to significantly improve the quality of your personal-professional profile quickly.

Speaker

Tomer Zucker, Manager of the Information Security and Cyber Security Solutions Group at IBM Israel, has over 18 years of experience in marketing, advertising, sales management, distribution channels and business development in hi-tech companies. He specializes in marketing, digital and social networks in the B2B world and lectures on these subjects in the business and academic world.
Compression and deduplication in Storage Systems

Danny Harnik

Category: Storage

Abstract

With the growing amount of data being used and stored, storage is challenged to keep up with the capacity demands. Modern storage systems have hence adopted various data reduction techniques, mainly the use of loss-less compression and deduplication techniques. In this talk I will introduce the basic techniques being used in the field and address the main challenges and solutions of deploying these techniques in the context of storage systems.

Speaker

Dr. Danny Harnik is a researcher in the cloud storage group at IBM Research - Haifa. He holds a PhD from The Weizmann Institute of Science, and his main fields of research are storage systems, compression, security and cryptography. Danny also spent 1.5 years as a post-doc at the Technion.
Big Data Analytics with Spark
Gil Vernik

Category: Storage

Abstract
I will explain the challenges of current Big Data engines (in particular Apache Spark) integration with object stores, what are the issues and their origin. I will discuss what can be done to make this integration more efficient and remove barriers of some algorithms. I will present Stocator, an open source (Apache License 2.0) object store connector for Hadoop and Apache Spark specifically designed to optimize their performance with object stores.

Speaker
Gil Vernik is a researcher in IBM Haifa, where he works with Apache Spark, Hadoop, object stores, and NoSQL databases. Gil has more than 25 years of experience as a code developer on both the server side and client side and is fluent in Java, Python, Scala, C/C++, and Erlang. He holds a PhD in mathematics from the University of Haifa and held a postdoctoral position in Germany.
IBM Ponder-This mathematical challenge
Prof. Oded Margalit

Category: Other

Abstract

IBM research runs a mathematical challenge site. Every month a new challenge is posted; as well as a solution for the previous month's riddle. Prof. Oded Margalit is the puzzlemaster for the last decade.

In the talk, he will survey some of the riddles over the years (like games such as: 2048, Kakuro, Infinite chess game and on the probability of a backgammon to end with a double); tell some anecdotes about the challenges (like on a PRL paper born from a riddle on random walks) and the solvers (like a solver from Intensive Care Unit); and will give open questions (like the permutation-firing cannon) for future research. No high math knowledge is assumed.

Speaker

Prof. Oded Margalit, a full adjunct professor at computer science department of the Ben Gurion University has a PhD in Computer Science from Tel-Aviv University. He worked at IBM's Haifa research lab on machine learning, constrain satisfaction, verification and more. Currently he is the CTO of the IBM Cyber security center of excellence at Ben Gurion University of the Negev. Oded participates in organizing several computer science competitions (like the international IEEEXtreme and the national CodeGuru). He loves riddles and authors the monthly challenge corner of IBM research: "Ponder-This".
Constraint Satisfaction Problems: From theory to products
Eyal Bin

Category: Other

Abstract

Constraint Satisfaction Problems (CSP) is a field of artificial intelligence (AI) that helps solve real-life problems by specifying (or modeling) the legal solution structure, rather than implementing algorithms that solve these problems. IBM’s CSP solving system declares the solution model using a propriety modeling language (first-order-logic rules) over diverse types of variables. In this talk, I introduce the field of CSP and present different applications that use this technique. I will briefly explain the internal algorithm and some heuristics that deal with this NP-Complete problem, showing some basic building blocks of the modeling language. Following this background, I cover some interesting directions in CSPs such as solving optimization problems with constraints, how to get a random solution or many solutions for the same problem, solving problems that have unbounded vectors of CSPs classes, scaling up CSPs to create a big database, and how to reduce solving time with parallel computing.


Speaker

Eyal Bin is a research staff member at the IBM Research lab in Haifa, leading the CSP activity for security and privacy. He joined IBM in 1991 and for the past 18 years has been focused on the research and development of CSPs. Over the years, he initiated, defined, and implemented the CSP modeling language and the corresponding engine algorithms that are being used today in several IBM products. Eyal earned his BSc and MSc degrees in Electrical Engineering (Computers engineering) from the Technion – Israel Institute of Technology. He has authored numerous patents and publications around CSPs and it continues to remain his favorite type of problem.
IBM Q: Commercial quantum computers

Dr. Yehuda Naveh

Category: Other

Abstract

IBM Q is the quantum computer developed and released by IBM for academic and commercial use. I will describe the current status of this computer, its underlying technology, the challenges in delivering it for general use, and the path forward. I will generalize this experience and present a vision for intermediate and long term quantum computing in the marketplace

Speaker

Dr. Yehuda Naveh - I received my B.Sc. in physics and math, M.Sc. in experimental physics, and Ph.D in theoretical physics, all from the Hebrew University of Jerusalem. After spending four years as a research scientist at Stony Brook University working on quantum transport and noise of superconductors and other structures, I joined IBM Research - Haifa and focused on several customer-oriented problems, commonly applying existing technology in places it did not reach before. At 2017, I am particularly amused to see my 2000 prediction(*) of the feasibility of 10-nm-scale transistors take flesh and form in the billions at IBM's POWER9 chips, soon to be publicly available.

Intellectual Property for Engineers and Start-ups
Suzanne Erez, Adv.

Category: Other

Abstract

Intellectual property (IP) has value, whether it be the copyright, trademark, invention or confidential information. As a person, and as a company, it is important to understand the ins and outs of IP. In this lecture we will introduce the IP basics, and move into the questions that typically confront the developer – use of code or data from the internet, patenting inventions, ownership rights to code, and more. The questions addressed will intertwine with problems that may come up during an acquisition of a company, and what the entrepreneurs can do at start, to avoid these problems.

Speaker

Suzanne Erez is an IBM IP Counsel, responsible for all IBM IP activities in Israel and IBM European/African Research Labs. Among her responsibilities are due diligence and integration for acquisitions and mergers in Israel, clearance of divestitures, open source issues, code clearances, standard activities, IP transactions, trademarks, copyrights, invention protection – in both ILPTO and USPTO, and manager of the IBM IP department in Israel. Suzanne is also the IP Team lead for European Union Projects (H2020). She has also been the IBM Patent Portfolio Manager responsible for semiconductor patents.

Suzanne is registered to practice law in NY, and before the USPTO and ILPTO. In addition to her law degree, Suzanne has an LLB, BSME and MBA.