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		<p>Facilitate industrial cooperation and investment between prospective partners, including late-stage startups, from Taiwan and the U.S.</p>

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ABOUT NEW FRONTIERS IN COMPUTING

Keeping up to speed, especially in Silicon Valley, is crucial for today's engineers and scientists. Possessing adequate knowledge to make reasoned decisions regarding an emerging technology's importance plays an essential role in professional career success. The NFIC conference was organized to provide engineers, scientists, and managers with an effective means to achieve that goal.

The *New Frontiers in Computing Conference (NFIC)* started in 1999, providing computer and engineering professionals with enough technical information on a developing field to make informed decisions as to its role in their professional careers. It has achieved this for the last 18 years by presenting an inexpensive one-day conference on emerging technologies. The presenters are recognized leaders and experts from both the research and the emerging applications communities.

NFIC 2017 Organizing Committee

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**North America Taiwanese Engineering & Science
Association – NATEA|
NFIC Conference Chair**

NFIC 2017: FinTech – Hedging the Financial Storm!

Tuesday May 9th, 2017 4pm-10pm, NFIC 2017

Time	Contents										
4:00 - 4:30	Registration / Networking										
4:30 - 6:30	Panel 1 – FinTech Infrastructure (Big Data, Security, and P2P Network)										
	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; vertical-align: top;">Keynote by Sanjiv Das Santa Clara University</td> <td style="width: 50%; vertical-align: top;">The Future of FinTech</td> </tr> <tr> <td style="vertical-align: top;">Marina Danilevsky IBM Research -- Almaden</td> <td style="vertical-align: top;">Semantic Querying Challenges in the FinTech Information Space</td> </tr> <tr> <td style="vertical-align: top;">Douglas Burdick IBM Research -- Almaden</td> <td style="vertical-align: top;">Creating High-Quality Financial Datasets from Unstructured Public Data</td> </tr> <tr> <td style="vertical-align: top;">Hart Montgomery Fujitsu Laboratories of America</td> <td style="vertical-align: top;">Distributed Ledger Technology and Applications to Fintech</td> </tr> <tr> <td style="vertical-align: top;">Hungwen Li San Jose State University</td> <td style="vertical-align: top;">Four Enabling Technologies for FinTech</td> </tr> </table>	Keynote by Sanjiv Das Santa Clara University	The Future of FinTech	Marina Danilevsky IBM Research -- Almaden	Semantic Querying Challenges in the FinTech Information Space	Douglas Burdick IBM Research -- Almaden	Creating High-Quality Financial Datasets from Unstructured Public Data	Hart Montgomery Fujitsu Laboratories of America	Distributed Ledger Technology and Applications to Fintech	Hungwen Li San Jose State University	Four Enabling Technologies for FinTech
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Hungwen Li San Jose State University	Four Enabling Technologies for FinTech										
6:30 - 7:30	Dinner and Networking										
7:30 – 9:30	Panel 2 – FinTech Applications and Algorithms										
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Matt Johnson, CEO of QC Ware	Quantitative Finance Software (5 minutes)										
9:30 – 10:00	Networking										

Keynote: Sanjiv Das

**William and Janice Terry Professor
Finance and Data Science
Santa Clara University**

The Future of FinTech



Sanjiv Das is the William and Janice Terry Professor of Finance and Data Science at Santa Clara University's Leavey School of Business. He previously held faculty appointments as Associate Professor at Harvard Business School and UC Berkeley. He holds post-graduate degrees in Finance (M.Phil and Ph.D. from New York University), Computer Science (M.S. from UC Berkeley), an MBA from the Indian Institute of Management, Ahmedabad, B.Com in Accounting and Economics (University of Bombay, Sydenham College), and is also a qualified Cost and Works Accountant (AICWA). He is a senior editor of The Journal of Investment Management, co-editor of The Journal of Derivatives and The Journal of Financial Services Research, and Associate Editor of other academic journals. Prior to being an academic, he worked in the derivatives business in the Asia-Pacific region as a Vice-President at Citibank. His current research interests include: machine learning, social networks, derivatives pricing models, portfolio theory, the modeling of default risk, and venture capital. He has published over ninety articles in academic journals, and has won numerous awards for research and teaching. His recent book "Derivatives: Principles and Practice" was published in May 2010 (second edition 2016). He currently also serves as a Senior Fellow at the FDIC Center for Financial Research. See: <http://srdas.github.io/>

Abstract

In this presentation, I will cover the role of Analytics in Finance, and the FinTech ecosystem. We will survey how big financial institutions may benefit from FinTech, and why FinTech is poised to disrupt the financial landscape. I will then discuss ten areas of FinTech that we might expect to see grow rapidly in the near future.

Marina Danilevsky

Research Staff Member

IBM Research - Almaden

Semantic Querying Challenges in the FinTech Information Space



Marina Danilevsky is a Research Staff Member in the Scalable NLP group at IBM Almaden Research Center in San Jose, California. She received her Ph.D. and M.S. in Computer Science from the University of Illinois at Urbana-Champaign (UIUC) in 2014 and a B.S. in Mathematics from the University of Chicago in 2007. Her interests lie in the areas of data mining, scalable text mining, natural language processing, information networks, and other related fields.

Abstract

A growing area of interest in FinTech is in answering complex semantic queries about financial entities (e.g., which companies have outperformed their competitors by more than 10% in the last year), which has applications for financial advising, company analysis, and investment strategy. In today's AI-driven world, such queries ideally ought to be addressed by automatically analyzing relevant information and returning a comprehensive answer. However, relevant data sources, which can include market data, financial statements, news articles, analyst reports, and customer information, are highly heterogeneous in content, format, and latency. I will examine a subset of data sources - publically available financial documents - to illustrate some of the challenging aspects of interpreting, integrating, and transforming raw data into a knowledge base that can support complex semantic queries in the FinTech space.

Douglas Burdick

Research Staff Member

IBM Research - Almaden

Creating High-Quality Financial Datasets from Public Data Sources



Doug Burdick has been a Research Staff Member at IBM Research-Almaden in San Jose, Calif., since 2010. His research focuses in information extraction and entity integration, with application to the financial domain. Burdick was also an early contributor to Apache SystemML, which is an open source scalable machine learning platform originally developed at IBM Research. Prior to joining IBM Research, Burdick was a researcher at MITRE from 2007 to 2010 and focused on schema matching and cyber security. He received his PhD in Computer Science from the University of Wisconsin-Madison in 2007, and his BS and MEng in Computer Science from Cornell University in 2000 and 2001.

Abstract

Recent development of Big Data toolkits has enabled creation of high-quality datasets to support both system-wide and granular modeling of the financial system. Such datasets enable researchers to create novel modeling techniques, and provide financial regulators deeper insights into potential issues.

This talk will provide a brief overview of joint efforts with University of Maryland, Office of Financial Research, NIST, and IBM to build a community of academic researchers, industry participants, and financial regulators for developing toolkits to construct such datasets and novel modeling techniques to fully leverage these datasets. Concrete results of this collaboration include the Data Science for Macro-Modeling (DSMM) workshops (<http://www.dsम्मworkshop.org>), and the Financial Entity Identification and Information Integration (FEIII) Challenge (<https://ir.nist.gov/dsfin/>).

Hart Montgomery

Research Scientist in Cryptography Fujitsu Laboratories of America

Distributed Ledger Technology and Applications to Fintech



Hart Montgomery is a research scientist in cryptography at Fujitsu Labs. Hart completed his Ph.D. in computer science at Stanford in 2014, during which he was awarded a Stanford Graduate Fellowship. He joined Fujitsu Laboratories of America in 2015. His current research interests are spread throughout cryptography but in general emphasize blockchain and applications of cryptographic protocols to distributed ledgers, lattice-based cryptography, and basic cryptographic primitives. Hart also serves on the Hyperledger Technical Steering Committee.

Abstract

While cryptocurrencies have the potential to revolutionize money, permissioned blockchains—or distributed ledgers—might have the potential for more impact in the business world. In this talk I will briefly explain how distributed ledger technology works and when permissioned blockchains can be useful. I will then go through some applications related to finance, and talk about the current state of the technology (with a focus on Hyperledger). Finally, I will conclude by offering some thoughts on the future of distributed ledgers and the directions I think the technology will go in the future.

Hungwen Li

Adjunct Professor, San Jose State University
Four Enabling Technologies for FinTech



Dr. Hungwen Li is an adjunct professor at Computer Engineering Department of San Jose State University after more than 30 years of service in industry. He teaches Distributed Systems and Security Algorithms. In 1983, Dr. Li joined IBM Research Center and conducted research in different aspects of large scale computing systems. In the decade with IBM, he published one book, 6 book chapters, 7 patents, and 70 journal and conference papers. Transforming career from research to development, Dr. Li joined an ambitious start-up, HAL Computer Systems which was later acquired by Fujitsu, where he led the architecture team. In a period of 10 years at HAL, Dr. Li assumed various responsibilities including Manager, Director, Vice President and General Manager. After HAL, Dr. Li founded RedSwitch and created the first 10-Gigabit switch fabric in industry. He was CEO/President/Founder of RedSwitch until RedSwitch was acquired by Agilent in 2002. Dr. Li held several executive positions after RedSwitch including GM in Agilent, CMO in Huahong (Shanghai), and CMO/VP in Trident Microsystems. Dr. Li is a frequent speaker and has given more than 100 invited talks.

Abstract

FinTech applications have demonstrated their innovation and diversity beyond the first use case in digital currency. These new applications adopt various techniques related to data, security and network services in a highly distributed and decentralized environment. The FinTech applications may appear diversified on the surface; however, a deeper investigation into these applications reveals that they are enabled by the same set of four core technologies including hashing, public key cryptography, Proof-of-Work, and Peer-to-Peer network. This talk describes the four enabling technologies for the FinTech applications and identifies the area to improve in the enabling technology.

Keynote: Kay Giesecke
Management Science and Engineering, Stanford
Director, Advanced Financial Technologies Laboratory
(AFTLab), Stanford University

Machine Intelligence for Housing Finance



Kay Giesecke is Associate Professor of Management Science and Engineering at Stanford University and the Paul Pigott Faculty Scholar in Stanford's School of Engineering. He directs the Advanced Financial Technologies Laboratory (AFTLab) and co-chairs the Mathematical and Computational Finance Program. He is a member of the Institute for Computational and Mathematical Engineering. He serves on the Governing Board and Scientific Advisory Board of the Consortium for Data Analytics in Risk and on the editorial boards of Mathematical Finance, Operations Research, SIAM Journal on Financial Mathematics, Journal of Risk, and other journals. His research on financial technologies is funded by the National Science Foundation, JP Morgan, State Street, Morgan Stanley, American Express, and other organizations, and has won several prizes. Kay advises a number of financial technology startups and has served as a consultant to banks, investment and risk management firms, governmental agencies, and supranational organizations.

Abstract

Housing affects literally everyone. Mortgages, which constitute the biggest asset class, played a significant role in the financial crisis. In this short talk I will highlight how machine intelligence methods can help address some of the challenging issues that arise in housing finance. Topics will include mortgage delinquency, foreclosure, and prepayment; mortgage-backed and credit-risk-transfer securities; automated house price valuation; and risk capital estimation.

Yinyu Ye

**K.T. Li Chair Professor of Engineering
Department of Management Science and Engineering
Stanford University**

Optimization in Finance with MOSEK



Yinyu Ye is currently the K.T. Li Chair Professor of Engineering at Department of Management Science and Engineering and Institute of Computational and Mathematical Engineering, Stanford University. He is also the Director of the MS&E Industrial Affiliates Program. He received the B.S. degree in System Engineering from the Huazhong University of Science and Technology, China, and the M.S. and Ph.D. degrees in Engineering-Economic Systems and Operations Research from Stanford University. His current research interests include Continuous and Discrete Optimization, Data Science and Application, Algorithm Design and Analysis, Computational Game/Market Equilibrium, Metric Distance Geometry, Dynamic Resource Allocation, and Stochastic and Robust Decision Making, etc. He is an INFORMS (The Institute for Operations Research and The Management Science) Fellow since 2012. He is the Chairman of technical advisory board of MOSEK, one of the major commercial international optimization software companies. In the past, Ye has led and managed a group of researchers on a broader range of government and industrial projects focusing on business analytics, sensor network, big data, risk management, electronic commerce, Internet economics, etc.

Abstract

We describe how MOSEK, a Conic Optimization Solver, can be applied to solve various finance decision problems such as the Markowitz model in the modern portfolio theory, the distributionally robust and data-driven portfolio management, optimal hedge/unwinding strategy, and/or general risk management such as Risk/VarR minimization.

Limin Hu

Ellie Mae Founder

**Chairman, Monte Jade West Science and Technology
Association**

How to Break the Chicken-and-Egg Problem for FinTech – an Ellie Mae Story



Dr. Hu has extensive start-up experience for both profits and non-profits. He founded a FinTech company Ellie Mae, Inc. in 1988, focusing on a SaaS and cloud solution to automate the US mortgage industry. Ellie Mae went public in 2011 (NYSE: ELLI), and was named the best performing IPO of a US technology company since the financial crisis by Wall Street Journal in 2016. Ellie Mae has more than 1,000 employees today and processes one-third of mortgage volume in the US.

In 2001, Dr. Hu led a fundraising effort to raise \$3M to build an FCSN (Friend of Children with Special Needs) Center in Bay Area, and became the first Chairman when it started operation. FCSN now has more than 100 employees, and serves hundreds of children and adults with Autism, Down syndrome, etc. in two centers.

Abstract

I will start with sharing my perspective of some characteristics of FinTech industry. There is often a phenomena of “winner takes all” in the financial industry, and therefore, many FinTech startups will encounter the typical Chicken-and-Egg problem. I will use our Ellie Mae experience to share with the audience our strategies and possible ways to build a successful FinTech company.

Ling Wu

Founder & CEO, TBCASoft, Inc.

Sweet spots of blockchain technology



Ling Wu is a mathematician, physicist, engineer, and a business development pioneer leading many talented people developing new high-tech business in many countries, especially in US and Asia Pacific. Ling is Founder & CEO of TBCASoft Inc. TBCASoft develops unique blockchain technologies for telecommunication industry. In Feb 2017, TBCASoft announced a partnership with SoftBank and Sprint based on TBCASoft's technology. Ling holds a M.S. degree of Scientific Computing & Computational Mathematics at Stanford University, and a B.S. degree of Physics at National Taiwan University.

Abstract

Blockchain technology has drawn a lot of attention and hundreds of billion of dollars in investments since Bitcoin blockchain was invented. How big is the blockchain revolution? What are blockchain's advantages and limitations?

Organizers

NORTH AMERICA TAIWANESE ENGINEERING & SCIENCE ASSOCIATION (NATEA-SV)

<http://nfic-us.org> - NATEA was founded on March 2, 1991 in Silicon Valley. Since then, NATEA has grown into twelve (12) Regional Chapters across North America with 2,200 members. Many members serve in leading-edge technical and managerial positions and are founders of some of the most successful high-tech companies.

IEEE SANTA CLARA VALLEY SECTION - COMPUTER SOCIETY CHAPTER (IEEE SCV-CS)

<http://ieeesiliconvalley.org> - The IEEE Computer Society - Silicon Valley Chapter has over 2,500 members. The CS promotes an active exchange of ideas and technological innovation among its members. It is the largest IEEE Computer Society Chapter in the world.

IEEE STANFORD UNIVERSITY - STUDENT BRANCH

<https://ieee.stanford.edu/> - The student branch of IEEE at Stanford University promotes services and organizes activities for the EE/CS graduate and undergraduate community at Stanford.



Named after Monte Jade, the highest mountain in Taiwan, the Monte Jade Science and Technology Association, West Coast ("Monte Jade") was established by a group of high-tech Chinese-American executives in Silicon Valley in 1989. Their initial driving force was to bring together the high-tech experts from the Bay Area and the other side of Pacific. "Monte Jade" was chosen to signify cross-cultural and technological foresight and excellence of the highest level. Monte Jade, incorporated as a non-profit organization in the State of California, held its opening ceremony in San Jose, California, on February 4, 1990.

- Monte Jade's objective is to promote the cooperation and mutual flow of technology and investment. Several chapters across the nation have been established: New York (East), Chicago (Mid-West), Washington DC, New England, Pittsburgh, Atlanta (South-East) and Philadelphia. To better coordinate among all chapters, the Monte Jade-USA was organized in 1993. The founding organization in the Bay Area has thus become Monte Jade-West Coast."
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- Current Chair: Dr. Limin Hu

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