

Scheduled Speakers and Topics



Process Mining

Yunsen Wang is currently an Assistant Professor of Accounting at Southwestern University of Finance and Economics, China. He received his Ph.D. in management from Rutgers Business School. His research interest is on continuous auditing and fraud detection using emerging technologies, such as blockchain and deep learning. He has been actively participating in annual and regional accounting conferences, and he received the Best Paper Award at SET workshop at the annual American Accounting Association meeting in 2017.

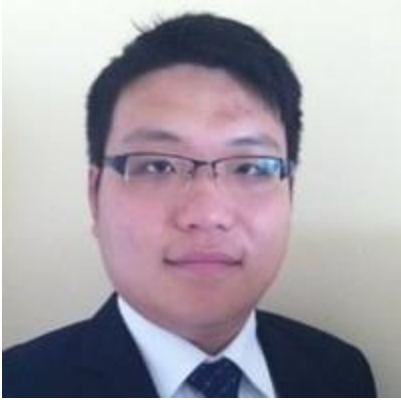
Process mining has been used for auditing and internal control risk assessment as an audit analytical tool. This paper aims at providing a framework on how process mining can be applied to identify fraud schemes and assessing the riskiness of business processes. Specifically, the proposed framework captures how the patterns in process mining can be used to detect potentially fraudulent transactions. This paper contributes to the existing literature by associating notable variants/activities with potential fraud schemes and then assigning risk levels, which could be used as an automatic tool to test the fraud risk of every transaction.



Automating Your Repetitive Work Routines

Nuriddin Tojiboyev (natojiboyev@gmail.com) is a PhD student in Accounting Information Systems department of Rutgers University. He received his Bachelor's in Business Administration from University of Westminster (Uzbekistan, 2010) and Master's in Accountancy from West Virginia University (2014). Nuriddin has several years of professional experience in cost accounting and indirect tax accounting, while having few years of experience in teaching. He is a CPA (Montana) since 2015. Nuriddin's research interests are Audit Automation, Audit Data Analytics, Audit Data Standards and Audit Sampling. He currently works on different research projects of CARLAB (Rutgers), including Multi-dimensional Audit Data Selection, XBRL=SICONFI and ADA/ADA-AICPA.

Automating the repetitive procedures can help fraud examiners to more focus on devising the detection procedures and assessing the possibilities of the fraud rather than spending most of their time carrying out the repetitive routines. However, the challenges that arise during designing and implementing the automation of these procedures must be well addressed to ensure the adaptability of automated procedures to the future changes in the fraud environment. In this paper, we propose automating the diagnosing fraud detection procedures taking into account the steps of the procedures and formats of the data. We explain how fraud examiners can develop their own data standards and build their own library of automated procedures that can be used by different teams. We also explore the issues that auditors can expect to encounter while applying their data standards to the original data. Although most repetitive procedures can be automated at different levels, even still requiring fraud examiners to perform some tasks manually, we believe overall benefits of automation would outweigh its costs.



Implementation of Data Analytic Techniques to Transactional Level Data

Mr. Zhaokai Yan is a senior Ph.D. student majored in Accounting Information System at Rutgers University. He received master degree in accounting from Pace University in New York City. Under the supervision of Dr. Vasarhelyi, Yan’s research focuses on developing and applying cutting-edge data analytic techniques to solve practical challenges in current auditing and accounting domain. Specifically, he concentrates on the application of natural language processing and machine learning based techniques to analyze qualitative and quantitative financial information. His dissertation aims at implementing text mining techniques to assist auditors perform efficient and effective contract investigation. He has publications in refereed journals and conference proceedings, such as the International Journal of Accounting information Systems, Accounting Horizons, and AAA annual/midyear meetings. Mr. Yan is also serving the role as reviewer for the Journal of Emerging Technologies in Accounting (JETA) and Intelligent Systems in Accounting, Finance, and Management (ISAFM).

Audit data analytics is gaining increasing attention from both audit researchers and practitioners. To provide firsthand experience utilizing data analytics for fraud detection, this presentation showcases the implementation of data analytic techniques to transactional level data from real world business practice. Specifically, it demonstrates the application of seasonal autoregressive integrated moving average (ARIMA) models, utilizing exogenous weather data, to predict daily sales amount of a wholesale club retailer. The objective is to exhibit the process of (1) using audit automation software to collect and organize transactional data, (2) applying machine learning based data analytics through Python programming, and (3) incorporating and utilize exogenous data in sales prediction.



90% Of What We Worry About Never Happens – Latest Trends in Identity Theft

Niloufer Tamboly, CISSP, CPA, CFE, CGMA, CIA, CISA

Co-founder and President, (ISC)2 New Jersey Chapter

Niloufer (ntamboly@gmail.com) is a risk management professional and helps companies prevent, detect and mitigate technology and business risks. She holds multiple certifications in IT Security (CISSP), Audit (CISA, CIA), Accounting (CPA, CGMA) and Fraud (CFE). She is a Certified Public Account licensed to practice in the State of New Jersey.

United States Patent Office has granted her two patents for “System For And Method of Generating Visual Passwords” (US 9,171,143 B2) and “Establishing An Alternate Call Path Using Short-Range Wireless Technology” (US 9,392,523).

Industries, educational institutions, government and healthcare organizations continue to lose revenue due to identity theft, but the ultimate victim is the individual. As data breaches continue to provide fresh inventory to the marketplace on the dark web frequented by identity thieves, people struggle to keep their identity. In this session, we will learn about the lifecycle of a stolen identity, evolving harm from identity theft and challenges of recovering from identity theft

Learning Objectives:

- Securing information to avoid identity theft
- Awareness of victim enabled fraud
- Actionable steps to recover from identity theft



Artificial Intelligence, Blockchain, Drones/IoT from The Fraud Examiners Point of View

Deniz Appelbaum, MBA, PhD, Assistant Professor, Department of Accounting and Finance, Montclair State University

Dr. Deniz Appelbaum (denizappelbaum@gmail.com), Assistant Professor of the Department of Accounting and Finance at the Feliciano School of Business of Montclair State University, received her PhD from the Department of Accounting and Information Systems at Rutgers Business School, Newark in May 2017. She enriches her academic pursuits with a practical view, after twenty years of experience in operations, credit, and business development in the corporate world.

Dr. Appelbaum has published manuscripts in *Accounting Horizons*, *Journal of Emerging Technologies in Accounting*, *Auditing: Journal of Practice and Theory*, and in other academic and practitioner journals, based on her research regarding analytics, big data, and automation in financial auditing and fraud detection. Prior to teaching at Montclair State, her graduate research at Rutgers focused on financial and fraud detection and prevention with automated analytics, transparency of governmental financial reporting, analytical procedures in the external audit process, drones and robotics in auditing and accounting, and BlockChain and big data as audit evidence. Dr. Appelbaum continues to emphasize these streams of research with numerous projects and forthcoming publications, and with presentations at accounting organizations and at national and international conferences. Dr. Appelbaum emphasizes the use of data analytics and appropriate software tools in the classroom, to prepare accounting and auditing students for the technically advanced modern business environment. The accounting and auditing professions are currently undergoing huge disruptions due to technical innovations, and Dr. Appelbaum is devoted to assisting her students to prepare for these changes.

Dr. Appelbaum will discuss

"Explainable AI and Other Black Box Technologies in Fraud Examination."

With many businesses adopting technologies derived from the Internet of Things, Big Data, Blockchain, and Artificial Intelligence, fraud examiners will soon need to become familiar with these applications. That is, how exactly do they really work? Do they mitigate traditional fraud risks in some areas, and/or introduce new ones?

Internet of Things (IoT) holds great promise for fraud examiners as potentially reliable sources of transactional and event data. For example, an examiner might use video data taken by a drone, a type of IoT, to substantiate fraudulent activities. However, to be viable forensically, the entire life cycle of this data must be understood and verified, in addition to the controls surrounding the IoT application.

Similarly, Big Data holds allure as another source of reliable and unusual information about people, places, and events. Likewise, the provenance of Big Data must be understood and verified, in addition to the controls designed around its collection.

Blockchain applications, or Distributed Ledger Technology (DLT), promises immutable provenance flows and highly secure transaction processing. However, the complexity of its underlying technology is understood by very few. The fraud examiner must intimately understand the “black box” of blockchain, verify that it is truly providing the immutable transaction recording that it claims and verify that the level of permissions and governance controls are effective and enforced.

Artificial Intelligence and Deep Learning are especially challenging for fraud examiners. A fraud examiner must understand exactly how the AI/Deep Learning application arrived at its decision or action. What were the learning datasets? What were the statistical weights arrived at by the application at each step? Are there sources of bias or misunderstanding in the code? In short, is the AI application explainable? The issue of “Explainable AI” is not new – it currently is a major initiative of DARPA – so, what is a fraud examiner to do when faced with an AI component of an investigation?

This 100-minute presentation will discuss these four technology areas that will impact fraud examination in the very near future. Fraud examiners cannot be seduced by the glamour and promise of these technologies; instead, we must remain skeptical and gain an in-depth understanding of exactly how these technologies work and their strengths and weaknesses regarding financial frauds.



Recent Developments in Anti-Money Laundering

Justin Mendelsohn (Justin.Mendelsohn@bbh.com) currently serves as the Deputy Head of Anti-Money Laundering and Sanctions for Brown Brothers Harriman & Co., a privately-held bank that provides financial services to institutional and individual customers around the world. In that role, Mr. Mendelsohn is responsible for the design and implementation of the bank’s AML and economic sanctions program to ensure the program is compliant with applicable regulations and is consistent with industry best practices. Prior to joining Brown Brothers, Mr. Mendelsohn was an attorney for the law firm Schulte Roth & Zabel in New York with a practice focused on white-collar criminal defense and securities regulatory matters, complex commercial litigation and internal investigations. He represented public and privately held companies, their directors and officers, other entities and individuals as subjects, victims and witnesses in federal criminal and regulatory matters. He also conducted numerous internal investigations involving potential violation of the Foreign Corrupt Practices Act and the insider trading laws and advised companies and individuals on compliance with FCPA anti-money laundering and federal securities laws. His pro bono practice includes work with the Refugee Protection Program of Human Rights First and the New York Civil Liberties Union.

The presentation dives into recent developments in the field of anti-money laundering, including emerging technologies, recent international cases and enforcement actions as well as evolutions in the law. Among other topics, we will discuss the potential and obstacles of using blockchain technology in certain economic transactions and control systems in an environment which data security and privacy are paramount. Drawing on sophisticated multi-national money laundering typologies uncovered in recent criminal actions, we will discuss how new regulations and technologies can help but ultimately not be a panacea to stop the flow of illicit funds around the world.



Program Developer

Karl Dahlberg has retired from Rutgers and from the Department of Defense. He has been involved in numerous contract fraud investigations, the most significant recovered \$69 million. He has instructed online and on-site accounting information system courses at graduate and undergraduate level. While in the Department of Defense, he was responsible for all Information Technology Audits at the Northern New Jersey Branch Office of the Defense Contract Audit Agency (DCAA), Picatinny, New Jersey. In that capacity, he supervised the performance of all information system reviews of Defense Contractors in Northern New Jersey. Responsibilities included Enterprise Resource Planning, Automated Labor Entry and information system control reviews and Year 2000 Compliance reviews. He served in the Marine Corps as a Rifle

Platoon Leader in Vietnam where he received a Purple Heart for combat wounds. He is a Past President of the New Jersey Chapter Information Systems Audit and Control Association; Past President, Northern New Jersey Chapter, Association of Government Accountants; Past President, New Jersey Chapter, Association of Certified Fraud Examiners; American Institute of Certified Public Accountants CPA Exam Grader; and Past Commander, American Veterans, Department of New Jersey. He has been awarded the Association of Government Accounts Educator Award for 2016.



Program Reviewer

Professor Miklos A. Vasarhelyi is the KPMG Distinguished Professor of Accounting Information Systems and serves as Director of the Rutgers Accounting Research Center (RARC) & Continuous Auditing and Reporting Lab (CAR Lab). He is credited with developing the original continuous audit application and is the leading researcher in this field. At Rutgers Business School, Professor Vasarhelyi heads the Continuous Auditing and Reporting Laboratory, which is working on projects for such leading companies as Siemens, KPMG, Proctor & Gamble, D&B, AICPA, CA Technologies, Workiva, Morgan Stanley, and Brazil's Itau-Unibanco. Vasarhelyi, who received his Ph. D. in Management Information Systems from UCLA, has published more than 200 journal articles, 20 books, and directed over 40 Ph. D. theses. He is

the editor of the Artificial Intelligence in Accounting and Auditing series and the Journal of Emerging Technologies in Accounting (JETA). He has been named the Outstanding Accounting Educator by the AAA in 2013. The professor also has taught executive programs on AIS, audit automation, continuous audit, and electronic commerce to many large international organizations.