

# Analytics Frontiers Conference 2021

## Event Schedule

Thu, Apr 22, 2021

10:00am

### INTRO AND WELCOME

🕒 10:00am - 10:05am, Apr 22

This live stream uses the **same link** as the morning panel discussion.

10:05am

### Regulated vs non-regulated industry – fairness and explainability in AI algorithms and solutions

🕒 10:05am - 11:00am, Apr 22

Panel Discussion

Webinar/Meeting ID: 961 4505 3490

Join by Telephone: 1 929 205 6099

#### 🗣️ Speakers



**Shekar Katuri** SVP; Data Science Executive, Bank of America



**Doug Hague** Executive Director, UNC Charlotte's School of Data Science



**Dave Joffe** Managing Director; Quantitative Research Exec, Bank of America



**Karl Hightower** Chief Data Officer - SVP Data Products and Services, Novant Health

11:00am

### BREAK

🕒 11:00am - 11:15am, Apr 22

11:15am

### Continuous Evolution Required - Avoiding Day Zero Tech Debt

🕒 11:15am - 12:00pm, Apr 22

## Analytics

Analytics and data science leaders are drowning in a sea of products that claim to reduce time to delivery, simplify overhead, and manage artificial intelligence and machine learning applications, but provide minimal value and require development only within a narrow feature space. Furthermore, the advent of “no-code” solutions attempt to democratize data science to the masses, but end up constraining developers more than necessary and can even damage the reputation of machine learning. In this talk, I'll discuss an alternative strategy that allows data scientists, analysts, and business leaders the freedom to explore the full and constantly evolving data science landscape without being constrained to abstraction layers and subsets of toolkits. Through the application of user personas to your platform and by leveraging open-source tools, engineers can empower data scientists to rapidly develop and deploy models, while still unlocking the potential of a truly democratized AI/ML solution space.

**Webinar/Meeting ID:** 954 4261 5284

**Join by Telephone:** 1 312 626 6799

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### Speaker



**Kurt Jung** Sr Director, Data Science, Lowe's

## Black Box Blues - The legal and ethical implications of black box ML and AI algorithms

🕒 11:15am - 12:00pm, Apr 22

### Ethics in AI

This talk will explore a vexing emerging problem created by the increased use of so-called "black box" artificial intelligence or machine language algorithms. As black box algorithms become more commonplace, legal and ethical implications abound. This talk will present background and framework for understanding the black box problem followed by possible solutions.

**Webinar/Meeting ID:** 999 3120 4714

**Join by Telephone:** 1 929 205 6099

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### Speaker



**Steve Snyder** Board Certified Specialist in Privacy & Information Security Law (CIPP/US, CIPT, FIP, PLS), Bradley Arant Boult Cummings LLP

## Uncertainty visualizations for improving data science decision-making: How I learned to stop worrying and love uncertainty (by visualizing it)

🕒 11:15am - 12:00pm, Apr 22

### Analytics

From a once-in-a-century pandemic to volatile swings in stock markets to turbulent political elections, uncertainty is all around us. Yet why do so many data analysts, data scientists and data journalists tend to ignore uncertainty? Or worse, can bad uncertainty representations lead to biased decisions? In this talk, we explore research from information visualization that endeavors to design better uncertainty representations to enable better decision-making and human-computer interaction. Building from theories

in psychology, cognitive science, and behavioral economics, novel visualization design strategies for uncertainty like frequency framing with icon arrays and animated sampling in hypothetical outcome plots have shown great promise for improving uncertain predictions, mitigating cognitive biases, and may even be key in fostering trust in black box machine learning. This talk will first outline how visualization researchers have applied such new uncertainty visualizations to everyday situations of interpreting COVID vaccine efficacy to hurricane forecasting to investing for retirement. We'll then focus on current research at UNCC's Ribarsky Center for Visual Analytics to study how uncertainty visualizations can be used to enable data scientists to better communicate and measure uncertainty in their work.

#### Slides

- pdf [bit.ly/vis-uncertainty-pdf](https://bit.ly/vis-uncertainty-pdf)
- interactive (not recommended for mobile/app) [bit.ly/vis-uncertainty](https://bit.ly/vis-uncertainty)

**Webinar/Meeting ID:** 963 5824 8546

**Join by Telephone:** 1 301 715 8592

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#### Speaker



**Ryan Wesslen** Associate graduate faculty, UNC Charlotte

## Enhancing Profitability Analysis Through Data Visualization and Data Science

🕒 11:15am - 12:00pm, Apr 22

**Manufacturing**

With advances in computing and data visualization tools, financial analyses such as profitability analysis now expand beyond the confines of traditional PivotTables and deliver more insight. In this case study, data science and data visualization work in tandem to innovate both the process and final product to end users of Product Line Profitability Analysis.

With thousands of individual unique catalog numbers rolling into specific combinations of Product Lines, Regions, and End-Markets, the complex data set provided an opportunity to leverage the pandas library in Python to transform the backend of the process from a sixteen-hour manual exercise in shaping and reshaping data in Excel to an efficient process that, based on principles of tidy data and the tools of pandas, executes in five minutes. Time saved on the backend process offers more time for both financial analysts and business partners such as Product Line Managers to derive insight from the data, which is now provided in a PowerBI dashboard tool.

Utilizing different principles of data visualization and meetings with business partners, this profitability analysis dashboard tool offers dynamic margin analysis by region and end market, waterfall charts of comparisons between actual performance relative to budget, calculations of dynamic compound annual growth rates of specific product lines, and much more. The result of this insight is that Product Line Managers and their finance business partners can more quickly spot areas of margin erosion or expansion and take actions in line with those insights.

**Webinar/Meeting ID:** 923 6628 5025

**Join by Telephone:** 1 301 715 8592

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#### Speaker



## Political Elites and the Appeal of Fake News in Brazil

🕒 11:15am - 12:00pm, Apr 22

**Ethics in AI**

While fake news is a growing concern among the public and political elites, important studies suggest that they are not effective in changing voters' minds. If persuasive effects are minimal, why are fake news pervasive and salient? Who benefits from promoting disinformation? This presentation describes a research project (funded by Facebook Research) that seeks to answer these questions in Brazil. The first part of the project comprises data collection of rumors that circulated online in the country and the extent to which political elites shared them on different social media platforms. The second part of the study includes two survey-experiments that examine whether the dissemination of fake news is used by elites to mobilize and distract the public from real issues. The findings of the project have direct implications for policy makers, scholars, and the industry experts seeking to prevent the spread of misinformation.

This presentation describes a research project (funded by Facebook Research) that seeks to understand the dynamics of the spread of online misinformation in Brazil, and the extent to which it is fostered by political elites.

**Meeting ID:** 924 0858 5145

**Join by Telephone:** 1 301 715 8592

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### 🗣️ Speaker



**Fred Batista** Assistant Professor, UNC Charlotte's School of Data Science

12:00pm

## LUNCH BREAK

🕒 12:00pm - 12:55pm, Apr 22

1:00pm

## Applying Natural Language Processing to Automate Medical Claims Processing

🕒 1:00pm - 1:45pm, Apr 22

**Healthcare**


At Blue Cross and Blue Shield of North Carolina (BCBSNC), a vast majority of medical claims are processed automatically. However, the small minority of claims which are worked manually can be operationally expensive and time consuming which can have negative impact on the business. A team from BCBSNC has developed a custom Natural Language Processing model to assist and eventually automate a portion of manual claims processing.

In this presentation, the team will give an overview of how the project started, the data and model challenges, a demo of the tools and techniques used in the project, how the model and automation metrics are being tracked and an overview of the activation process.

**Webinar/Meeting ID:** 928 7338 0341

Join by Telephone: 1 301 715 8592

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 Speakers



**Adam Weatherman** Analytics Consultant, Blue Cross of North Carolina



**Ashutosh Garg** Senior Data Scientist, Blue Cross and Blue Shield of North Carolina

## Privacy & Security Basics for Analytics Using Electronic Health Information

🕒 1:00pm - 1:45pm, Apr 22

Healthcare

Are you working with health data? Session will focus on some of the key U.S. federal laws relating to health information privacy and security, particularly relevant to the use of health data. Session will include tips to help you navigate and determine which law may apply and provide awareness of associated federal legal responsibilities that may apply to you. Session targeted to developers, health data users, or leaders of organizations using health data that are interested in learning about health information privacy and security legal requirements in the United States.

**Webinar/Meeting ID:** 923 3107 0545

**Join by Telephone:** 1 301 715 8592

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 Speaker



**Kathryn Marchesini** Chief Privacy Officer, U.S. Department of Health and Human Services, Office of the National Coordinator for Health Information Technology

## Responsible AI - Building A Better Tomorrow

🕒 1:00pm - 1:45pm, Apr 22

Ethics in AI

**Webinar/Meeting ID:** 940 2423 4442

**Join by Telephone:** 1 312 626 6799

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 Speaker



**Harsha Konduri** Director - Cloud Data & Analytics - US Retail & Consumer Goods, Microsoft

## The Explain-Ability of Machine Learning in Natural Language Processing (NLP)

🕒 1:00pm - 1:45pm, Apr 22

**Finance**

In this talk, we present some of the techniques that are used in Wells Fargo to analyze machine learning models commonly regarded as a black box, with the goal of understanding key model drivers that impact final decisions. We focus in particular on explaining the inner workings of machine learning algorithms used in Natural Language Processing (NLP), more specifically text classification related tasks. The talk will provide some examples of the NLP techniques implemented within Wells Fargo and the diagnostics associated with it. With model interpretability as a critical part, we will focus on examining the output of Convolutional Neural Networks (CNN) where interpretable knowledge can be decoded from intermediate representations. Additionally, we will demonstrate results utilizing model agnostic methods like SHAP and LIME to extract feature importance and uncover the major drivers of the model's predictions

**Webinar/Meeting ID:** 941 2482 3269

**Join by Telephone:** 1 312 626 6799

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### 🗣️ Speakers



**Xin Yan** Quantitative Analytics Specialist, Wells Fargo



**Rahul Singh** Quantitative Analytics Specialist, Wells Fargo



**Wafa Louhichi** Quantitative Analytics Specialist, Wells Fargo

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## Analytics at the center of Supply Chain Resilience

🕒 1:00pm - 1:45pm, Apr 22

**Manufacturing**

**Webinar/Meeting ID:** 937 5906 7972

**Join by Telephone:** 1 929 205 6099

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### 🗣️ Speakers



**Neeraj Anand** Senior Manager, Analytics, Kearney



**Dhaval Mishra** Associate, Advanced Analytics, Kearney

1:45pm

## BREAK

🕒 1:45pm - 2:00pm, Apr 22

2:00pm

## Keynote - Real-Time AI for Entity Resolution

🕒 2:00pm - 2:50pm, Apr 22

Keynote Presentation

Webinar/Meeting ID: 933 6861 0410

Join by Telephone: 1 312 626 6799

🗣️ Speaker



**Jeff Jonas** CEO, Founder and Chief Scientist, Senzing, Keynote Speaker

Fri, Apr 23, 2021

10:00am

## INTRO AND WELCOME

🕒 10:00am - 10:15am, Apr 23

This live stream uses the **same link** as the morning panel discussion.

## The Impact of Data Sovereignty on American Indian Self Determination: How Data Science Will Shape the Financial Landscape of Indigenous Community Development

🕒 10:00am - 11:00am, Apr 23

Featured Speaker

Panel Discussion

Data science has become the foundation of the continuing evolution between how data is actualized and then applied to actual phenomena. Dr. Robertson's current research interests have been a culmination of carefully designed pedagogical foundations in higher education, citizen science, company entrepreneurship, business acumen, and community development.

The growing body of data sovereignty issues, data ethics principles, and applications of data science concepts exclusive to American Indian tribal communities are culturally unique in that American Indians are governed by over 200 years of Federal Indian Law and Policy and that today represents significant challenges to tribes' sovereignty and the right to self-determination.

Dr. Robertson's data sovereignty framework seeks to democratize data for the community's benefit

by responsibly bridging science and culture. Dr. Robertson's work in the grass roots space and broader initiatives covers a wide range of data science topics such as water protection & water quality testing, Murdered and Missing Indigenous Women (MMIW) issues, Indigenous AI for language preservation to name a few.

Dr. Robertson will first discuss his current data science initiative work including *Using Data Science to Remaster the Past: Understanding Our Shared History* followed by a panel discussion on data science current events.

**Webinar ID:** 980 9791 0162

**Join via Telephone:** 1 929 205 6099

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#### 📣 Speakers



**Joseph Robertson** Chief Data Scientist, Mato Ohitika Analytics LLC, Featured Speaker



**Lea Shanley** Executive Director, International Computer Science Institute



**Jessie Jacobs** Board Member, Metrolina Native American Association



**Kurt Schiolding** Senior Vice President, Business Strategy and Operations, Corporate Model Risk, Wells Fargo

11:00am

### BREAK

🕒 11:00am - 11:15am, Apr 23

11:15am

## Augmented Intelligence driven Analytical Insights from Unlabeled Chat Interaction Data

🕒 11:15am - 12:00pm, Apr 23

**Analytics**

Analysis of customer-support chat interactions has been an area of active industrial research in recent past. Real time sentiment analysis has formed the basis of most industrial solutions in place. However, the organizations are looking to go beyond sentiment analysis and utilize their interaction data to enhance customer experience and sales these days. The volume of such interactions is extremely high with an established organization generating data with more than thousands of conversations a day. Further, each conversation can have a variable number of exchange of messages between the customer and the support. Unfortunately, this volume of data is mainly unlabeled and a key bottleneck for generating insights. We plan to present our Augmented Intelligence solution driven from Natural Language Processing and Text Mining to extract actionable insights from the interaction data for organizations. The solution works in tandem with domain



expertise while leveraging insights generated from the algorithms. The solution further uses Deep Learning models in a multi label and multi class scenario. The solution helps to identify categories of the incoming requests, identifies repeat interactions, opportunities for potential sales with cross-sell and upsell analysis. The solution also captures the customer journey experience across the conversation flow. The solution is built using an intelligent combination of Cloud Cognitive Services and Open source solution with key focus on Re-usable components and Explainable AI aspects. The customized solution is developed for several organizations with strong model monitoring principles.

**Webinar ID:** 967 5674 4872

**Join via Telephone:** 1 312 626 6799

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 **Speaker**



**Chirag Jain** Principal Data Scientist, Genpact

## How Artificial Intelligence and Machine Learning can be used to detect anomalies in transaction monitoring process.

🕒 11:15am - 12:00pm, Apr 23

**Finance**

In this session we will discuss how AI/ML anomaly detection can be used to optimize the AML transaction monitoring process. Will also reiew a case study

**Webinar ID:** 939 1897 3021

**Join via Telephone:** 1 929 205 6099

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 **Speaker**



**Nitin Agrawal** Chief Technology Officer, ClearEye.AI

## Lead Time Prediction: Data Science Applications in the Steel Manufacturing Industry

🕒 11:15am - 12:00pm, Apr 23

**Manufacturing**

**Webinar ID:** 993 9751 6315

**Join via Telephone:** 1 929 205 6099

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 **Speaker**



**Kevin Pedde** Principal Consultant, Syntelli Solutions Inc.

## SOARing to New Heights – the Junction of Phishing, Automation, and Machine Learning

🕒 11:15am - 12:00pm, Apr 23

Security

Phishing emails are one of the largest issues Cybersecurity professionals face today. An errant user clicking a malicious link can be all that is required for attacker to gain a foothold inside a corporate network. As such, many Cybersecurity departments will review reported emails from employees to help them determine if they are legitimate or not. While a great service, this can be extremely time consuming when employees submit large numbers of emails. To help minimize the load on our Detection team, our team has developed a machine learning email classification tool called the Phishing Classifier. This Security Orchestration, Automation and Response (SOAR) tool automatically responds to low-level security events, recommending an email classification (Phishing, Spam, Legitimate, etc.) and a percentage likelihood of each email to result in further investigation by the Detection team. Annual tuning exercises are performed to further optimize the performance of the solution. In this presentation, we will walk you through the implementation roadmap of the Phishing Classifier, its optimization process, outcomes, and lessons learned.

**Webinar ID: 947 7909 4689**

**Join via Telephone: 1 301 715 8592**

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### 🗣️ Speakers



**Cory Hefner** Lead Data Scientist, TIAA



**Scott Rodgers** Sr Data Scientist, TIAA



**Aysha Nahan** Senior Data Scientist, TIAA

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## How AI can help create an exceptional Customer Experience

🕒 11:15am - 12:00pm, Apr 23

Analytics

How to deliver an exceptional B2C customer experience using AI and ensure an unique view of the customer base. Organizations need a Customer Experience strategy, CX, as interactions become more mobile, virtual and distributed. The digital, technological and business scenario in which we live requires that the experiences provided by companies to their audience, through their relationship and operation platforms, be disruptive, innovative, safe and individualized. Creating and executing Customer Experience strategies has become essential for companies that wish to increase their competitiveness and revenue, in addition to ensuring excellent performance in all stages of their brand communication, value proposition and delivering results to their target audience. For this to be possible, it is essential to create and maintain a unique customer base to be used by all relationship channels and applications. AI technology offers the best solution to ensure this unique and consolidated view of customers informations.

**Webinar ID: 941 7010 3806**

Join via Telephone: 1 301 715 8592

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#### 🗣️ Speakers



**Gilberto Caparica** Vice President - Strategic Practices, Qintess



**Renato Mintz** Software Developer, Kipekee

12:00pm

### LUNCH BREAK

🕒 12:00pm - 12:55pm, Apr 23

1:00pm

### Data Science Matters: Disrupting Financial Gain from Crime

🕒 1:00pm - 1:45pm, Apr 23

**Finance**

Data science professionals can use their skills for good. The United Nations Office on Drugs and Crime (UNODC) teaches Financial Disruption to Law Enforcement Agencies, Counter-Terrorism Units, and Financial Intelligence Units worldwide. Bank of America was invited to participate in the first class to include private sector employees. Nancy will lead the audience to understand the financial gain that drives crime against people, environment and wildlife. She will share a fictionalized example of how money is made and moved. She will show how combining subject matter experts and data scientists leads to better information to disrupt crime globally.

#### Referral Links

<https://www.fws.gov/budget/2021/FY2021-FWS-Budget-Justification.pdf>

<https://www.investec.com/content/dam/south-africa/welcome-to-investec/corporate-responsibility/Full-FATF-June-2020-Money-laundering-and-illegal-wildlife-trade.pdf>

**Webinar ID:** 914 7366 8581

**Join via Telephone:** 1 929 205 6099

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#### 🗣️ Speakers



**Nancy Carrier** SVP; Senior Data Scientist, Bank of America



**Frank Calestino** SVP; Global Financial Crimes Manager, Bank of America

# Machine Learning Considerations for Predictive Maintenance Modeling

🕒 1:00pm - 1:45pm, Apr 23

**Manufacturing**

A predictive maintenance model may need to address three operating conditions, two failure mechanisms, and twenty-one sensors degrading independently over a time-series-like structure of machine cycles. These are much different model considerations than those faced when developing a model that predicts loan default or a propensity-to-purchase model.

Smart factories, manufacturing intelligence, Industrial IoT, and predictive maintenance are the sexy buzz words in the 4<sup>th</sup> Industrial Revolution (i.e. Industry 4.0). But these solutions are difficult to build; you need a blended team of data scientists and process / automation engineers who understand the unique characteristics of predictive maintenance models.

In this presentation, Ms. Price will explore the nuances of predictive maintenance models using NASA's turbofan C-MAPSS synthetic datasets. Typically, predictive maintenance models predict remaining useful life (RUL) by identifying relationships between machine sensor data and failure events. But do you wish to predict RUL in terms of actual days (requiring a regression model) or is understanding RUL in terms of 1 week versus 2 weeks more appropriate (requiring a classification model)? Typically, you need to engineer the target variable (RUL) from machine and production data; what is the best method? Which technique of sensor noise reduction (feature engineering) is most effective for your data? What is the best performance metric for your model? This presentation will explain and illustrate the important modelling choices for predictive maintenance solutions.

**Webinar ID:** 919 6960 9324

**Join via Telephone:** 1 929 205 6099

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🗣️ **Speaker**



**Marcia Price** CEO and Chief Data Scientist, Vector Analytics

# The State of Ethical AI in Hong Kong

🕒 1:00pm - 1:45pm, Apr 23

**Ethics in AI**

While AI bears a multitude of opportunities, there have been concerns on its disruptive impact. These include workforce displacement, loss of privacy, potential biases in decision-making, and lack of control over automated systems and robots, to name a few. These issues are significant, especially with AI's rapid adoption. With the assurance of knowing AI is being used ethically and adhering to principles such as transparency, safety, accountability and fairness, any fear of AI would be alleviated, & the foundations set for the successful adoption of AI in organisations and society. Aimed to provide valuable contextual information about the current Ethical AI environment, this report considers the current usage of AI in firms and ethical implications for the adoption of AI geared specifically towards Hong Kong. The use of quantitative and qualitative free-text questions in the survey as well as interviews provides a rounded approach to explore the state of Ethical AI in the Special Administrative Region ("SAR"). This report aims to be a first step towards progressing the conversation on an important issue whilst contemporaneously working to produce other frameworks and materials that those applying AI in Hong Kong can incorporate into their day-to-day solutions.

**Webinar ID:** 984 0685 2103

**Join via Telephone:** 1 929 205 6099

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🗣️ **Speaker**



**Adrien Grimal** Managing Director, Sia Partners

## Practical advice on developing a commercialization strategy for AI technology

🕒 1:00pm - 1:45pm, Apr 23

Healthcare

Maintaining American Leadership in Artificial Intelligence (AI) is a national priority (Executive Order 13859; February, 2019) that is motivating AI R&D in healthcare, finance, defense, and other sectors. The practical application of innovation in AI requires engineering and commercialization, whereby (i) a prototype becomes a product, and (ii) a product becomes a service line. Here, we provide practical instruction on (ii) based on 5 years of experience in bringing an AI-backed mHealth B2B2C SaaS product to market. We will cover issues related to cloud hosting (including risk management and compliance), revenue operations (RevOps), and financial operations (FinOps). We will survey the tooling available for each, and discuss the tooling and processes that we have implemented. Keynote slides will accompany the presentation.

**Webinar ID:** 973 2335 0277

**Join via Telephone:** 1 301 715 8592

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### 🗣️ Speakers



**John Robinson** Chief Executive Officer, Wellzesta Inc.



**David Pearson** Professor & Chief - Quality, Operations, Innovation - CMC Emergency Medicine, Atrium Health

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## Fighting Audit Fraud - A Machine Learning Based Journey to Detect Anomalies in Images

🕒 1:00pm - 1:45pm, Apr 23

Analytics

Microsoft spends more than a billion dollars in marketing payments to partners. These partners submit images as proof of execution of an event or product delivery. After careful data analysis we found numerous instances where partners had recycled the same images in multiple submissions. This leads to a considerable amount of money in losses for the company. Each image submitted is supposed to be different, however smart forgery techniques makes it extremely difficult to differentiate genuine images from fraudulent ones. To help the finance organization weed out these fraudulent instances we have implemented a ML based Image anomaly detection system. This system parses a single image to compare and generate similarity scoring with hundreds of thousands of images in real time.

Join us to unravel the evolution of this anomaly detection service and key learnings associated with it.

**Webinar ID:** 998 5090 5616

**Join via Telephone:** 1 929 205 6099

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### 🗣️ Speaker



**Kartik Krishnan** Software Engineer, Microsoft

1:45pm

**BREAK**

🕒 1:45pm - 2:00pm, Apr 23

2:00pm

**Keynote: Algorithms of Oppression: A Conversation with Dr. Safiya Noble**

🕒 2:00pm - 2:50pm, Apr 23

**Keynote Presentation**

**Webinar ID:** 990 1536 7149

**Join via Telephone:** 1 301 715 8592

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🗣️ **Speaker**



**Safiya Noble** Associate Professor, UCLA; Co-Founder and Co-Director, UCLA Center for Critical Internet Inquiry (C2i2), Featured Speaker

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