

WEB3SEC 2024 - Workshop Encouraging Building Better Blockchain Security

Held in conjunction with the Annual Computer Security Applications Conference (ACSAC).

When: **Monday, December 9th, 2024**

Where: **Alohilani Resort in Honolulu, Hawaii**

AGENDA (DRAFT)

Morning Session: Keynote & Panel Discussion

8:30 AM – 9:00 AM: Registration and Welcome Coffee

9:00 AM – 9:15 AM: Opening Remarks

- Welcome: **Dr. Dragan Boscovic**. Introduction to the workshop theme and objectives

9:15 AM – 10:15 AM: Keynote Address

- Keynote Speaker: **Dr. Raja Jayaraman**, Associate Professor in the Department of Industrial Engineering at New Mexico State University, Las Cruces, USA
- Topic: ***Building better blockchain applications for supply chain and healthcare***
- Abstract: This talk explores the ultimate advancements in blockchain technology tailored for the supply chain and healthcare sectors. It delves into novel applications that enhance transparency and secure transactions while addressing the critical need for anonymity in sensitive data handling. Attendees will learn how these innovations can transform industries, improving efficiency and trustworthiness.

10:15 AM – 10:30 AM: Coffee Break

10:30 AM – 12:00 PM: Panel Session

- Topic: **Beyond Firewalls: AI and Blockchain's Cyber Citadel**
- Moderator: **Sean Heide**, Cloud Security Alliance
- Panelists:
 - [Dr. Hans Behrens](#), CEO Apparatus
 - [Dr. Petar Jevtic](#), Faculty Affiliate AIDA Center, Arizona State University
 - [Insert Panelist 3 - TBD]
 - [Insert Panelist 4 - TBD]

- **Abstract:** In an era of increasingly sophisticated cyber threats, integrating Artificial Intelligence (AI) and blockchain technology presents a groundbreaking approach to cybersecurity. This panel discussion explores the symbiotic relationship between AI and blockchain, examining how their combination not only enhances their cybersecurity capabilities but also paves the way for innovative security solutions for conventional information systems. Our expert panel will provide insights into how this technological convergence is reshaping the cybersecurity paradigm, offering attendees a glimpse into the future of digital security and the potential for creating more resilient information systems.

12:00 PM – 1:00 PM: Lunch Break

Afternoon Session: Paper Presentations

1:00 PM – 2:30 PM: Paper Session 1 (3 Papers)

Each paper presentation will be 20 minutes, followed by a 5-minute Q&A session.

- 1:00 – 1:30: Paper 1 – **Automated Vulnerability Detection in Smart Contracts using Control Flow Graphs and Machine Learning**
Presenter: Charles Lohest et al, Université catholique de Louvain
- 1:30 – 2:00: Paper 2 – **Privacy-Preserving Financial Anomaly Detection via Federated Learning & Multi-Party Computation**
Presenter: Panagiotis Chatzigiannis et al, VISA
- 2:00 – 2:30: Paper 3 – **Fast and Secure Consensus Protocol for Ethereum 2.0**
Presenter: Shinsaku Naito et al., The University of Tokyo

2:30 PM – 3:00 PM: Coffee Break

- 3:00 – 3:30: Paper 4 – **Blockchain-based Sustainability, Traceability, and Certification of Hydrogen Production**
Presenter: Sultan Alshehhi et al., Khalifa University
- 3:30 – 4:30: *Invited Talk* – **Petri Net Modeling for Hyperledger Fabric - Interplay between Machine Learning, Performance Analysis and Intrusion Detection**
Presenter: Petar Jevtic, Center for AI and Data Analytics, Arizona State University

4:30 PM – 4:45 PM: Closing Remarks and Wrap-Up

- Summary of the day's discussions.

- Future opportunities for collaboration.

4:45 PM: Workshop Conclusion and Networking

Participants can engage in informal discussions and networking opportunities.

Dr. Raja Jayaraman

Biography: Raja Jayaraman is an Associate Professor in the Department of Industrial Engineering at New Mexico State University, Las Cruces, USA. Dr. Jayaraman's current research interests focus on a multidisciplinary approach to engineering problems applying systems engineering, process optimization, operational excellence, and digital transformation to characterize, model, and solve complex systems. His research targets applications in supply chains, multi-modal logistics, maintenance planning, and healthcare delivery. Dr. Jayaraman has over 16 years of experience in higher education institutions spanning India, the USA, and the UAE. He teaches graduate and undergraduate courses in supply chain and logistics, optimization, stochastic models, systems engineering, and quality management.

With over 130 journal publications in the domains of engineering, technology, and business his research contributions have appeared in top-tier journals including Annals of Operations Research, IISE Transactions, Computers & Industrial Engineering, IEEE Transactions on Engineering Management, IEEE Engineering Management Review, Production Planning & Control, Energy Policy, Technology in Society, Knowledge-Based Systems, Expert Systems with Applications, Journal of Cleaner Production, Technology Forecasting and Social Change, Engineering Management Journal, and others.

Dr. Jayaraman was recognized in 2022 and 2023 as Stanford University World's Top 2% scientists and most influential researcher under the subject categories: Operations Research, Artificial Intelligence, and Information and Communication Technologies. Dr. Jayaraman is a senior member of the Institute of Industrial & Systems Engineering (IISE) and a member of the Institute for Operations Research and Management Science (Informs). He currently serves as Associate Editor, International Journal of Quality and Reliability and on the editorial board of several journals.

Sean Heide

Biography: Sean Heide is the Technical Research Director at the Cloud Security Alliance (CSA), where he leads research on critical areas such as cloud security, artificial intelligence, and emerging threats in cloud environments. He has been instrumental in publishing several key reports, including the "Top Threats to Cloud Computing" series, which provides insights into the most pressing risks within the cloud ecosystem. His work emphasizes enhancing cloud security posture by helping organizations understand business impacts and implementing effective mitigations.

Sean's expertise also extends to AI governance and risk, as reflected in his leadership in organizing think tanks and research initiatives related to AI's impact on cybersecurity. He frequently speaks at cybersecurity events and webinars, sharing practical approaches to risk identification and cloud security innovations.

Dr. Petar Jevtic

Dr. Petar Jevtic is a tenured associate professor at the School of Mathematical and Statistical Sciences at Arizona State University, where he served as a tenure-track assistant professor since 2017. Before joining ASU, he was an Assistant Professor and held a Postdoctoral Fellowship in Mathematical Finance at McMaster University, Canada. Dr. Jevtic holds a Ph.D. in Economics focusing on Applied Mathematics and Statistics from the University of Turin, Italy, an M.Sc. in Economics and a Dipl. Ing. in Computer Science and Engineering from the University of Belgrade, Serbia. His research encompasses risk management, actuarial science, and mathematical finance, focusing on longevity risk, property and casualty insurance, cyber risk, climate-induced risks, and risks emerging from smart contracts and autonomous systems. Additionally, his interests extend to cybersecurity and the economics of distributed systems. Dr. Jevtic has published extensively in leading mathematics, statistics, and actuarial journals and holds patents in cyber risk modeling and pricing. The Society of Actuaries, the Casualty Actuarial Society, and federal agencies, including the NSF, NIH, and DHS fund his research. Passionate about advancing theoretical and practical applications in risk modeling, he is dedicated to education and mentorship, regularly supervising Ph.D., MSc, and undergraduate honors students.