



**The 21st International Conference on
Information Technology:
New Generations**

**April 14-16, 2024
Tuscany Hotel, Las Vegas, Nevada, USA**

ITNG 2024 Program

April 14, 2024 - SUNDAY

5:00pm - 8:00pm: REGISTRATION (Convention Center- TBA)
6:00pm - 8:00pm: PRE-CONFERENCE RECEPTION (Florentine E)

April 15, 2024 - MONDAY

8:00am - 5:00pm: REGISTRATION (Convention Center- TBA)
8:00am - 9:00am: BREAKFAST (TBA)
9:00am - 9:10am: Opening Remarks by **Dr. Shahram Latifi**
Conference Chair, University of Nevada Las Vegas
(Location: Florentine E)
9:10am - 10:00am: Keynote by **Dr. Rym Z. Wenkstern**
University of Texas, Dallas (Location: Florentine E)
**"DALI: An Autonomous, Cooperative, Agent-Based Traffic
Control System"**

PARALLEL SESSIONS:

ASESSIONS (Florentine E)

SESSION MA1: Cybersecurity I

CHAIR: **Dr. Anteneh T. Girma, University of the District of Columbia, USA**
Co-CHAIR: **Dr. Ping Wang, Robert Morris University, USA**

10:00am - 12:40 pm (601, 799, 950, 1012, 1683, 2324, 3110, 3228)

10:00 - 10:20 A Practical Survey of Data Carving from Non-Functional Android
Phones Using Chip-Off Technique
Sarfraz Shaikh and Weifeng Xu
10:20 - 10:40 Automated Semantic Role Mining using Intelligent Role Based Access
Control in Globally Distributed Banking Environment

Rubina Ghazal, Nauman Qadeer, Hasnain Raza and Ahmad Kamran Malik

- 10:40-11:00 Software Bill of Materials (SBOM) Approach to IoT Security Vulnerability Assessment
James Bonacci and Reese Martin
- 11:00-11:20 AI-Assisted Pentesting Using ChatGPT-4
Ping Wang and Hubert D'Cruze
- 11:20-11:40 Combining Cyber Security and Data Science: A Cutting-Edge Approach for Public Health Education Masters
Maurice Dawson and Elizabeth Omotoye
- 11:40-12:00 Integrating Intelligence Paradigms into Cyber Security Curriculum for Advanced Threat Mitigation
Maurice Dawson
- 12:00-12:20 Simulation Tests in Anti-phishing Training
Peyton Lutchkus, Ping Wang and Jim Mahony
- 12:20-12:40 Where is our data and how is it protected?
Kenneth L Williams
- 12:40-1:30 Lunch Break (On your own)

SESSION MA2: Cybersecurity II

CHAIR: Dr. Ping Wang, Robert Morris University, USA

Co-CHAIR: Dr. Raed Sbeit, University of the Cumberland, USA

1:30pm - 3:30 pm (3303, 3712, 3932, 5120, 6050, 7006)

- 1:30 - 1:50 SIV-MAC: an efficient MAC scheme information on submission
Shay Gueron
- 1:50 - 2:10 Speeding up RSA signature verification
Shay Gueron and Isaac Elbaz
- 2:10-2:30 A Comparative Analysis on Ensemble Learning and Deep Learning Based Intrusion Detection Systems Over the NCC2 Dataset
Soundes Belkacem
- 2:30-2:50 Innovative Lightweight Key Agreement Protocol Based on Hyperelliptic Curve for IoT Mutual Authentication
Mohammad Al-Samhouri, Maher Aburrous and Nuria Novas

<u>2:50-3:10</u>	<i>Security Analysis of Drone Communication Methods</i> <i>Anteneh Girma and Kymani Brown</i>
<u>3:10-3:30</u>	AI and Democracy: A Human Problem <i>Zachary Zuck</i>
<u>3:30-4:00</u>	Coffee Break

SESSION MA3: Cybersecurity III

CHAIR: **Dr. Kenneth Williams, Southern University at New Orleans, USA**

Co-CHAIR: **Dr. Nooredin Etezady, Robert Morris University, USA**

4:00pm - 6:00 pm (8111, 8298, 8830, 7286, 9909, 2622)

<u>4:00-4:20</u>	Comparative study of the Clarity of Privacy Policies in Social Media <i>Steven Zalenski, Jing Hua and Darren Gray</i>
<u>4:20-4:40</u>	ClipSecure: Addressing Privacy and Security Concerns in Android Clipboard <i>Eric Lavoie, Avishek Mukherjee and Scott James</i>
<u>4:40-5:00</u>	Security Vulnerabilities in Facebook Data Breach <i>Jing Hua and Ping Wang</i>
<u>5:00-5:20</u>	Intelligent Intrusion Detection Model with MapReduce and Deep Learning Model <i>Nawaf Abdualziz Almolhis</i>
<u>5:20-5:40</u>	Analysis of IoT Vulnerabilities and Proposed Solution Approach for Secure Real-Time IoT Communication <i>Anteneh Girma, Nurus Safa and Antione Searcy</i>
<u>5:40-6:00</u>	Blockchain-based Identity Management for Secure Data Sharing <i>Salahaldeen Nasser Duraibi</i>

B SESSIONS (Florentine F)

SESSION MB1: Human-Computer Interaction

CHAIR: **Dr. Fred Harris, University of Nevada Reno, USA**

Co-CHAIR:

10:00am - 12:30pm (0623, 1327, 2328, 4025, 6636, 7290, 9851)

<u>10:00-10:20</u>	TickTrax: A Mobile and Web-Based Application for Tick Monitoring and Analysis
--------------------	---

Denielle Oliva, Ryan Dahan, Rohman Sultan, Joanna Lopez, Monika Gulia-Nuss, Andrew B. Nuss, Mike B. Teglas, David Feil-Seifer and Frederick C. Harris Jr.

- 10:20-10:40 Developing students' reflective skills to improve the learning of Human-Computer Interaction
Moretlo Tlale-Mkhize and Janet Liebenberg
- 10:40-11:00 Options Matter: Exploring VR Input Fatigue Reduction
Michael Wilson, Levi Scully, Vinh Le, Frederick Harris Jr., Pengbo Chu and Sergiu Dascalu
- 11:00-11:20 Introductory Pathway to Virtual Reality by Developing Immersive Games of Skill
Araam Zaremehrijardi, Levi Scully, Rojin Manouchehri, Jonathan Chi, Pengbo Chu and Sergiu Dascalu
- 11:20-11:40 A User Study of Two Downstream single-cell Data Analysis Methods: Clustering and Trajectory Inference
Yifan Zhang, Rui Wu, Sergiu Dascalu and Frederick Harris Jr.
- 11:40-12:00 Fostering Joint Innovation: A Global Online Platform for Idea Sharing and Collaboration
Hossein Jamali, Sergiu M. Dascalu and Frederick C. Harris Jr.
- 12:00-12:30 Keep Sailing: An Investigation of Effective Navigation Controls and Subconscious Learning in Simulated Maritime Environment
Mayamin Hamid Raha, Md. Abu Sayed, Sergiu Dascalu, Monica Nicolescu and Mircea Nicolescu
- 12:30-1:00 Lunch (on your own)

SESSION MB2: Data Sciences

CHAIR:

Co-CHAIR:

1:30pm - 3:30pm (0342, 0495, 7442, 0622, 1029)

- 1:30-1:50 Case Study of an Interdisciplinary Academic Project for Reading Fluency Analysis
Matheus Silva Martins Mota, Luis Felipe Silva Rezende Soares, Victor Araujo Paula Cavichioli, Stephanie Souza Russo, Julio Roncal, Gildarcio Sousa Goncalves, Adilson Marques da Cunha, Luiz Alberto Vieira Dias, Lineu Fernando Stege Mialaret and Johnny Cardoso Marques
- 1:50-2:10 Strategic Software Modernization: Business-IT Convergence with Large Language Model
Wilson Cristoni Neto and Luiz Alberto Vieira Dias
- 2:10-2:30 OPEN SLOT

- 2:30-2:50 Household Discovery with Group Membership Graphs
Onais Khan Mohammed, John R Talburt, Abdus Salam Siddique, Adeeba Tarannum, Altaf Mohammed, Faraz Mohammed and Khizer Syed
- 2:50-3:10 Initial Design and Implementation of an Edge-to-Edge LoRaWAN Data Collection System
Chase Carthen, Zach Estreito, Vinh Le, Scotty Strachan, Alireza Tavakkoli, Frederick Harris, Sergiu Dascalu and Jehren Boehm
- 3:10-3:30 A Study on Data Quality and Analysis in Business Intelligence
Robson Bosse, Ferruccio de Franco Rosa and Mario Jino
- 3:30-4:00 Coffee Break

SESSION MB3: AI and Robotics

CHAIR: **Dr. Anteneh T. Girma, University of the District of Columbia, USA**

Co-CHAIR:

4:00pm - 6:00 pm (3167, 3218, 6051, 8604, 9988)

- 4:00-4:20 Projecting Elliott patterns in different degrees of waves for analyzing financial market behavior
Rafael Ribeiro dos Santos, Vanderlei Bonato and Geraldo Nunes Silva
- 4:20-4:40 An Integration of Blockchain Web3 and Robotic Process Automation for Property Ownership Traceability
Mina Cu, Johnny Chan, Gabrielle Peko and David Sundaram
- 4:40-5:00 Early identification of conflicts in the Chilean fisheries and aquaculture sector using text mining and machine learning techniques
Mauricio Figueroa Colarte
- 5:00-5:20 Enhanced AES for Securing Hand Written Signature using Residue Number System
Ifedotun Idowu, Bamidele Samson and Abubakar Abdulsalam
- 5:20-5:40 Using GPT-4 to Tutor Technical Subjects in non-English Languages in Africa
Laurie Butgereit

SESSION MC1 – POSTERS (Hallway)

CHAIR: **Dr.**

Co-CHAIR:

10:10am - 12:30pm (Location: Florentine G)

April 16, 2024- Tuesday

8:00am - 5:00pm: REGISTRATION (TBA)

8:00am - 9:00am: BREAKFAST (TBA)

A SESSIONS (Florentine E)

SESSION TA1: Software Engineering

CHAIR: **Dr. Alessio Bucaioni, Mälardalen University, Sweden**

Co-CHAIR:

9:00am - 11:20 am (3036, 3869, 5026, 5061, 9388, 9792, 6057)

- | | |
|-------------|---|
| 9:00-9:20 | Elements-Based Test Suite Reduction for for SARSA-Generated Test Suites
<i>Abdullah Alenzi, Waleed Alhumud and Renee Bryce</i> |
| 9:20-9:40 | Towards Adopting a Digital Twin Framework (ISO 23247) for Battery Systems
<i>Johan Cederbladh, Enxhi Ferko and Emil Lundin</i> |
| 9:40-10:00 | Challenges and Success Factors in Large Scale Agile Transformation – A Systematic Literature Review
<i>Suddhasvatta Das and Kevin Gary</i> |
| 10:00-10:20 | Integrating AIaaS into existing systems: the Gokind experience
<i>Alessio Bucaioni and Benedicte Boneza Musabimana</i> |
| 10:20-10:40 | A Novel Implementation of FHUQI-Miner, TKQ and FCHM Algorithms for High-Utility Itemset Mining to Predict User Behavior Using Smartphone Context Events
<i>Pooja Goyal, Quinn Bennett, Katie Charubin, Abbie Seale and Renee Bryce</i> |
| 10:40-11:00 | Towards systematic and precise compilation of domain-specific modelling languages
<i>Federico Ciccozzi</i> |
| 11:00-11:20 | A method based on Behavior Driven Development (BDD) and System-Theoretic Process Analysis (STPA) for verifying security requirements in critical software systems
<i>Vitor Reis Rubatino, Alice Batista Nogueira, Fellipe Guilherme Rey de Souza and Rodrigo Martins Pagliares</i> |

SESSION TA2: E-Learning, Video Games

CHAIR: **Dr.**

Co-CHAIR: **Dr.**

11:30-12:30 pm (2437, 8924, 2702, [4019](#))

- 11:30-11:50 Exploring the Impact of Augmented Reality Applications on Student Engagement in Higher Education in South Africa: A Review
Dina Moloja
- 11:50-12:10 JSON and XML schemas for WebSTAMP
Rodrigo Martins Pagliares, Gustavo Henrique Santiago da Silva and Gabriel Piva Pereira
- 12:10-12:30 The Disparate Impact of Distinct Background Music on Gameplay Experience: An Empirical Analysis
Rifat Ara Tasnim, Farjana Eishita, Jon Armstrong, Eddie Ludema and Jeremy Russell
- [3D Video Game Simulation Based on Colored Petri net and SIMIO](#)
Felipe Nedopetalski, Franciny Barreto, Estela Ferreira Silva and Stéphane Julia

12:30-1:00 pm Lunch Break (on your own)

SESSION TA3: Machine Learning: Theory and Applications

CHAIR: **Dr. Dina Moloja, Central University of Technology, South Africa**

Co-CHAIR:

1:00pm - 3:40pm (1216, 4233, 8127, 8035, 9962, 0186, 6452, [4539](#), [9367](#))

- 1:00-1:20 A Method for Improving the Recognition Accuracy of Pattern Classification
Damheo Lee, Seungmok Ha, Bowon Suh, Yongjin Kwak and Mun-Sung Han
- 1:20-1:40 An Application of Support Vector Machine, Random Forest, and Related Machine Learning Algorithms on California Wildfire Data
Joshua Ologbonyo and Roger Sidje
- 1:40-2:00 GPU-accelerated neural networks and computational strategies to predict wave heights
Ashkan Reisi Dehkordi and Frederick Jr. Harris
- 2:00-2:20 Exploring Deep Learning Techniques in the Prediction of Cancer Relapse using an Open Brazilian Tabular Database
Rodrigo Bonacin, Sérgio Modesto Vechi, Mariangela Dametto and Guilherme Ruppert
- 2:20-2:40 A Review on the Use of Machine Learning for Pharmaceutical Formulations

Helder Pestana, Ferruccio de Franco Rosa and Rodrigo Bonacin

2:40-3:00 A Detection Method for Circumferential Alignment of Diminutive Lesions Using Wavelet Transform Modulus Maxima and Higher-Order Local Autocorrelation
Suka Tomoki, Hajime Omura and Teruya Minamoto

3:00 – 3:20 Cyber Attack Intensity Prediction Using Feature Selection and Machine Learning Models
Mustafa Hammad, Khalid Altarawneh and Abdulla Almahmood

3:20 - 3:40 Coffee Break

Offense Severity Prediction Under Partial Knowledge: Trigger Factor Detection Using Machine Learning and Network Science Methods
Natarajan Meghanathan
Feature Fusion Approach for Emotion Classification in EEG Signals
Yahya Alqahtani

SESSION TA4: Potpourri

CHAIR: **Dr. Nooredin Etezady, Robert Morris University, USA**

Co-CHAIR:

4:00pm - 6:00pm (5368, 2496, 9767, 4460, 9950, 1462, **6733**)

4:00-4:20 Towards Visualizing the Status of Bug Reports
Maen Hammad, Sabah Alsofriya and Ahmed Otoom

4:20-4:40 MicroSTAMP: microservices for steps 1 and 2 of the System-Theoretic Process Analysis (STPA) technique
Rodrigo Martins Pagliares, João Hugo Marinho Maimone, Thiago Franco de Carvalho Dias and Fellipe Guilherme Rey de Souza

4:40-5:00 A holistic approach for single-cell data trajectory inference using chromosome physical location and ensemble random walk
Jovany Cardoza-Aguilar, Caleb Milbourn, Yifan Zhang, Lei Yang, Sergiu Dascalu and Frederick Harris

5:00-5:20 Triangulation Guided High Clearance Paths
Laxmi Gewali and Sandeep Maharjan

5:20-5:40 Graph partitioning algorithms: a comparative study
Rafael M. S. Siqueira, Alexandre D. Alves, Otávio A. O. Carpinteiro and Edmilson M. Moreira

5:40-6:00 Employers' experiences of using a mobile health application: A qualitative study based on a digital intervention
Cecilia Johansson and Ann Svensson

Quarantine Centrality: Principal Component Analysis of SIS Model
Simulation Results to Quantify the Vulnerability of Nodes to Stay Infected
in Complex Networks
Natarajan Meghanathan

6:30-7:00 OPEN SLOT (Florentine E)

7:30- 9:00 Conference Dinner Reception (Tuscany)

SESSION TB1 – Abstracts (Hallway)

10:30am -12:30pm (2230, 2559, 3973, 4704, 4864, 8351)
(Location: Hallway)

Towards a ground truth on cyber security risk in healthcare
Alvhild Skjelvik and Bian Yang

Data Security and Privacy Risks of AI-based Healthcare Devices and Applications
Ping Wang and Hossein Zare

Importance of Data Security Controls in the Data Visualization Software Selection
Process
Michal Cieslak

Review of Digitalization using Artificial Intelligence Maturity Models: The Case of
American Shipbuilding
Raed Sbeit and Dharmender Salian

Flipper Zero - Pros and Cons
Robert Pava and Reese Martin

Integration of Ontologies in AI/ML Powered Security Orchestration, Automation, and
Response (SOAR) Systems
Kinyua Johnson

SESSION TB2 – Abstracts (Hallway)

1:30pm - 3:30pm (5823, 6538, 7460, 8657)
(Location: Hallway)

ENHANCING U.S HEALTHCARE SYSTEM CYBERSECURITY THROUGH ARTIFICIAL INTELLIGENCE
Raed Sbeit and Dharmender Salian

Comparative Analysis of Human-Generated and ChatGPT-Generated Phishing Emails: A Multi-
Approach Study

Ping Wang and Jing Hua

A Privacy Metric Model for IoT for homes (Smart Homes)
Noory Etezady

Conference Conclusion

End of Schedule.....

Pre-recorded Presentations:

Feature Fusion Approach for Emotion Classification in EEG Signals
Yahya Alqahtani