The 18th International Conference on Information Technology: New Generations

April 12-13, 2021
Virtual Conference
(All times are Pacific Standard Time: GMT-7)

ITNG 2021 PROGRAM

April 12, 2021 - MONDAY

8:00 - 8:10:   **Opening Remarks by Dr. Shahram Latifi**
                      Conference Chair, University of Nevada Las Vegas

8:10 - 9:00:   Keynote by **Dr. Jerzy Rozenblit, Professor, University of Arizona "Computer-assisted surgical training: simulation modeling based approach"**

9:00 - 9:15:   **Q&A by Audience**

PARALLEL SESSIONS:

A SESSIONS

SESSION MA1: AI & Robotics

CHAIR: **Dr. Kashif Saleem, King Saud University, Saudi Arabia**
Co-CHAIR: **Dr. Alex Redei, Central Michigan University, USA**

09:15 - 11:15 (5,11,71,79,86,34)

09:15 - 09:35   Conceptualisation of breast cancer domain using ontology
                      Reshmy Krishnan, KSherimon PC and Menila James

09:35 - 09:55   Traffic Light Control and Machine Learning - A systematic mapping review
                      Dimitrius Borges, Edmilson, Moreira, Adler Diniz and João Paulo Leite

09:55-10:15   Applications of Connecting a Quadcopter to a Flight Simulator for Human-in-the-Loop Autonomous Systems
                      Luke Rogers and Alex Redei

10:15-10:35	COVID-19: The importance of artificial intelligence and digital health during a pandemic

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Maximilian Espuny, José S. da Motta Reis, Gabriel M. Monteiro Diogo, Thalita L. Reis Campos, Vitor H. de Mello Santos, Ana C. Ferreira Costa, Gildarcio Sousa Gonçalves, Paulo M. Tasinaffo, **Luiz A. Vieira Dias,** *Adilson M. da Cunha, Nilo A. de Souza Sampaio, Andréia M. Rodrigues and Otávio J. de Oliveira*

10:35-10:55   CropWaterNeed: A Machine learning approach for Smart Agriculture
Malek Fredj, **Rima Grati** *and Khouloud Boukadi*

10:55-11:15   Machine Learning: Towards an Unified Classification Criteria
Clara Burbano, David Reveló, **Julio Mejía** *and Daniel Soto Carabantes*

SESSION MA2: Cybersecurity I

CHAIR: **Dr. Kashif Saleem, King Saud University, Saudi Arabia**
Co-CHAIR:

11:15 - 13:15   (62,22,14,66,30,21)

11:15-11:35   Classification and update proposal for modern computer worms, based on obfuscation
Hernaldo Salazar *and Cristian Barria*

11:35-11:55   Conceptual model of security variables in Wi-Fi wireless networks: Review
Lorena Galeazzi, *Cristian Barria and Julio Hurtado*

11:55-12:15   Cybersecurity analysis in nodes that work on the DICOM protocol, a case study
David Cordero and **Cristian Barria**

12:15-12:35   Hybrid Security Risk Assessment Model
Robert Banks*, Jim Jones, Noha Hazzazi, Pete Garcia and Russell Zimmermann*

12:35-12:55   Enriching Financial Software Requirements Concerning Privacy and Security Aspects: a semiotics based approach
Leonardo Manoel Mendes, Ferrucio De Franco Rosa and **Rodrigo Bonacin**

12:55-13:15   Efficient Design of Underwater Acoustic Sensor Networks Communication for Delay Sensitive Applications over Multi-hop
Ahmed Al Guqhaiman*, Oluwatobi Akanbi, Amer Aljaedi and C. Edward Chow*

13:15-14:00   Break

SESSION MA3: Cybersecurity II

CHAIR: **Dr. Kashif Saleem, King Saud University, Saudi Arabia**
Co-CHAIR:

14:00 - 16:00 (32,38,46,50,54,65)

14:00-14:20   Parallelized C++ Implementation of a Merkle Tree
*Andrew Flangas, Autumn Cuellar, Michael Reyes and **Frederick Harris***

14:20-14:40   A Study on Ontologies of Vulnerabilities and Attacks on VLAN
***Marcio Cruz**, Ferrucio Rosa and Mario Jino*

14:40-15:00   Towards a symmetric crypto algorithm: The HAJ
***Daniel Alarcón-Narváez** and Fausto Jacques*

15:00-15:20   A comparative study between two numerical methods for symmetric cryptography uses and applications
***Alba Nidia Martinez** and Fausto Abraham Jacques-Garcia*

15:20-15:40   Speed up over the Rainbow
*Nir Drucker and **Shay Gueron***

15:40-16:00   Extending a Hybrid Security Risk Assessment Model with CWSS
***Robert Banks**, Jim Jones, Noha Hazzazi, Pete Garcia and Russell Zimmermann*

B SESSIONS

SESSION MB1: E-Health

CHAIR: **Dr. Hossein Zare, Johns Hopkins University, USA**
Co-CHAIR: **Dr. Sima Marzban, University of N. Carolina, USA**

9:15- 11:15 (82,23,26,60,77,88)

09:15 - 09:35   Identifying and prioritizing applications of Internet of Things in the supply chain of distribution and sale of health care products in Iran
***Niloofar Aminikalibar** and Fatemeh Saghafi*

09:35 - 09:55	The Information Technology Role in Patient Engagement *Sima Marzban, Paul Meade, Marzie Najafi Berenje and Hossein Zare*

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                    Sima Marzban, Paul Meade, Marzie Najafi Berenje and Hossein Zare

09:55-10:15   Ambient Intelligence Technologies to Assist People who are Visually
                    Impaired to Live Better at Home: A Mapping Study
                    Juliana Damasio Oliveira, João Moraes Junior and Rafael Bordini

10:15-10:35   Voice for the Voiceless: Developing a Low-Cost Open-Source
                    Communication Device for the Speech Impaired
                    Travis Smith and Vasilios Pappademetriou

10:35-10:55   Integration of bioinformatics and clinical data to Personalized Precision
                    Medicine
                    *Flavielle Blanco Marques, Gabriel Fernandes Leal, Giovani Nicolas
                    Bettoni and Osmar Norberto de Souza*

10:55-11:15   Modeling the COVID-19 Epidemic in a Parallelized City Simulation
                    *Derek Stratton, William Garner, Terra Williams and Frederick C.
                    Harris*

SESSION MB2: Management & Applications

CHAIR: **Dr. Wolfgang Bein, University of Nevada, Las Vegas, USA**
Co-CHAIR: **Dr. Adler Diniz de Souza, Universidade Federal de Itajuba, Brazil**

11:15 - 13:15   (16,43,49,57,63,12)

11:15-11:35   Techniques and Tools for Selection and Strategic Alignment of Projects
                    and Projects Portfolio Balancing: A Systematic Mapping
                    *Djenane Cristina Silveira Dos Santos, Adler Diniz de Souza and
                    Flávio Belizário da Silva Mota*

11:35-11:55   Methods for Detecting Fraud in Civil and Military Service
                    Examinations: a systematic mapping
                    *Roberto Paulo Moreira Nunes, Rodrigo Bonacin and Ferrucio de
                    Franco Rosa (**Pre-recorded**)*

11:55-12:15   Citizens Engagement in Smart Cities: A Systematic Mapping Review.
                    Rafael Leite, Adler Diniz and Melise De Paula

12:15-12:35   Use of crowdsourcing questionnaires to validate the requirements of
                    an application for pet management
                    *Vitor Silva Vidal, Marco Aurélio Moura Suriani, Rodrigo Aparecido da
                    Silva Braga, Ana Carolina Oliveira Santos, Otávio Soares Silva and
                    Roger Junio Campos*

12:35-12:55   Discovery of Real World Context Event Patterns for Smartphone
                    Devices using Conditional Random Fields
                    Shraddha Piparia, Md Khorrom Khan and Renee Bryce

| 12:55-13:15 | Computation at the Edge with WebAssembly |
| | *Jebreel Alamari* and *Edward Chow* |

| 13:15-14:00 | Break |

SESSION MB3: Theory & Computation

CHAIR: **Dr. Wolfgang Bein, University of Nevada, Las Vegas, USA**
Co-CHAIR: **Dr. Doina Bein, California State University, Fullerton, USA**

14:00 - 16:00 (42, 48,64,67,80,58)

| 14:00-14:20 | Effect of Boundary Approximation on Visibility |
| | *Laxmi Gewali* and *Samridhi Jha* |

| 14:20-14:40 | A Method for Improving Memory Efficiency of the Reachability Graph Generation Process in General Petri Nets |
| | *Kohei Fujimori* and *Katsumi Wasaki* |

| 14:40-15:00 | An Evaluation For Online Power Down Systems Using Piece-Wise Linear Strategies |
| | *James Andro-Vasko* and *Wolfgang Bein* |

| 15:00-15:20 | Mobile Test Suite Generation via Combinatorial Sequences |
| | *Ryan Michaels*, *Md Khorrom Khan* and *Renée Bryce* |

| 15:20-15:40 | Usability Smells: a Systematic Review |
| | *Jonathan de Oliveira Souza*, *Adler Diniz Souza*, *Leandro Guarino Vasconcelos* and *Laercio Baldochi* |

| 15:40-16:00 | Analysis Of Traffic Based On Signals Using Different Feature Inputs |
| | *Wolfgang Bein*, *Baby Shalini Ravilla* and *Yazmin Elizabet Martinez* |

April 13, 2021- Tuesday

| 8:10 - 9:00: | **Keynote by Professor Adrian A. Hopgood** |
| | **"Practical Artificial Intelligence using Complementary Techniques"** |

| 9:00 - 9:15: | **Q&A by Audience** |

PARALLEL SESSIONS:

A SESSIONS

SESSION TA1: High Performance Computing Architectures

CHAIR: **Dr. Poonam Dharam, Saginaw Valley State University, USA**
Co-CHAIR: **Yun Tian, Eastern Washington University, USA**

9:15 – 11:15   (61,25,35,44, 59,68)

09:15 - 09:35   Motivating Computer Science Students in Lower-division
                  Undergraduate Curriculum
                  Yun Tian, Uri Rogers, Saqer Alhloul, Fangyang Shen and Yanqing Ji

09:35 - 09:55   Evaluation of Power Consumption and Application Optimization for
                  Adaptive-Ticks Feature in Linux Kernel
                  *Abdullah Aljuhni, Shaji Yusuf, C. Edward Chow, Oluwatobi Akanbi
                  and Amer Aljaedi*

09:55-10:15   Sequence alignment algorithms in hardware implementation: A
                  systematic mapping of the literature
                  *Bragança Lucas de Sá Moreira Bragança, Souza Adler Diniz De,
                  Rodrigo Aparecido da Silva Braga, Marco Aurélio Moura Suriani and
                  Rodrigo Moreira Carvalho Dias*

10:15-10:35   ==Hardware Logic Library and High-level Logic Synthesizer Combining
                  LOTOS and A Functional Programming Language==
                  ==Katsumi Wasaki==

10:35-10:55   GPU Acceleration of Sparse Neural Networks
                  *Aavaas Gajurel, Sushil Louis, Rui Wu, Lee Barford and Frederick
                  Harris*

10:55-11:15   Parallelizing the Slant Stack Transform with CUDA
                  *Dustin Barnes, Andrew McIntyre, Sui Cheung, John Louie, Emily Hand
                  and Frederick Harris*

SESSION TA2: Social Computing/E-Learning

CHAIR: **Dr. Poonam Dharam, Saginaw Valley State University, USA**
Co-CHAIR:

11:15 - 13:15   (10,15,20,33,6,28)

11:15-11:35   Recommender System Evaluator: a Framework for Evaluating the
                  Performance of Recommender Systems
                  *Paulo Vicente Gomes dos Santos, Bruno Guazzelli Batista, Dionisio
                  Machado Leite Filho, Maycon Leone Maciel Peixoto, Stephan Reiff-
                  Marganiec, Bruno Tardiole Kuehne and Edmilson Marmo Moreira*

11:35-11:55   Visualization of Georeferenced Data Through the Web: A Systematic
                  Literature Review

Lucas Lamounier Gonçalves Duarte and Adler Diniz de Souza

11:55-12:15   Cognitive Issues in Intelligent Modeling of Pedagogical Tasks
               Marina Lapenok, Anna Lozinskaya and Vasilisa Likhacheva

12:15-12:35   Immersive virtual reality and its use in developing empathy in
               undergraduate students
               Éder Estrada Villalba and Fausto Abraham Jacques-García

12:35-12:55   E-NEST Remote Learning Transition in STEM Education
               Fangyang Shen and Janine Roccosalvo

12:55-13:15   Ethics and human values in the Software Design
               Alejandra Acuña, Cesar A. Collazos and Cristian Barría Huidobro

13:15-14:00   **Break**

SESSION TA3: Pandemic

CHAIR: **Dr. Hossein Zare, Johns Hopkins University, USA**
Co-CHAIR: **Dr. Poonam Dharam, Saginaw Valley State University, USA**

14:00 - 15:20   (8,45,78,87)

14:00-14:20   Using UAV, IoMT and AI for Monitoring and Supplying of COVID-19
               Patients
               Alexandre Ramos, Pedro Hokama and Antonio Dantas

14:25-14:40   A comprehensive analysis of SARS-CoV-2 in India: Modeling,
               Prediction and Vaccination
               *Debdeep Dey, Sarangi Patel, Tharun Kumar Reddy Karasani and
               Siddharth Sen*

14:40-15:00   Virtual Hospital: a system for remote monitoring of patients with
               COVID-19
               *Vanessa Stangherlin Machado Paixão-Cortes, Walter Ritzel Paixão-
               Cortes, Dorval Thomaz, Felipe de Siqueira Zanella, Gerson Luis da
               Silva Laureano and Ricardo Luis Ravazzolo*

15:00-15:20   Single-cell RNA sequencing data imputation using deep neural network
               *Duc Tran, Hung Nguyen, Bang Tran, Frederick Harris, Nam Vo and
               Tin Nguyen*

SESSION TA4: Blockchain Technology

CHAIR: **Dr. Doina Bein, California State University, Fullerton, USA**

15:20 - 16:20   (13,73,83)

<u>15:20-15:40</u>	Blockchain and IoT: a systematic literature review for access control issues **Andre Mury Carvalho,** *Bruno G. Batista and Adler D. Souza*
<u>15:40-16:00</u>	A Bitcoin Wallet Security System (BWSS) *Ibrahım Alkhammash and* **Waleed Halboob**
<u>16:00- 16:20</u>	Disruptive Technologies for Disruptive Innovations: Challenges and Opportunities **Amjad Gawanmeh** *and Jamal N. Al-Karaki*

Session TA5: Conference Concluding Remarks (Dr. Shahram Latifi)

16:20-17:00   (2020 Awardees and Recognitions, ITNG 2022)

B SESSIONS

SESSION TB1: Biometrics, Pattern Recognition and Classification

CHAIR: **Dr. Doina Bein, California State University, Fullerton, USA**
Co-CHAIR:

9:15-11:15   (72,51,76,70,84,85)

<u>09:15 - 09:35</u>	Framework For Securing Automatic Meter Reading Using Blockchain Technology **Esraa Mahmoud** *and Radwan Tahboub*
<u>09:35 - 09:55</u>	Using Machine Learning to Process Filters and Mimic Instant Camera Effect *Deirdre Chong, John Hanifzai, Hassan Adam,* **Jorge Garcia** *and Jorge Fonseca Cacho*
<u>09:55-10:15</u>	Benchmarking Accuracy and Precision of the Convolutional Neural Networks for Face Recognition on Makeup and Occluded Images **Stanislav Selitskiy**, *Nikolaos Christou and Natalya Selitskaya*
<u>10:15-10:35</u>	Combined Classification Models Applied to People Personality Identification *Flávio B. S. Mota,* **Melise. M. V. de Paula** *and Isabela N. Drummond*
<u>10:35-10:55</u>	A Health Detection Model based on Facial Data **Sunil Manzoor**
<u>10:55-11:15</u>	Performance Comparison of Algorithms Involving Automatic Learned Features and Hand-Crafted Features in Computer Vision **Rocky Gonzazles**

SESSION TB2: Data Sciences

CHAIR: **Dr. Doina Bein, California State University, Fullerton, USA**
Co-CHAIR: **Dr. Wolfgang Bein, University of Nevada, Las Vegas, USA**

11:15-13:15   (3,18,24,27,39,40)

11:15-11:35   Big Data Analytics in Social Media: A triple T (Types, Techniques, and Taxonomy) study
Md. Saifur Rahman and Hassan Reza

11:35-11:55   CARS: A Containerized Amazon Recommender System
Adam Cassell, Andrew Munoz, Brianna Blain-Castelli, Nikkolas Irwin, Feng Yan, Sergiu Dascalu and Frederick Harris

11:55-12:15   Using Technologies to Uncover Patterns in Human Trafficking
Annamaria Szakonyi, Harshini Chellasamy, Andreas Vassilakos and Maurice Dawson

12:15-12:35   Data-driven Identification of Pedagogical and Curricular Factors Conducive to Student Satisfaction
Laura Sorto, Sourav Mukherjee and Vasudevan Janarthanan

12:35-12:55   An Information Quality Framework for College and University Websites
Joseph Elliot and Daniel Berleant

12:55-13:15   An Agile MDD Method for Web Applications with Modeling Language
Breno Romano and Adilson Cunha

13:15- 14:00   **Break**

At 14:00, please join Session A.

Conference Conclusion

End of Schedule…………………………………………………………………..