

**#SKIMA2019 - International Conference on Software, Knowledge, Information Management  
& Applications**

**#AIMaldives2019 – International Workshop on Applied Artificial Intelligence**

**#UkulhasTech2019 - Ukulhas Tech Fair**

**Ukulhas Island, Maldives**

**26 – 28 August 2019**

## **Programme Overview**

**Sunday 25<sup>th</sup> August 2019:** Registration and Tour of the Island

### **Day 1: Monday 26 August 2019**

Formal Conference Inauguration

Keynote 1 - Professor Newton Howard, University of Oxford, UK

Talk title: The Future of the Brain

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| Session 1: Design for Humans |
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| Session 2: Modelling and Simulation |
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Keynote 2 – Professor Maryann Hardy, University of Bradford, UK

Talk title: Artificial Intelligence: Is it to be feared, endured or embraced? A question of ethics

**Evening:** Tech Talks

### **Day 2: Tuesday 27 August 2019**

Panel Discussion - The Future of Artificial Intelligence

Moderator: Professor Ugail. Panel members: Professors Howard, Hardy, Sourina and Bouras.

Session 3: Artificial Intelligence for Tackling Societal Challenges

Keynote 3 – Professor Olga Sourina, Nanyang Technological University, Singapore

Talk title: Human Factors Evaluation Artificial Intelligence Systems

Session 4: Visual Computing for Security and Biometrics

**Evening:** Tech Talks

### **Day 3: Wednesday 28 August 2019**

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| Session 5: Big Data Analytics |
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| Session 6: Enterprise and Ethics |
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Session 7: Healthcare Applications

Keynote 4 – Professor Abdelaziz Bouras, Qatar University, Qatar

Talk title: From Industry to Cultural Heritage Preservation: Deep Learning based Solutions

Closing Ceremony

# Full Programme

**Sunday 25 August 2019: 17.00 – 18.30** Registration and Tour of the Island

## Day 1: Monday 26 August 2019

**08.00 - 08.30** *Arrival and Registration*

**08.30 - 08.45** *Pre-Conference Announcements*

**09.00 - 11.00** *Formal Conference Inauguration*

**11.00 - 11.40** *Keynote 1 - Professor Newton Howard, University of Oxford, UK*

*Talk title: The Future of the Brain*

|                              |                                     |
|------------------------------|-------------------------------------|
| <b>11.40 - 12.30</b>         |                                     |
| Session 1: Design for Humans | Session 2: Modelling and Simulation |

**12.30 - 14.00** *Lunch*

**14.00 - 14.40** *Keynote 2 – Professor Maryann Hardy, University of Bradford, UK*

*Talk title: Artificial Intelligence: Is it to be feared, endured or embraced? A question of ethics*

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| <b>14.40 - 15.20</b>                     |   |
| Session 1: Design for Humans (continued) | Session 2: Modelling and Simulation (continued) |

**15.20 - 15.45** *Break*

**15.45 - 16.00 pm** *Closing Remarks for the Day*

**16.00 - 17.00** *Special Function organised by Ukulhas Council*

**18.30 - 19.45** *Dinner*

**20.00 - 21.00** *Tech Talks*

**21.00 - 23.00** *Entertainment*

## Day 2: Tuesday 27 August 2019

**09.00 - 10.00** *Panel Discussion - The Future of Artificial Intelligence*

*Moderator: Professor Ugail. Panel members: Professors Howard, Hardy and Sourina.*

**10.00 - 11.00** Session 3: Artificial Intelligence for Tackling Societal Challenges

**11.00 - 11.15** *Break*

**11.15 - 12.30** Session 3: Artificial Intelligence for Tackling Societal Challenges (continued)

**12.30 - 14.00** *Lunch*

**14.00 - 14.40** *Keynote 3 – Prof. Olga Sourina, Nanyang Technological University, Singapore*

*Talk title: Human Factors Evaluation Artificial Intelligence Systems*

**14.40 - 15.20** Session 4: Visual Computing for Security and Biometrics

**15.20 - 15.45** *Break*

**15.45 - 16.00** *Closing Remarks for the Day*

**18.30 - 19.45** *Dinner*

**20.00 - 21.00** *Tech Talks*

**21.00 - 23.00** *Entertainment*

### **Day 3: Wednesday 28 August 2019**

|                               |                                  |
|-------------------------------|----------------------------------|
| <b>09.00 - 11.30</b>          |                                  |
| Session 5: Big Data Analytics | Session 6: Enterprise and Ethics |

**11.30 - 12.30** Session 7: Healthcare Applications

**12.30 - 14.00** *Lunch*

**14.00 - 14.30** Session 7: Healthcare Applications (continued)

**14.30 - 15.10** *Keynote 3 – Professor Abdelaziz Bouras, Qatar University, Qatar*  
*Talk title: From Industry to Cultural Heritage Preservation: Deep Learning based Solutions*

**15.30 - 17.00 pm** *Closing Ceremony*

## **Programme for Tech Talks**

### **Monday 26 August 2019 20.00 – 21.00**

Short presentations by, Ministry of Tourism, Ministry of Communication, Science and Technology, Ministry of Youth, Sports and People Empowerment, Waste Management Corporation Limited, Maldives Police Services, Ministry of Health, Maldives Open Source Society, Indeform Ltd, Cloudbeds and Lets Go Maldives and Summer Island Maldives.

### **Tuesday 27 August 2019 20.00 – 21.00**

Presentations by our sponsors - Ooredoo and Damas Maldives

Presentation - "Microbes and the Biodiversity of Reef", by Prof Lotti Tajouri, Bond University, Australia.

Presentation and speech by President Nasheed (former President of the Maldives and the present Speaker of the Maldives Parliament).

Presentations by the Maldives Coral Institute

## Session Details

### Session 1: Design for Humans

**Chair: Syed Akhter Hossain**

[65] Guillermo Díaz and **Andres Iglesias Prieto**. *Evolutionary Behavioral Design of Non-Player Characters in a FPS Video Game Through Particle Swarm Optimization*

[46] Krisztian Varga and **Péter Fehér**. *Identifying Digital Investing Services using Design Thinking Methodology*

[50] Raja Majid Ali Ujjan, Zeeshan Pervez and **Keshav Dahal**. *Snort based Collaborative Intrusion Detection System using Blockchain in SDN*

[23] Thanh Kha Tran, **Hamed Yahoui** and Nicolas Siauve. *An Interactive Approach to Teach Automation in the Training of the Industry 4.0*

[37] Marzia Hoque Tania, Khin T. Lwin, Antesar M. Shabut, Kamal J. Abu-Hassan, M. Shamim Kaiser and **M. A. Hossain**. *Assay Type Detection Using Advanced Machine Learning Algorithms*

### Session 2: Modelling and Simulation

**Chair: Nauman Aslam**

[9] Muhammad Awais Shoukat, Allah Bux Sargano, **Zulfiqar Habib** and Lihua You. *An Automatic Cluster-based Approach for Depth Estimation of Single 2D Images*

[11] **Alexander Malyshev** and Xue-Cheng Tai. *Variational Model for Depth Estimation from Images*

[13] **Ehtzaz Chaudhry**, Jian Chang, Hassan Ugail, Alexander Malyshev, Alfonso Carriazo, Andres Iglesias, Zulfiqar Habib, Allah Bux Sargano, Habibollah Haron, Algirdas Noreika, Lihua You and Jian Jun Zhang. *Modelling and Simulation of Lily flowers using PDE Surfaces*

[54] Almudena Campuzano Jimenez, **Andres Iglesias Prieto** and Akemi Galvez-Tomida. *Free-Form Parametric Fitting of Van der Waals Binodal and Spinodal Curves with Bat Algorithm*

[19] **Alfonso Carriazo**, Carmen Márquez and Hassan Ugail. *On the curve of minimal length between two points on a Bézier surface*

[64] Nureddin Moustafa, Akemi Galvez-Tomida and **Andres Iglesias Prieto**. *Proteus-I: A Flexible and Adaptable Low-Cost General-Purpose Micro-Robot Prototype for Swarm Robotics*

### Session 3: Artificial Intelligence for Tackling Societal Challenges

**Chair: Andres Iglesias Prieto**

[70] Piang-Or Loahavilai and **Nopasit Chakpitak**. *The Rise of Cross-border E-commerce and the Fall of Thai Caravan Traders in China*

[27] Thepparit Sinthamrongruk, **Keshav Dahal**, Xinheng Wang and Muddesar Iqbal. *A Three-Step Scheduling based on Geographic Information System for Workforce Planning and Routing problem*

[76] **Piyachat Udomwong**, Supalin Tiammee, Jirapohn Wongyaia, Somsak Chanaim, Aniwat Phaphuangwittayakul and Lampang Saenchana. *Smart Farming in Thailand*

[35] **Moumita Roy**, Piyali Maur, Chandreyee Chowdhury and Nauman Aslam. *Power Aware Reliable Lightweight (PARL) routing protocol for Wireless Body Area Networks*

[52] Hussien Saleh Altwassi, Zeeshan Pervez and **Keshav Dahal**. *A Burst and Congestion-Aware Routing Metric for RPL Protocol in IoT network*

#### **Session 4: Visual Computing for Security and Biometrics**

**Chair: Irfan Mehmood**

[22] Fahim Faisal and **Syed Akhter Hossain**. *Smart Security System using Face Recognition on Raspberry Pi*

[8] **Ahmad Yahya Dawod** and Nopasit Chakpitak. *Novel Technique for Isolated Sign Language Based on Fingerspelling Recognition*

[66] Bassem Abd-El-Atty, Hassan Ugail, Irfan Mehmood, Mohamed Amin and **Ahmed A. Abd El-Latif**. *An Efficient Cryptosystems Approach based on Logistic-Chebyshev Map*

[49] M. A Adebowale, **K. T Lwin** and M. A Hossain. *Deep Learning with Convolutional Neural Network and Long Short-Term Memory for Phishing Detection*

[61] Dimitrios Sakkos, Hubert P. H. Shum and **Edmond S. L. Ho**. *Illumination-Based Data Augmentation for Robust Background Subtraction*

#### **Session 5: Big Data Analytics**

**Chair: Alamgir Hossain**

[21] Abdelhak Belhi, Housseem Gasmi, Abdulaziz Al-Ali, **Abdelaziz Bouras** and Sebti Foufou. *Deep Learning and Cultural Heritage: The CEPROQHA Project Case Study*

[42] Diloan Zebari, **Habibollah Haron** and Diyar Zeebaree. *A Simultaneous Approach for Compression and Encryption Techniques Using Deoxyribonucleic Acid*

[53] Ankhbayar Otgonbayar, Zeeshan Pervez and **Keshav Dahal**. *Partitioning based Incremental Marginalization Algorithm for Anonymizing Missing Data Streams*

[47] Neera Jeyamohan, Xiaomin Chen and **Nauman Aslam**. *Local Differentially Private Matrix Factorization for Recommendations*

[41] Shabnam Sabah, **Sara Zumerrah Binte Anwar**, Sadia Afroze, Md. Abulkalam Azad, Swakkhar Shatabda and Dewan Farid. *Big Data with Decision Tree Induction*

[40] Md. Yasir Arafat, Sabera Hoque, Shuxiang Xu and **Dewan Farid**. *An Under-Sampling Method with Support Vectors in Multi-class Imbalanced Data Classification*

## **Session 6: Enterprise and Ethics**

**Chair: Olga Sourina**

[38] **Ravi Koirala**, Keshav Dahal and Santiago Matalonga. *A Supply Chain Model with Blockchain-Enabled Reverse Auction Bidding Process for Transparency and Efficiency*

[15] Hayat Ullah and **Irfan Mehmood**. *Real-Time Video Dehazing for Industrial Image Processing*

[58] Dóra Óri and **Zoltán Szabó**. *Towards Dynamic Fit Assessment for Strategic Alignment using Enterprise Architecture Models*

[7] **András Gábor**. *Trust in Digital Transformation*

[36] **Sameeu Imad**. *Remodeling Hospitality Industry through Artificial Intelligence*

[74] **Siraprapa Wattanakul**, Napaporn Reeveerakul, Sebastien Henry and Yacine Ouzrout. *Uncertainty Handling in Containerized Logistics: Unitary Traceability Object Approach*

## **Session 7: Healthcare Applications**

**Chair: Maryann Hardy**

[55] **Hassan Ugail**, Rokas Mackevicius, Maryann Hardy, Andrew Hill, Maria Horne, Trevor Murrells, Judith Holliday and Rajeswaran Chinnadorai. *MotiVar: Motivating Weight Loss through a Personalised Avatar*

[26] Fahim Faisal and **Syed Akhter Hossain**. *IoT Based Remote Medical Diagnosis System Using NodeMCU*

[69] **Hassan Ugail**, Maisun Alzorgani and Samar Betmouni. *A Deep Learning Approach to Tumour Identification in Fresh Frozen Tissues*

[75] **Jensen Selwyn Joymangul**, Aicha Sekhari, Nejib Moalla and Olivier Grasset. *Data Oriented Approach to Improve Adherence to CPAP during the Initiation Phase of the Therapy*

[67] Akemi Galvez-Tomida, **Andres Iglesias Prieto**, Hassan Ugail, Lihua You, Habibollah Haron and Zulfiqar Habib. *Firefly Algorithm Approach for Rational Bezier Border Reconstruction of Skin Lesions from Macroscopic Medical Images*

## **Posters**

[56] (poster) **Kitti Puritat** *Applying clustering based model for Smart map of urban government. Identifying homogeneous clustering of Gamified crowdsourcing based on urban problems of Chiang Mai Thailand*

[72] (poster) **Pathathai Lumpoon** and Pree Thiengburanathum. *A Design and Implementation of Performance Dashboard for the Work Integrated Learning Unit*

[62] (poster) **Kannikar Intawong** *Development of the Artificial Intelligent Thai word prediction system by using Assistive Technology for students with learning disabilities*

## **Ukulhas Tech Fair Exhibitors**

Ooredoo, Maldives

Damas, Maldives

Ministry of Tourism, Maldives

Ministry of Communication, Science and Technology, Maldives

Ministry of Youth, Sports and People Empowerment, Maldives

Waste Management Corporation Limited, Maldives

Maldives Police Services

Housing Development Corporation, Maldives

Ministry of Housing and Infrastructure, Maldives

Ministry of Health, Maldives

Department of National Registration, Maldives

National Integrity Commission, Maldives

For Loop Coding Academy, Maldives

Open Source Society, Maldives

University of Cantabria, Spain

Indeform Ltd, Lithuania

Cloudbeds, USA

Lets Go Maldives

Summer Island Maldives