



## ICMLA 2014 Program Schedule Marriott Detroit Renaissance Center, Detroit, Michigan 48243

| Day 1: Wednesday, December 3, 2014 |  |   |  |
|------------------------------------|--|---|--|
| 7:30AM - 8:30AM                    | Light Breakfast                                      |   |  |
| 8:30AM - 8:45AM                    | Open Remark  |   |  |
| 8:45AM - 10:25AM                   | Room: Ambassador I<br>Chair: Fares Hedayati          | Room: Brule A<br>Chair: Ali Bou Nassif                            | Room: Brule B<br>Chair: Moamar Sqyed-mouchaweh   |
|                                    | <b>Session: Information Retrieval I</b>              | <b>Special Session: Machine Learning for Predictive Models I</b>  | <b>Session: Ensemble Methods</b>                 |
| 10:25AM - 10:40AM                  | Coffee Break   |   |  |
| 10:40AM - 12:20PM                  | Room: Ambassador I<br>Chair: Kaushik Sinha           | Room: Brule A<br>Chair: Ali Bou Nassif                            | Room: Brule B<br>Chair: Bo Luo                   |
|                                    | <b>Session: Information Retrieval II</b>             | <b>Speical Session: Machine Learning for Predictive Models II</b> | <b>Session: Feature Extraction and Selection</b> |
| 12:20AM - 1:20AM                   | Lunch  |   |  |
| 1:20PM - 3:00PM                    | Room: Ambassador I                                   |   |  |
|                                    | <b>Tutorials: Big Data Industry (Jayashree Ravi)</b> |   |  |
| 3:00PM - 3:20PM                    | Coffee Break   |   |  |
| 3:20PM - 5:00PM                    | Room: Ambassador I                                   |   |  |
|                                    | <b>Tutorials: Big Data Industry (Jayashree Ravi)</b> |   |  |

|        |                   |
|--------|-------------------|
| 5:30PM | Room:Ambassador I |
|        | <b>reception</b>  |

| Day 2: Thursday, December 4, 2014 |   |  |  |
|-----------------------------------|---|--|--|
| 7:30AM - 8:30AM                   | Light Breakfast   |  |  |
| 8:45 AM - 10:00AM                 | Room:Ambassador I   |  |  |
|                                   | <b>Keynote Speech (Prof. Inderjit Dhillon)</b>            |  |  |
| 10:00AM - 10:15AM                 | Coffee Break  |  |  |
| 10:15AM - 12:00AM                 | Room: Ambassador I<br>Chair: Ching-Hua Chuan              | Room: Brule A<br>Chair: Seref Sagiroglu  | Room: Brule B<br>Chair: Adel Aloraini  |
|                                   | <b>Session: Neural Networks I</b>                         | <b>Special Session: Machine Learning in Information and System Security Issues</b> | <b>Workshop: Machine learning of graphical models in static and dynamic complex environments</b> |
| 12:00AM - 1:00PM                  | Lunch   |  |  |
| 1:15PM - 2:15PM                   | Room:Ambassador I   |  |  |
|                                   | <b>Keynote Speech (Prof. Andrew Ng) (videoconference)</b> |  |  |
| 2:15PM - 3:55PM                   | Room:Ambassador I<br>Chair: Dongxiao Zhu                  | Room: Brule A<br>Chair: Ilhami Colak   | Room: Brule B<br>Chair: Imme Ebert-Uphoff  |
|                                   | <b>Session: Neural Network II</b>                         | <b>Special Session: Machine Learning in Energy Applications</b>                    | <b>Session: Medicine and Bioinformatics</b>  |
| 3:55PM - 4:10PM                   | Coffee Break  |  |  |
| 4:10PM - 5:40PM                   | Room: Ambassador I  |  |  |
|                                   | <b>Poster Session</b>                                     |  |  |
| 6:00PM -                          | Banquet   |  |  |

| Day 3: Friday, December 5, 2014 |  |   |   |
|---------------------------------|--|---|---|
| 7:30AM - 8:30AM                 | Light Breakfast                            |   |   |
| 8:45AM - 10:25AM                | Room:Ambassador I<br>Chair: Cesar Ferri    | Room: Brule A<br>Chair: Halil Ibrahim BÜLBÜL                          | Room: Richard B<br>Chair: Arif Wani       |
|                                 | <b>Session: Machine Learning I</b>         | <b>Special Session: Machine Learning Applications in Education I</b>  | <b>Session: Science and Industry</b>      |
| 10:25AM - 10:40AM               | Coffee Break                               |   |   |
| 10:40AM - 12:20AM               | Room:Ambassador I<br>Chair: Edwin Lughofer | Room: Richard A<br>Chair: Halil Ibrahim BÜLBÜL                        | Room: Richard B<br>Chair: Chang-Dong Wang |
|                                 | <b>Session: Machine Learning II</b>        | <b>Special Session: Machine Learning Applications in Education II</b> | <b>Session: Semi-Supervised Learning</b>  |

|                  |  |  |   |
|------------------|--|--|---|
| 12:20AM - 1:20AM | Lunch  |  |   |
| 1:20PM - 3:00PM  | Room:Ambassador I<br>Chair: Jeremy Marvel      | Room: Brule A<br>Chair: Arif Wani                                      | Room: Richard B<br>Chair: Arif Wani   |
|                  | <b>Session: Real-time Systems and Industry</b> | <b>Workshop: Machine Learning Algorithms, Systems and Applications</b> | <b>Special Session: Machine Learning in Visual Information Processing</b>                           |
| 3:00PM - 3:20PM  | Coffee Break                                   |  |   |
| 3:20PM - 5:00PM  | Room:Ambassador I<br>Chair: Cesar Ferri        | Room: Brule A<br>Chair: Guangzhi                                       | Room: Brule B<br>Chair: Moamar Sayed-Mouchaweh  |
|                  | <b>Session: Medicine, Science and Music</b>    | <b>Session: Applications in Security</b>                               | <b>Special Session: Adaptive Data-Driven Modeling in Dynamic Environments and On-line Processes</b> |

### Session: Ensemble Methods

Ensemble Statistical and Heuristic Models for Unsupervised Word Alignment  
*Mahsa Mohaghegh\**; *Mehdi Mohammadi*

Improving Spectral Learning by Using Multiple Representations  
*Adam Drake\**; *Dan Ventura*

Applying Swarm Ensemble Clustering Technique for Fault Prediction Using Software Metrics  
*Rodrigo Coelho\**; *Fabrcio Guimarães*; *Ahmed Esmn*

Reducing the Effects of Detrimental Instances  
*Michael Smith\**; *Tony Martinez*

Concept Drift Awareness in Twitter Streams  
*Joana Costa\**; *Catarina Silva*; *Mário Antunes*; *Bernardete Ribeiro*

### Session: Applications in Security

High Precision Screening for Android Malware with Dimensionality Reduction  
*Britton Wolfe\**; *Karim Elish*; *Danfeng (Daphne) Yao*

Reducing the Cost of Breaking Audio CAPTCHAs by Active and Semi-Supervised Learning  
*Malte Darnstädt*; *Hendrik Meutzner\**; *Dorothea Kolossa*

Q-Learning: From Computer Network Security To Software Security  
*Solofoarisina Randrianasolo\**; *Larry Pyeatt*

On-line Signature Verification using Symbolic Aggregate Apprximation (SAX) and Sequential Minimal Optimization (SMO)  
*Rakesh Deivachilai*; *Tim Oates*

Detection of abnormal human behavior using a matrix approximation-based approach  
*Lijun Wang\**; *Ming Dong*

### Session: Information Retrieval I

Modelling Mutual Information Between Voiceprint and Optimal Number of Mel-frequency Cepstral Coefficients in Voice Discrimination  
*Kin Wah Edward Lin\**; *Tian Feng*; *Natalie Agus*; *Clifford So*; *Simon Lui*

LSH vs Randomized Partition Trees : Which One to Use for Nearest Neighbor Search?  
*Kaushik Sinha\**

Topic Detection in Instant Messages  
*Han Zhang*; *Chang-Dong Wang\**; *Jian-Huang Lai*

Automated scoring of the Level of Conceptual/Integrative Complexity from Text using Machine Learning  
*Aardra Kannan Ambili\**; *Khaled Rasheed*

### Session: Information Retrieval II

Extraction of Unexpected Rules from Twitter Hashtags and its Application to Sport Events  
*Mariam Adedoyin-Olowe\**; *Mohamed Gaber*; *Carlos Dancausa*; *Frederic Stahl*

Using Spectral Features to Improve Sentiment Analysis  
*Adam Drake*; *Dan Ventura\**

Recommendation Systems for Markets with Two Sided Preferences  
*Anjan Goswami\**; *Fares Hedayati*; *Prasant Mohapatra*

### Session: Neural Networks I

Human action recognition based on recognition of linear patterns in action bank features using convolutional neural networks  
*Earnest Paul Ijjina\**; *Krishna Mohan C*

A Cyclic Contrastive Divergence Learning Algorithm for High-order RBMs  
*Dingsheng Luo\**; *Yi Wang*; *Xiaoqiang Han*; *Xihong Wu*

Facial expression recognition using kinect depth sensor and convolutional neural networks  
*Earnest Paul Ijjina\**; *Krishna Mohan C*

Improving Performance on Problems with Few Labelled Data by Reusing Stacked Auto-Encoders  
*Telmo Amaral\**; *Chetak Kandaswamy*; *Luís Silva*; *Luís Alexandre* ; *Joaquim Marques de Sá* ; *Jorge Santos*

An Analysis of Instance Selection for Neural Networks to Improve Training Speed  
*Xunhu Sun\**; *Philip Chan*

### Session: Neural Network II

Human action recognition based on MOCAP information using convolution neural networks  
*Earnest Paul Ijjina\**; *Krishna Mohan C*

Improving Named Entity Recognition for Morphologically Rich Languages using Word Embeddings  
*Hakan Demir\**; *Arzucan Özgür*

Multi-variable Neural Network Forecasting Using Two Stage Feature Selection  
*Rohit Rawat\**; *Kunal Vora*; *Michael Manry*; *Gautam Eapi*

Adaptive restructuring of radial basis functions using integrate-and-fire neurons  
*Jeremy Marvel\**

One-shot periodic activity recognition using Convolutional Neural Networks  
*Earnest Paul Ijjina\**; *Krishna Mohan C*

### Session: Semi-Supervised Learning

Semi-Supervised Kernel-Based Temporal Clustering  
*Rodrigo Araujo\**; *Mohamed Kamel*

Learning to Rank with Only Positive Examples  
*Mingzhu Zhu\**; *Wei Xiong*; *Yifang Wu*

Geometric PDEs on weighted graphs for semi-supervised classification  
*Mathieu Toutain\**; *Abderrahim Elmoataz*; *Olivier Lezoray*

Post-Processing Association Rules using Networks and Transductive Learning  
*Renan Padua\**; *Veronica Carvalho*; *Solange Rezende*

Variational Inference on Infinite Mixtures of Inverse Gaussian, Multinomial Probit and Exponential  
*Minhazul Islam Sk\**; *Arunava Banerjee*

### Session: Real-time Systems and Industry

A Hybrid Genetic-Programming Swarm-Optimisation Approach for Examining the Nature and Stability of High Frequency Trading Strategies  
*Andreea-Ingrid Funie\**; *Mark Salmon*; *Wayne Luk*

Sequential Logistic Principal Component Analysis (SLPCA): Dimensional Reduction in Streaming Multivariate Binary-State System  
*Zhaoyi Kang\**; *Costas Spanos*

Using k-Nearest Neighbor and Speaker Ranking for Phoneme Prediction  
*Muhammad Rizwan\**; *David Anderson*

A Machine Learning Approach to Combining Individual Strength and Team Features for Team  
*Haibin Liu\**; *Mu Qiao*; *Daniel Greenia*; *Rama Akkiraju*; *Stephen Dill*; *Taiga Nakamura*; *Yang Song*; *Hamid Motahari Nezhad*

Genetically Supervised Self-Organizing Map for the Classification of Glass Samples  
*Richard deGroof*; *Iren Valova\**

### Session: Machine Learning I

Bayesian Nonparametric Inverse Reinforcement Learning for Switched Markov Decision Processes  
*Amit Surana\**; *Kunal Srivastava*

State Abstraction in Reinforcement Learning by Eliminating Useless Dimensions  
*Zhao Cheng\**; *Laura Ray*

A knowledge growth and consolidation framework for lifelong machine learning systems  
*Fernando Martinez Plumed\**; *José Hernández-Orallo*; *Maria Jose Ramírez-Quintana*; *César Ferri*

LaCova: A Tree-Based Multi-Label Classifier using Label Covariance as Splitting Criterion  
*Reem Al-Otaibi\**; *Meelis Kull*; *Peter Flach*

Combining Exact And Metaheuristic Techniques For Learning Extended Finite-State Machines From Test Scenarios and Temporal Properties  
*Daniil Chivilikhin\**; *Vladimir Ulyantsev*; *Anatoly Shalyto*

### Session: Machine Learning II

A Switch-and-Restart Algorithm with Exponential Restart Strategy for Objective Selection and its Runtime Analysis  
*Maxim Buzdalov\**

Adding Diversity to Rank Examples in Anytime Nearest Neighbor Classification  
*Cristiano Lemes\*; Diego Silva; Gustavo Batista*

Improved kNN Rule for Small Training Sets  
*Sunsern Cheamanunkul\*; Yoav Freund*

Computation of a Rejection Threshold used for the Bayes Classifier  
*Matthias Blankenburg\*; Christian Bloch; Jörg Krüger*

### Session: Science and Industry

Improving Robustness of Gaussian Process-based Inferential Control System using Kernel Principle Component Analysis  
*Ali Abusnina\*; Daniel Kudenko; Rolf Roth*

Arctic Sea Ice Extent Forecasting Using Support Vector Regression  
*Tyler Reid\*; Paul Tarantino*

WiFi Localization For Mobile Robots based on Random Forests and GPLVM  
*Reda Elbasiony\**

Example-Dependent Cost-Sensitive Logistic Regression for Credit Scoring  
*Alejandro Correa Bahnsen\*; Djamilia Aouada; Björn Ottersten*

### Special Session : Machine Learning for Predictive Models I

Using Balanced Random Forests on Load Spectrum Data for Classifying Component Failures of a Hybrid Electric Vehicle Fleet  
*Philipp Bergmeir, Christof Nitsche, Jürgen Nonnast, Michael Bargende, Peter Antony, Uwe Keller*

Multimodal Sparsity-Eager Support Vector Machines for Music Classification  
*Kamelia Aryafar, Ali Shokoufandeh*

A Better Case Adaptation Method for Case-Based Effort Estimation Using Multi-Objective Optimization  
*Mohammad Azzeh, Ali Bou Nassif, Shadi Banitaan*

Employing Markov Networks on Curriculum Graphs to Predict Student Performance  
*Ahmad Slim, Gregory Heileman, Jarred Kozlick, Chaouki Abdallah*

### Special Session : Machine Learning for Predictive Models II

Leveraging Machine Learning Algorithms to Perform Online and Offline Highway Traffic Flow Prediction  
*Arezou Moussavi-Khalkhali, Mo Jamshidi*

OUPS: A Combined Approach Using SMOTE and Propensity Score Matching

*William A. Rivera, Amit Goel, and J. Peter Kincaid*

A Comparison of Supervised Machine Learning Techniques for Predicting Short-Term In-Hospital Length of  
*April Morton, Eman Marzban, Georgios Giannoulis, Ayush Patel, Raj Aparasu, Ioannis Kakadiaris*

Comparative Study of Different Classification Techniques: Heart Disease Use Case  
*Hanan Bouali, Jalel Akaichi*

### Special Session: Machine Learning Applications in Education I

A Genetic Algorithm Approach to Partitioning Clustering : A case study on M.Sc. applicants  
*Kittichai Lavangnananda, Ratipong Poolphol*

American Sign Language Recognition Using Leap Motion Sensor  
*Ching-Hua Chuan, Eric Regina, caroline Guardino*

Learner Engagement Measurement and Classification in 1:1 Learning  
*Sinem Aslan, Zehra Cataltepe, Itay Diner, Onur Dundar, Asli Esme, Ron Ferens, Gila Kamhi, Ece Oktay,*

An Intelligent Tutoring System for Argument-Making in Higher Education: A Pilot Study  
*Ching-Hua Chuan, Daniel Dinsmore, Joseph Schmuller, Tyler Morris*

### Special Session: Machine Learning Applications in Education II

Automatically filtering irrelevant words for applications in language acquisition  
*Gihad Sohsah, Emrah Akkurt, Ilkin Safarli, Muhammed Unal, Onur Guzey*

A Clustering-based Grouping Model for Enhancing Collaborative Learning  
*Yulei Pang, feiya xiao, Xiaozhen Xue*

Improving an Early Warning System to Prediction of Student Examination Achievement  
*Halil Ibrahim Bulbul, Hanife Goker*

Investigating sentimental relation between social media presence and academic success of Turkish University  
*Sedef Gunduz, Fatih Demirhan, Seref Sagiroglu*

### Special Session: Machine Learning in Information and System Security Issues

Next Generation Application-Layer DDoS Defences: Applying the Concepts of Outlier Detection in Data Streams with Concept Drift  
*Dusan Stevanovic, Natalija Vlajic*

TSD: Detecting Sybil Accounts in Twitter  
*Mansour Alsaleh, Abdulrahman Alarifi, AbdulMalik Al-Salman, Mohammed Alfayez, Abdulmajeed*

An Intelligent Technique for Detecting Malicious Users on Mobile Stores  
*Ramazan Terzi, Semra Cakir, Mazlum Derse, Duygu Sinanc, Gizem Yavanoglu, Seref Sagiroglu*

Age Estimation from Fingerprints: Examination of the Population in Turkey  
*Eyup Burak Ceyhan, Sinan Tatoglu, Ercan Atagun, Seref Sagiroglu*

### Special Session: Machine Learning in Energy Applications

Diagnosis using incomplete model in fuzzy discrete event system: Application to crisis management  
*Moussa Traore, Eric Chatelet, Eddie Soulier, Hossam Gaber*

Incremental SVD for Insight into Wind Generation  
*Chandrika Kamath, Ya Ju Fan*

Transient Characteristics of DC-DC Converter with PID Parameters Selection and Neural Network Control  
*Daiki Mitsutake, Hidenori Maruta, Fujio Kurokawa*

Intelligent Crude Oil Price Forecaster  
*Ardalan Tebyanian, Fares Hedayati*

#### **Workshop: Machine Learning Algorithms, Systems and Applications**

Improved Selection of Auxiliary Objectives using Reinforcement Learning in Non-Stationary Environment  
*Arina Buzdalova, Arina Buzdalova, Maxim Buzdalov*

A New Algorithm for Adaptive Online Selection of Auxiliary Objectives  
*Arina Buzdalova, Maxim Buzdalov*

Iterative Hard Thresholding for Keyword Extraction from Large Text Corpora

*Steven Yadlowsky, Preetum Nakkiran, Jingyan Wang, Rishi Sharma, Laurent El Ghaoui*

A Novel Bayesian Network Based Scheme for Finding the Optimal Solution to Stochastic Online Equi-  
*Sondre Glimsdal and Ole-Christoffer Granmo*

Automatic Gender Classification System from Finger 2D: 4D Ratio and Comparison of Successes with  
*Eyüp Burak Ceyhan, Seref Sagiroglu, Ramazan Cesur, and Kadriye Öner*

#### **Special Session: Adaptive Data-Driven Modeling in Dynamic Environments and On-line Processes**

Dynamic Inclusion of New Event Types in Visual Inspection using Evolving Classifiers  
*Edwin Lughofer, Eva Weigl, Wolfgang Heidl, Thomas Radauer*

Speeding Learning of Personalized Audio Equalization  
*Bongjun Kim, Bryan Pardo*

A Semi-Supervised Clustering Approach for Semantic Slot Labelling  
*Heriberto Cuayahuitl, Nina Dethlefs, Helen Hastie*

#### **Special Session: Machine Learning in Visual Information Processing**

Multimodal Music and Lyrics Fusion Classifier for Artist Identification  
*Kamelia Aryafar, Ali Shokoufandeh*

Machine-Sourced Segmentations vs. Expert-Sourced Segmentations for the Classification of Lung Nodules  
*Mayra Molina-Puentes, Jacob Furst, Daniela Raicu*

Tool Machines with Brains - Touchless Wheel Alignment with Neural Networks  
*Karl-Heinz Weis*

Performance Comparison of Major Classical Face Recognition Techniques  
*Farooq Bhat, Mohd Wani*

Assessment of Different Image Clutter Metrics using Multivariate Analyses and Neurofuzzy System  
*Deok Nam, Harpreet Singh*

#### **Session: Feature Extraction and Selection**

Activity Recognition Using Graphical Features  
*Syeda Akter\*; Lawrence Holder*

An Accurate, Fast Embedded Feature Selection for SVMs  
*Tarfa Hamed\*; Rozita Dara; Stefan Kremer*



Learning Good Features To Track  
*Raed Almomani\**; *Ming Dong*

Feature Selections for Effectively Localizing Faulty Events in GUI Applications  
*Xiaozhen Xue*; *Yulei Pang*; *Akbar Siami-Namin\**

Dimensionality Reduction in Statistical Learning  
*Alexander Bernstein\**; *Alexander Rulshov*

#### **Workshop: Machine learning of graphical models in static and dynamic complex environments**

Causal Discovery from Spatio-Temporal Data with Applications to Climate Science  
*Imme Ebert-Uphoff*, *Yi Deng*

Graphical Model Based Approach for Fault Diagnosis of Wind Turbines  
*Adel Oraini*, *Moamar Moamar Sqyed-mouchaweh*

A directed acyclic graphical approach and ensemble feature selection for a better drug-design using partial  
*Adel Oraini*

#### **Session: Medicine and Bioinformatics**

Varying Coefficient Models for Analyzing the Effects of Risk Factors on Pregnant Women's Blood Pressure  
*Wenshuai Cheng\**; *Liyang Fang*; *Lin Yang*; *Han Zhao*; *Pu Wang*; *Jianzhuo Yan*

Learning Score Systems for Patient Mortality Prediction in Intensive Care Units via Orthogonal Matching  
*Aadirupa Saha\**; *Chandahas Dewangan*; *Harikrishna Narasimhan*; *Sriram Sampath*; *Shivani Agarwal*

Implementation of machine learning for classifying hemiplegic gait disparity through use of a force plate  
*Robert LeMoyné\**; *Wesley Kerr*; *Timothy Mastroianni* ; *Anthony Hessel*

ExpertBayes: Automatically refining manually built Bayesian networks  
*Ezilda Almeida*; *Pedro Ferreira*; *Tiago Vinhoza*; *Inês Dutra\**; *Yirong Wu*; *Elizabeth Burnside*

Time Warping Symbolic Aggregation Approximation with Bag-of-Patterns Representation for Time Series  
*Zhiguang Wang\**; *Tim Oates*

#### **Session: Medicine, Science and Music**

Protein Conformation Motion Modeling using sep-CMA-ES  
*Maxim Buzdalov\**; *Sergey Knyazev*; *Yury Porozov*

Budgeted Learning for Developing Personalized Treatment

*Kun Deng\**

Visualising Singing Style Under Common Musical Events Using Pitch-Dynamics Trajectories and Modified  
*Kin Wah Edward Lin\**; *Hans Anderson*; *Natalie Agus*; *Clifford So*; *Simon Lui*

Supervised Music Chord Recognition  
*Imad Rida\**; *Gilles Gasso* ; *Romain Hernaut*

Uncertainty Quantified Matrix Completion using Bayesian Hierarchical Matrix Factorization  
*Farideh Fazayeli\**; *arindam Banerjee*; *Jens Kattge* ; *Franziska Schrodt* ; *Peter Reich*,