

# **2015 2nd National Foundation for Science and Technology Development Conference on Information and Computer Science (NICS 2015)**

**Ho Chi Minh City, Vietnam  
16-18 September 2015**



**IEEE Catalog Number: CFP15C61-POD  
ISBN: 978-1-4673-6641-0**

# Table of Contents

Message from the NICS'15 General Chairs .....	xi
Preface.....	xii
Executive Committee .....	xiii
Technical Program Committee.....	xv
Additional Reviewers.....	xx
Keynote Abstract .....	xxi

## Communications and Networking

• On the design of service management system for cloud computing Van-Hau Pham (University of Information Technology, Vietnam), Quan Le-Trung (University of Information Technology - VNUHCM, Vietnam), Dac-Hoang Nguyen (International University, Vietnam).....	N/A
• Autonomic Fine-grained Migration and Replication of Component-based Applications across Multi- Clouds Linh M Pham (University of Grenoble Alpes, France), Tuan-Minh Pham (HNUE, Vietnam) .....	5
• DBTRU, a new NTRU-like cryptosystem based on dual binary truncated polynomial rings Thang Minh Cao (Posts and Telecommunications Institute of Technology, Vietnam), Binh Nguyen (PTIT University, Vietnam) .....	11

## Foundation of Computer Science

• Checking Topological Integrity Constraints Imposed on Objects in Real-Time Databases Chung Pham (Industry University HCM city, Vietnam), Phong Vu (HCM University of IT, Vietnam) .. .....	17
• Reversible image watermarking on prediction errors by balance the capacity of negative and positive histogram Duc M. Duong (University of Information Technology, Vietnam), Tri Nguyen (University of Information Technology, Vietnam), Duc Anh Duong (University of Information Technology, Vietnam).....	22
• An Analysis of Persuasive Text Passwords Trang Nguyen (Vietnam Trade Union University, Vietnam), Uy Nguyen (Le Quy Don Technical University, Vietnam) .....	28

## Software Engineering

• Hand Gesture Recognition Based on Depth Image Using Kinect Sensor	
Vinh Truong Quang (Ho Chi Minh City University of Technology, Vietnam), Tri Nguyen Trong (Ho Chi Minh City University of Technology, Vietnam).....	34
• Multi-Tenant Web Application Framework Architecture Pattern	
Ngo Huy Bien (Ho Chi Minh University of Science, Vietnam), Tran Thu (Ho Chi Minh University of Science, Vietnam).....	40
• Integrating and checking access permissions in object oriented models	
Huong Dao (UET, Vietnam), Khanh To (VNU, Vietnam), Thuan Truong (VNU - University of Engineering and Technology, Vietnam), Chu Quang Ton (VNU, Vietnam), Nguyen Viet Ha (VNU Ha Noi, Vietnam).....	49

## Computational Intelligence

• Obstacle detection and warning for visually impaired people based on electrode matrix and mobile Kinect	
Van-Nam Hoang (MICA, HUST, Vietnam), Thanh Huong Nguyen (Hanoi University of Science and Technology & MICA, Vietnam), Thi-Lan Le (MICA, HUST, Vietnam), Thi-Thanh-Hai Tran (Hanoi University of Science and Technology, Vietnam), Tan Phu Vuong (Grenoble INP, France), Nicolas Vuillerme (University of Grenoble, France) .....	54
• EduICR - an Intelligent Call Routing system	
Thien Khai Tran (Ho Chi Minh City University of Foreign Languages and Information Technology (Huflit), Vietnam), Nguyen Tan Duy (HUFLIT, Vietnam), Dinh Hoa Minh (HUFLIT, Vietnam), Vo Hong Phuong (HUFLIT, Vietnam), Pham Minh Dung (HUFLIT, Vietnam), Huynh Van Binh (HUFLIT, Vietnam) .....	N/A
• A robust and effective algorithmic framework for incomplete educational data clustering	
Chau Vo (Ho Chi Minh City University of Technology, Vietnam), Phung Nguyen (CSE/Ho Chi Minh City University of Technology, Vietnam), Vo Thi Ngoc Tran (Ho Chi Minh City University of Technology, Vietnam) .....	65
• Highly Noise Resistant Beltrami-based Texture Maps with Window Derivative	
Van Thai Nguyen (University of Technology, VNU-HCM Ho Chi Minh City, Vietnam), D�ng Trung V� (Samsung Information Systems America (Samsung Electronics US R&D Center ), USA), Tuan Do-Hong (Ho Chi Minh City University of Technology, Vietnam).....	71
• Disease phenotype similarity improves the prediction of novel disease-associated microRNAs	
Duc-Hau Le (Water Resources University, Vietnam) .....	76

## Computational Intelligence

• Similarity search in multiple high speed time series streams under Dynamic Time Warping	
Giao Cong Bui (SaiGon University, Vietnam), Tuan Anh Duong (Ho Chi Minh City University of Technology, Vietnam) .....	82
• Stochastic Gradient Descent Support Vector Clustering	

Tung Pham (HCMc University of Nature Science, Vietnam), Hang Dang (HCMc University of Nature Science, Vietnam), Trung Le (HCMc University of Pedagogy, Vietnam), Le Hoang Thai (University of Science, Ho Chi Minh city., Vietnam) .....	88
--	----

• **Adaptable Linear Support Vector Machine**

Trung Le (HCMc University of Pedagogy, Vietnam), Van Nguyen (HCMc University of Pedagogy, Vietnam), Anh Le (HCMc University of Pedagogy, Vietnam), Khanh Nguyen (HCMc University of Pedagogy, Vietnam).....	94
---	----

• **Using Feature of Nose and HAT-MARS Descriptor for Face Recognition with Pose Variance**

Tan Thai (University of Science, Vietnam), Le Hoang Thai (University of Science, Ho Chi Minh city., Vietnam).....	99
---	----

## Wireless Communications

• **Design of a Loop Patch Antenna System with Improved Bandwidth for 2.4-GHz WLAN Applications**

Vo Hong Ngan (Mekong University, Vietnam), Luong Vinh Quoc Danh (Cantho University & College of Engineering, Vietnam).....	105
--	-----

• **On the design of Wireless Access Smart Grid network on 868 Mhz frequency band**

Lap Luat Nguyen (International University, HCMC VNU Vietnam, Vietnam), Nguyen Minh Triet (International University, Vietnam), Mai The Kien (HCMIU, Vietnam), Le Quoc Cuong (DIC, Ho Chi Minh City, Vietnam), Tuan-Duc Nguyen (International University, HCMC VNU, Vietnam).....	110
---	-----

• **A Problem of Fractional Signal Processing**

Tran Thao (Institute of Mathematics & Vietnam Academy of Science and Technology, Vietnam), Hoang Thi Phuong Thao (VNU, Vietnam) .....	115
---	-----

• **A novel CPA-secure probabilistic encryption scheme based-on pNE cryptosystem**

Thang Minh Cao (Posts and Telecommunications Institute of Technology, Vietnam), Trung Nguyen (PTIT University, Vietnam), Binh Nguyen (PTIT University, Vietnam).....	119
--	-----

• **A Novel Workflow Scheduling Algorithm in Cloud Environment**

Toan Phan Thanh (Ha Noi National University of Education, Vietnam), Nguyen The Loc (Faculty of Information Technology, Vietnam), Nguyen Doan Cuong (Military Institute of Science and Technology, Vietnam) .....	125
--	-----

## Computational Intelligence

• **Combining local features for gender classification**

Huu-Tuan Nguyen (Faculty of Information Technology, Vietnam Maritime University & 484 Lach tray, Ngo Quyen, Hai phong, Vietnam).....	130
--	-----

• **Mixture of Support Vector Data Descriptions**

Vinh Lai (HCMc University of Pedagogy, Vietnam), Duy Nguyen (HCMc University of Pedagogy, Vietnam), Khanh Nguyen (HCMc University of Pedagogy, Vietnam), Trung Le (HCMc University of Pedagogy, Vietnam).....	135
---	-----

• **Semi-supervised Approach Based on Co-occurrence Coefficient for Named Entity Recognition on Twitter**

Van Cuong Tran (Yeungnam University, Korea), Dosam Hwang (Yeungnam University, Korea), Jason J. Jung (Chung-Ang University, Korea) .....	141
---	-----

• PageRank-Based Approach on Ranking Social Events: a Case Study with Flickr	
Tuong Tri Nguyen (Yeungnam University, Korea), Hoang Long Nguyen (Yeungnam University, Korea), Dosam Hwang (Yeungnam University, Korea), Jason J. Jung (Chung-Ang University, Korea) .....	147

## Optical Networks

• Effects of Noise and Distortion on Performance of OFDM Millimeter-wave RoF Systems	
Thu Pham (Posts and Telecommunications Institute of Technology, Vietnam), Hien Pham (Posts and Telecommunications Institute of Technology, Vietnam), Lam Vu (Posts and Telecommunications Institute of Technology, Vietnam), Ngoc Dang (Posts and Telecommunications Institute of Technology, Vietnam) .....	153
• A New Auto Synchronization Technique of Unipolar MPAM Signals for OFDM-Based Optical Wireless Communication Systems	
Khoa Dang (University of Science, Ho Chi Minh City, Vietnam), Phuong Nguyen (University of Science, Ho Chi Minh City, Vietnam), Hiroshi Ochi (Kyushu Institute of Technology, Japan) .....	158
• Performance of Amplify-and-Forward Relaying MIMO Free-Space Optical Systems over Weak Atmospheric Turbulence Channels	
Ha Duyen Trung (Hanoi University of Science and Technology, Vietnam), Tuan Do Trong (Hanoi University of Science and Technology, Vietnam) .....	163
• Dynamic Multi-domain Elastic Optical Networks with 4R Regeneration Capable Border Nodes	
Hai Chau Le (Posts and Telecommunications Institute of Technology, Vietnam), Ngoc Dang (Posts and Telecommunications Institute of Technology, Vietnam), San Vu Van (Posts and Telecommunications Institute of Technology, Vietnam) .....	169

## Software Engineering

• Fast and Formalized: Heuristics-based On-the-fly Web Service Composition and Verification	
Khai Huynh (Ho Chi Minh City University of Technology, Vietnam), Quan Thanh Tho (HCMUT, Vietnam), Bui Hoai Thang (HCMUT, Vietnam) .....	174
• Research Ethics in Human-Computer Interaction: A Review of Ethical Concerns in the Past Five Years	
Lumpapun Punchoojit (Thammasat University, Thailand), Nuttanont Hongwarittorn (Thammasat University, Thailand) .....	180
• Optimizing High Frequency RFID Reader Antenna	
Xuan Bach Nguyen Duy (University of Technology HCM - VNU, Vietnam), Anh-Vu Dinh-Duc (University of Information Technology, Vietnam) .....	186

## Computational Intelligence

• Extracting Semantic Relations Between Vietnamese Legislative Documents	
--	--

Hai Nguyen (Posts and Telecommunications Institute of Technology, Vietnam), Tan Hanh (Posts and Telecommunications Institute of Technology, Vietnam), Thinh Huynh (Kyung Hee University, Korea) .....	191
• Vector Quantization: A Discretization Technique for Fast Time Series Discord Discovery .....	
Anh Le (Ho Chi Minh City University of Transport, Vietnam), Dang Nguyen Quoc (Ho Chi Minh City University of Transport, Vietnam), Nguyen Nguyen Pham The (Ho Chi Minh City University of Transport, Vietnam), Bay Vo (Ton Duc Thang University, Vietnam) .....	197
• Support Vector Machine algorithm for human fall recognition Kinect-Based skeletal data .....	
Hoai An Trinh (Ho Chi Minh City University of Technology and Education, Vietnam), Hai Thanh Nguyen (Ho Chi Minh City University of Technical Education, Vietnam), Truong Quang Phuc (University of Technical Education HCMC, Vietnam), Tran Thanh Mai (HCMUTE, Vietnam) .....	202
• An Image based Approach for Speech Perception .....	
Nguyen Quang Trung (Human Machine Interaction Laboratory, University of Engineering & Technology, VNU Ha Noi, Vietnam), Duy Bui (College of Technology, Vietnam National University, Vietnam), Chau Thi Ma (VNU, Vietnam) .....	208

## Signal Processing for Communications

• Automatic Test Framework For Video Streaming Quality Assessment .....	
Dat Tieu (University of Technology, VNU-HCM, Vietnam), Binh Nguyen (University of Technology, VNU-HCM, Vietnam), Linh Le (University of Technology, VNU-HCM, Vietnam), Quan Pham (University of Technology, VNU-HCM, Vietnam), Quang Nguyen (Personify Inc, Vietnam), Dũng Trung Võ (Samsung Information Systems America ( Samsung Electronics US R&D Center ), USA) .....	214
• Human Activity Recognition by Smartphone .....	
Tuan Dinh Le (Long An University of Economics and Industry, Vietnam), Chung Nguyen (University of Information Technology, VNU-HCM, Vietnam) .....	219
• An Improved Technique using FMO for Error Propagation Resilience in H.264 Video Coding .....	
Nguyen Thi Huong Thao (PTIT, Vietnam), Huu-Tien Vu (Post and Telecommunications Institute of Technology, Vietnam) .....	225
• KLD-Resampling with Adjusted Variance and Gradient Data-based Particle Filter Applied to Wireless Sensor Networks .....	
Nga Tu Ly (International University of Viet Nam, Vietnam), Linh Mai (International University of Viet Nam, Vietnam), Thuong Le-Tien (Hochiminh city University of Technology, Vietnam) .....	229
• An Analysis of Vector Estimation for Uncertainty Reduction in Evaluating the Specific Absorption Rate of Multiple Transmitting Antenna Devices .....	
Dinh Thanh Le (Le Quy Don Technical University, Vietnam), Van Hai Chu (Le Quy Don Technical University, Vietnam) .....	235

## Networking

• Coupled Multipath Congestion Control at Receiver in Content-Centric Networking .....	
--	--



Truc Quyen Nguyen (Institute of Information Technology & Institute of Military Science and Technology, Vietnam), Bich Phuong Ha (Posts and Telecoms Institute of Technology, HCM Campus & HCM University of Transport, Vietnam), Tuan-Anh Le (Thu Dau Mot University, Vietnam), Phuong L. Vo (HCM International University - VNU, Vietnam), Trong-Thua Huynh (Posts and Telecommunications Institute of Technology, Vietnam), Cong Hung Tran (Posts and Telecoms Institute of Technology, Vietnam) .....	239
<b>• Optimal Content Placement for Adaptive Bit-Rate Streaming in Cache Networks</b>	
Bao Nguyen Tran Duy (Posts and Telecommunications Institute of Technology, Vietnam), Quoc Anh Nguyen (Posts and Telecommunications Institute of Technology, Vietnam), Phuong L. Vo (HCM International University - VNU, Vietnam), Tuan-Anh Le (Thu Dau Mot University, Vietnam) ...	243
<b>• An Evaluation of Segment Duration Effects in HTTP Adaptive Streaming over Mobile Networks</b>	
Nguyen Dung (Ha Noi University of Science and Technology, Vietnam), Bao-Long Tran (Hanoi University of Science and Technology, Vietnam), Hung Thai Le (University of Aizu, Japan), Pham Ngoc Nam (HUST, Vietnam), Truong Cong Thang (The University of Aizu, Japan) .....	248
<b>• Receiver-based Bandwidth Sharing for Streaming Client with Multiple Connections</b>	
Quang Nguyen (Hanoi University of Science and Technology, Vietnam), Duc V. Nguyen (The University of Aizu, Japan), Pham Ngoc Nam (HUST, Vietnam), Truong Cong Thang (The University of Aizu, Japan) .....	254
<b>• MOS prediction model as a function of packet loss and jitter for non-intrusive QoE measurement of IP-based voice service</b>	
Gunawan Wibisono (University of Indonesia, Indonesia), Antonius Kristiawan (University of Indonesia, Indonesia) .....	N/A

## Computational Intelligence

<b>• A Least Square based Model for Rating Aspects and Identifying Important Aspects on Review Text Data</b>	
Pham Duc Hong (Electric Power University, Vietnam), Le Anh Cuong (VNU, Vietnam), Le Thi Kim Chung (Electric Power University, Vietnam) .....	265
<b>• An improvement of the overlap complexity in the spaced seed searching problem between genomic DNAs</b>	
Phan-Thuan Do (Hanoi University of Science and Technology, Vietnam), Cam-Giang Tran-Thi (The IRD in Vietnam, Ministry of Science and Technology of Vietnam, Vietnam) .....	271
<b>• An Approach for Mining Non-Redundant Sequential Rules Efficiently</b>	
Minh-Thai Tran (Ho Chi Minh City University of Foreign Languages - Information Technology, Vietnam), Bac Le (University of Science, Vietnam), Bay Vo (Ton Duc Thang University, Vietnam), Tzung-Pei Hong (National University of Kaohsiung, Taiwan) .....	277
<b>• Vietnamese Speech Synthesis with Novel Pairing Phrase Method built in Embedded Systems</b>	
Phi Nguyen (University of Technology & Ho Chi Minh City, Vietnam), Thach Tran (Ho Chi Minh University of Technology, Vietnam), Ho Tuan Vu (HUCMUT, Vietnam), Hoang Trang (University of Technology, HoChiMinh City, Vietnam) .....	283

# Communications and Networking

• Power Control and Multi-bands Assignment for Cognitive Radio in LTE Scenario	
Nguyen Tien Hoa (Hanoi University of Science and Technology, Vietnam), Pham Van Tien (HUST, Vietnam), Nguyen Van Duc (HUST, Vietnam) .....	289
• Design and Deploy a Wireless Sensor Network For Precision Agriculture	
Tuan Dinh Le (Long An University of Economics and Industry, Vietnam), Dat Ho (Long An University of Economic and Industry, Vietnam) .....	294
• Optimally Non-Regenerative Relaying for General Dual-Hop Correlated MIMO Channels	
Anh Vinh Nguyen (HCMC University of Science, Vietnam), Nam Tran Nguyen (Ho Chi Minh City University of Science, Vietnam), Phuong Nguyen (HCMC University of Science, Vietnam), Khoa Dang (University of Science, Ho Chi Minh City, Vietnam) .....	300
• Wireless Power Transmission with Rough Beamforming Method	
Chang-Jun Ahn (Chiba University, Japan) .....	305

# Relay Networks

• An Incremental Cooperative Solution for Multicast Cognitive Network Under Joint Impact of Hardware Impairment and Interference Constraint	
Tran Trung Duy (Posts and Telecommunications Institute of Technology, Vietnam), Quynh Phung (Posts and Telecommunications Institute of Technology & Vietnam Telecom Services Center II, Vietnam), Vo Nguyen Quoc Bao (Posts and Telecommunications Institute of Technology, Vietnam), Tan Hanh (Posts and Telecommunications Institute of Technology, Vietnam), Dang The Hung (Telecommunications University, Vietnam) .....	310
• Down-link Cooperative Transmission with Transmit Antenna Selection, Hardware Noises and Non-independent Co-channel Interferences	
Tran Trung Duy (Posts and Telecommunications Institute of Technology, Vietnam), Nguyen Quoc Dien (PTIT, Vietnam), Luu Gia Thien (Posts and Telecommunications Institute of Technology & PTIT, Vietnam), Vo Nguyen Quoc Bao (Posts and Telecommunications Institute of Technology, Vietnam), Hanh Tan (PTIT, Vietnam) .....	316
• Linear Precoder Design for MIMO Interference Channels in Heterogeneous Networks	
Nguyen Dinh Long (Ho Chi Minh City University of Technology, Vietnam), Ha H Kha (Ho Chi Minh City University of Technology, Vietnam), Nguyen Quang Tuan (Ho Chi Minh City University of Technology, Vietnam) .....	322
• DC Programming and DCA for Transmit Beamforming and Power Allocation in Multicasting Relay Network	
Thuy Tran (University of Lorraine, France), Hoai An Le Thi (University of Lorraine, France), Tao Pham Dinh (University of Normandie, France) .....	N/A
• On the Outage Performance of Relaying Cognitive Networks with Reactive Relay Selection and Selection Combining	
Khuong Ho-Van (HoChiMinh City University of Technology, Vietnam), Son Vo Que (HoChiMinh City University of Technology, Vietnam), Tra Luu Thanh (HoChiMinh City	



University of Technology, Vietnam), Lien Pham Hong (University of Technical Education, Vietnam).....	333
---	-----