

# **2014 International Conference on High Performance Computing and Applications**

**(ICHPCA 2014)**

**Bhubaneswar, India  
22-24 December 2014**



**IEEE Catalog Number: CFP1480Z-POD  
ISBN: 978-1-4799-5959-4**

# 2014 International Conference on High Performance Computing and Applications (ICHPCA)

22 – 24 December 2014

C. V. RAMAN COLLEGE OF ENGINEERING, BHUBANESWAR, INDIA.

## Table of Contents

### Track - 1: Parallel and Distributed Architectures

1.1	ICHPCA-031	PID3512047	Performance Analysis of Greedy Load Balancing Algorithms in Heterogeneous Distributed Computing System 3 <i>Bibhudatta Sahoo, Dilip Kumar, Sanjay Kumar Jena</i>
1.2	ICHPCA-042	PID3426567	Exploiting Fault Tolerance within Cache Memory Structures 10 <i>Somak Das and Sowvik Dey</i>
1.3	ICHPCA-077	PID3494157	A Reconfigurable Cache Architecture 16 <i>S. Subha</i>
1.4	ICHPCA-152	PID3432477	Heuristic Strategy for Multiphase Applications Scheduling onto Identical Parallel Multiprocessor 21 <i>Amit Khandelwal, R.S. Sharma</i>

### Track - 2 : Parallel and Distributed Software

2.1	ICHPCA-009	PID3434107	A Reliable Platform using Matlab Distributed Computing Server Integrated with AIM 29 <i>Xianhua Ding, Xiaoming Wang, Yu Du, Jianping Li, Guoying Liu</i>
2.2	ICHPCA-130	PID3435287	Hybrid Spot Instance based Resource Provisioning Strategy in Dynamic Cloud Environment 34 <i>Naidila Sadashiv, Dilip Kumar S M, R S Goudar</i>

2.3	ICHPCA-198	PID3448137	<b>Study of DDAP2 for memory allocation in cloud computing 40</b> <i>Sasmita Parida, Devpriya Panda, Jyoti Prakash Dash, Suwendu Chandan Nayak</i>
-----	------------	------------	---

**Track - 3 : Performance in Communications and Networks using HPC Techniques**

3.1	ICHPCA-043	PID3512153	<b>A Timestamped Signature Scheme with Message Recovery 49</b> <i>Sujata Mohanty , Pothuri Bhanu Sai Pavan Kumar, Kodavatikanti Hanok</i>
3.2	ICHPCA-049	PID3447911	<b>CMMSPEED: Reliable Real-time protocol for Industrial Mesh Network 53</b> <i>Jyotiranjana Swain , Helen K J</i>
3.3	ICHPCA-057	PID3490591	<b>A Methodical survey on real time applications in MANETS Focussing on key issues 57</b> <i>Mamata Rath, Binod Kumar Pattanayak</i>
3.4	ICHPCA-076	PID3445415	<b>The Impact of Delayed Ack on TCP Variants Protocols in Wireless Network 62</b> <i>Sukant Kishoro Bisoy, Amardeep Das, Prasant Kumar Pattnaik , Mohit Ranjan Panda</i>
3.5	ICHPCA-085	PID3509961	<b>Improving Performance of MANET via Cooperative Communication with Selective Cooperation method considering Dynamic Traffic Pattern using NS2 68</b> <i>Arjun Chaudhary , Satvik Sachdev , Tribikram Pradhan , Santosh Kamath</i>
3.6	ICHPCA-087	PID3509963	<b>Data Hiding in Halftone Images using Mathematical Morphology and Conjugate Ordered Dithering 73</b> <i>Satvik Sachdev, Aparna Nayak, Tribikram Pradhan</i>
3.7	ICHPCA-102	PID3493031	<b>Design of Secure Group Key Agreement Protocol using Elliptic Curve Cryptography 79</b> <i>Priyanka Jaiswal, Abhimanyu Kumar, Sachin Tripathi</i>
3.8	ICHPCA-103	PID3509965	<b>Fingerprint Based Symmetric Cryptography 85</b> <i>Subhas Barman, Samiran Chattopadhyay, Debasis Samanta</i>
3.9	ICHPCA-104	PID3449657	<b>BER Performance Comparison of MIMO System with STBC and MRC over Different Fading Channels 91</b> <i>Keerti Tiwari , Davinder S Saini</i>
3.10	ICHPCA-114	PID3430217	<b>Efficient Fault Node Detection Algorithm for Wireless Sensor Networks 97</b> <i>Rama Ranjan Panda, Bhabani Sankar Gouda, Trilochan Panigrahi</i>
3.11	ICHPCA-158	PID3428313	<b>Secured Packet Inspection with Hierarchical Pattern Matching implemented using Incremental Clustering Algorithm 102</b> <i>Purna Chandra Sethi , Prafulla Kumar Behera</i>

3.12	ICHPCA-162	PID3440323	<b>Yet Another Proposal for All Pair Shortest Path on GPU 108</b> <i>B.Neelima , Rithesh G Prabhu, Anjjan S Narayan</i>
3.13	ICHPCA-163	PID3441927	<b>Performance Evaluation of STBC-OFDM WiMAX System using Graphics Processing Unit (GPU) 113</b> <i>Satyendra Singh Yadav , Sarat Kumar Patra</i>
3.14	ICHPCA-165	PID3442963	<b>String Sorting on Multi and Many-threaded Architectures: A comparative study 119</b> <i>B. Neelima, Anjjan S Narayan, Rithesh G Prabhu</i>
3.15	ICHPCA-174	PID3511951	<b>Differential Evolution for Cost Reduction in Cellular Network 125</b> <i>S R Parija, P.K.Sahu, S.S Singh</i>
3.16	ICHPCA-185	PID3427275	<b>Game theory based Mobile Wireless Sensor Network for area coverage 130</b> <i>Tathagata Das , Sarbani Roy</i>
3.17	ICHPCA-186	PID3444629	<b>GNU Radio Based BIST for SDR Performance Measurement 136</b> <i>Remya P.S. , B.I. Neelgar , Shibu R.M.</i>
3.18	ICHPCA-194	PID3435139	<b>Error Rate Performance Enhancement Using Hybrid Equalization technique in MIMO-OFDM systems 140</b> <i>Navdeep Singh Randhawa , Silky Khurana</i>
3.19	ICHPCA-196	PID3444033	<b>Minimization of the BER using Brewster's Angle based Polarization Diversity Technique for Indoor Visible Light Communication System 145</b> <i>Anil Semwal , Avatar Singh Buttar</i>
3.20	ICHPCA-199	PID3439507	<b>Route Stability and Energy Aware based AODV in MANET 151</b> <i>Ranjan Kumar , Mansi Gupta</i>

#### Track - 4 : High Performance, Parallel and Distributed Algorithms

4.1	ICHPCA-072	PID3441307	<b>Parallel Hadamard Transform in Multi Mesh Network 159</b> <i>Amit Datta , Mallika De, Sanjoy Das</i>
4.2	ICHPCA-089	PID3435023	<b>Implementation of Dense Matrix Multiplication on 2D Mesh 165</b> <i>Bhabani Sankar Samantray , Debananda Kanhar</i>
4.3	ICHPCA-131	PID3511935	<b>Scalable parallel clustering approach for large data using Parallel K Means and Firefly Algorithms 170</b> <i>Juby Mathew, R Vijayakumar</i>

4.4	ICHPCA-142	PID3458313	<b>Efficient Implementation of Apriori Algorithm on HDFS using GPU 178</b> <i>Mayank Tiwary, Abhaya Kumar Sahoo , Rachita Misra</i>
4.5	ICHPCA-148	PID3432561	<b>Parameter Optimization and Nonlinear Fitting for Computational Models in Neuroscience on GPGPUs 184</b> <i>Manjusha Nair, Krishna Subramanyan, Bipin Nair , Shyam Diwakar,</i>
4.6	ICHPCA-156	PID3445793	<b>Epidemic Disease Propagation Detection Algorithm using MapReduce for Realistic Social Contact Networks 189</b> <i>Rakesh Ranjan , Rajiv Misra</i>
4.7	ICHPCA-159	PID3511945	<b>Identification of Leather Defects Using an Auto Adaptive Edge Detection Image Processing Algorithm 195</b> <i>Murali Krishna Kasi, J Bhaskara Rao, Vijay Kumar Sahu</i>
4.8	ICHPCA-166	PID3441975	<b>Analysis of List Scheduling Algorithms for Parallel System 199</b> <i>Sunita Kushwaha , Sanjay Kumar</i>
4.9	ICHPCA-191	PID3511955	<b>A Higher order Evolutionary Jordan Pi-Sigma Neural Network with Gradient Descent Learning for Classification 205</b> <i>Janmenjoy Nayak, D.P. Kanungo, Bighnaraj Naik , H. S. Behera</i>

#### Track - 5 : Parallel and Distributed Computing in Data Bases and Data Mining

5.1	ICHPCA-092	PID3427197	<b>Performance Evaluation of HDFS in Big Data Management 213</b> <i>Dipayan Dev , Ripon Patgiri</i>
5.2	ICHPCA-177	PID3511953	<b>Securing Financial Network System through Multilevel Security Using Cyber Physical System and Data Mining Concepts 220</b> <i>Sharada Varalaxmi Mangipudi, P. Suresh Verma, M. Srinivasa Rao</i>
5.3	ICHPCA-182	PID3433221	<b>A Novel Approach for avoiding the overload in the Web Crawling 226</b> <i>Lavanya Pamulaparty, C.V Guru Rao, M. Sreenivasa Rao</i>

#### Track - 6 : Optimization and Computational Intelligence

6.1	ICHPCA-015	PID3431481	<b>Implementation of bottleneck non cross matching for a set of Convex points using Convex Hull and development of an image searching algorithm 235</b> <i>Aratrika Sarkar, Anirban Sarkar , Sauvik Das Gupta</i>
6.2	ICHPCA-055	PID3506395	<b>A New Approach for Detection of Common Communities in a Social Network using Graph Mining Techniques 243</b> <i>Bapuji Rao , Anirban Mitra</i>

6.3	ICHPCA-061	PID3442623	<b>A New Density Based Clustering Algorithm for Binary Data Sets 249</b> <i>Satyasai Jagannath Nanda, Rahul Raman, Shubham Vijay, Anil Bhardwaj</i>
6.4	ICHPCA-065	PID3442945	<b>ANN based Human Facial Expression Recognition in Color Images 255</b> <i>Sagarika Borah, Sharmila Konwar</i>
6.5	ICHPCA-070	PID3430287	<b>FPGA Realization of Particle Swarm Optimization Algorithm using Floating Point Arithmetic 260</b> <i>Amit Rathod, R.A.Thakker</i>
6.6	ICHPCA-074	PID3509955	<b>Gradient Local Auto-Correlation for Handwritten Devanagari Character Recognition 266</b> <i>Mahesh Jangid, Sumit Srivastava</i>
6.7	ICHPCA-078	PID3445357	<b>Unalike Methodologies of Feature Extraction &amp; Feature Matching in Speech Recognition 271</b> <i>Ruchismita Tripathy, Hrudaya Kumar Tripathy</i>
6.8	ICHPCA-090	PID3459081	<b>A faster and intelligent Steganography Detection using Graphics Processing Unit in cloud 277</b> <i>Mayank Tiwary, Rojalina Priyadarshini, Rachita Mishra</i>
6.9	ICHPCA-099	PID3440537	<b>Fuzzy Logic Based Wind Energy Conversion System with Solid Oxide Fuel Cell 283</b> <i>M. Padma Lalitha, T. Janardhan, R.Madhan Mohan</i>
6.10	ICHPCA-106	PID3427491	<b>Bi-objective Portfolio Optimization Using Archive Multi-objective Simulated Annealing 289</b> <i>Tanmay Sen, Sriparna Saha, Asif Ekbal, Arnab Laha</i>
6.11	ICHPCA-126	PID3430471	<b>Test Case Prioritization Techniques “An Empirical Study” 295</b> <i>Neha Sharma, Sujata, G.N.Purohit</i>
6.12	ICHPCA-127	PID3494199	<b>Free-text User Authentication Technique through Keystroke Dynamics 301</b> <i>Soumen Roy, Utpal Roy, D. D. Sinha</i>
6.13	ICHPCA-137	PID3511939	<b>Weighted Bag Hybrid Multiple Classifier Machine for Boosting Prediction Accuracy 307</b> <i>Dwaipayan Chakraborty, Sankhadip Saha, Oindrilla Dutta</i>
6.14	ICHPCA-160	PID3443185	<b>Automated Document Indexing via Intelligent Hierarchical Clustering: A Novel Approach 313</b> <i>Rajendra Kumar Roul, Shubham Rohan Asthana, Sanjay Kumar Sahay</i>
6.15	ICHPCA-170	PID3511947	<b>Guided Convergence for Training Feedforward Neural Network using Novel Gravitational Search Optimization 319</b> <i>Sankhadip Saha, Dwaipayan Chakraborty, Oindrilla Dutta</i>

6.16	ICHPCA-179	PID3466129	<b>Real Time Robotic Arm Control Using Hand Gestures 325</b> <i>Ganesh Choudhary B, Chethan Ram B V</i>
6.17	ICHPCA-184	PID3439891	<b>DE-FPA: A Hybrid Differential Evolution-Flower Pollination Algorithm for Function Minimization 328</b> <i>Dwaipayan Chakraborty, Sankhadip Saha, Oindrilla Dutta</i>
6.18	ICHPCA-197	PID3449895	<b>Bijjective Mapping of Arbitrary Finite State Machine 334</b> <i>Satrajit Ghosh., Biswanath Sen, Rajib Das</i>

#### Track - 7 : HPC in Scientific, Engineering, Medical and Social Applications

7.1	ICHPCA-038	PID3444883	<b>Application of High Performance Computing in Lattice Physics code VISWAM 341</b> <i>A.K.Mathur, Suhail Ahmad Khan, Vibhuti Duggal, Suneet Singh, V. Jagannathan</i>
7.2	ICHPCA-039	PID3416217	<b>Efficient Utilization of Memory Hierachy to Enable the Computation on Bigger Domains for Stencil Computation in CPU-GPU Based Systems 345</b> <i>Guanghao Jin, James Lin , Toshio Endo</i>
7.3	ICHPCA-041	PID3408561	<b>Threshold voltage roll-off for Triple Gate FinFET Analysis based on several semiconductors used as substrate 351</b> <i>Amitava Aditya, Sayan Basu, Saurav Khandelwal, Chiradeep Mukherjee, Saradindu Panda, B. Maji</i>
7.4	ICHPCA-044	PID3484839	<b>The State-of-the-art of Social,Mobility,Analytics and Cloud Computing An Empirical Analysis 357</b> <i>Bhushan Dewan , Soumya Ranjan Jena</i>
7.5	ICHPCA-047	PID3444027	<b>Ultra-Thin Si directly on Insulator (SDOI) MOSFETs at 20 nm gate length 363</b> <i>S. K. Mohapatra, K. P. Pradhan, P. K Sahu, D Singh, S. Panda</i>
7.6	ICHPCA-052	PID3418759	<b>HiBeat : A Novel Highly Accurate Implementation of Cardiac Pulse Measurement On A Multicore Architecture 367</b> <i>Soundar Thiagarajan , Kaliuday Ballea</i>
7.7	ICHPCA-066	PID3435517	<b>Filter vs. Wrapper approach for optimum gene selection of high dimensional gene expression dataset: An analysis with cancer datasets 373</b> <i>Bhavna Srivastava, Rajeev Srivastava , Mahesh Jangid</i>
7.8	ICHPCA-091	PID3432469	<b>A PKI based Timestamped Secure Signing Tool for e-Documents 379</b> <i>Sumit Goswami, Sudip Misra , Mukesh Mukesh</i>

7.9	ICHPCA-096	PID3420135	<b>Trigger Action Reaction Model in High Performance Computing for Impact Analysis due to Artificial Energy Drinks</b> 385 <i>Chandrasekaran Subramaniam, Karthikeyan M, Abinash Kumar K, Giridhara Madhavan P , Selvakarthik R.V</i>
7.10	ICHPCA-098	PID3450397	<b>Stability Enhancement in SVC based Controller Design using Differential Evolution Algorithm</b> 390 <i>Sangram Keshori Mohapatra , Bhabani Sankar Dash</i>
7.11	ICHPCA-100	PID3430701	<b>Optimization of Molecular Dynamics Application for Intel Xeon Phi Coprocessor</b> 396 <i>Amit Harode, Apaar Gupta, Benny Mathew, Nitin Rai</i>
7.12	ICHPCA-109	PID3434755	<b>A Study on Role of Personality Traits for Pair Programming Team</b> 402 <i>Ashish Agrawal, Sadhana Singh, Malay Tripathi , L S Maurya</i>
7.13	ICHPCA-113	PID3404619	<b>Static performance analysis on UTB-SG and DG MOSFETs with Si and III-V channel materials</b> 407 <i>D. Singh, S. Panda, S. K. Mohapatra, K. P. Pradhan, P. K. Sahu</i>
7.14	ICHPCA-124	PID3509967	<b>DTMF Based Security Robot-SECBOT : An ease for un-manned security</b> 413 <i>Prasun Shrivastava, Abeer Gupta, Akash Singh , Amritanshu Srivastava</i>
7.15	ICHPCA-129	PID3435183	<b>AODV routing protocol modification with Dqueue (dqAODV) for VANET in city scenarios</b> 418 <i>Soumen Saha, Utpal Roy , Devadatta Sinha</i>
7.16	ICHPCA-132	PID3446103	<b>Lifting Biorthogonal Wavelet Design For Edge Detection</b> 424 <i>S.Devendra, P.M.K. Prasad</i>
7.17	ICHPCA-136	PID3459857	<b>Intrusion Detection Systems for High Performance Computing Environment</b> 429 <i>Brojo Kishore Mishra, Minakshi Sahu , Satya Naryan Das</i>
7.18	ICHPCA-147	PID3511941	<b>Removing of high density salt and pepper noise using Fuzzy based Median Filter</b> 435 <i>B.Sravani, M.V.Nageswara Rao</i>
7.19	ICHPCA-155	PID3439407	<b>Generation Reliability Evaluation of Wind Energy Penetrated Power System</b> 441 <i>M Padma Lalitha, P Harshavardhan Reddy, P Janardhana Naidu</i>
7.20	ICHPCA-161	PID3411781	<b>Decoder segment optimization of ROM Design in Quantum Dot Cellular Automata</b> 445 <i>Chiradeep Mukherjee, Sayak Pramanik, Ratna Chakraborty, Debashish De</i>
7.21	ICHPCA-173	PID3441465	<b>A Reconfigurable Viterbi Decoder for SDR and Mobile Communications</b> 450 <i>Ashish Kumar Pradhan, S K Nandy</i>



7.22	ICHPCA-181	PID3433761	<b>S-transform based approach for texture analysis of medical images 456</b> <i>Pyari Mohan Pradhan, Chun Hing Cheng, Joseph Ross Mitchell</i>
7.23	ICHPCA-183	PID3433567	<b>Three Frame Based Adaptive Background Subtraction 460</b> <i>P. K. Sahoo, P. Kanungo, K Parvathi</i>
7.24	ICHPCA-193	PID3443223	<b>Impulse Noise Detection and Correction by Neighborhood Switching Median Filter 465</b> <i>Aswini Kumar Samantaray</i>