

EcoCloud e-newsletter

January 2016

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Welcome Message from the Executive Committee

Welcome to this edition of EcoCloud's electronic newsletter. This year we are proud to announce that our faculty have been recognized by the leading professional organizations with high distinctions for their contributions to computer science and engineering, our students not only have won prestigious awards but have transferred their innovations to our affiliates, and our family of faculty and affiliates has grown with the addition of two accomplished professors and a leading company in storage solutions. We hope that you will enjoy browsing through this newsletter and wish everyone a productive successful 2016!

In the News

Announcing EcoCloud 2016 Annual Event

After a very successful event in 2015, EcoCloud is pleased to announce that the 2016 Annual Event will be held on **Monday May 30th and Tuesday May 31st, 2016 at the Royal Savoy Hotel in Lausanne, Switzerland**. This event will follow a similar format as the past two successful events in 2014 and 2015. Industrial speakers and EcoCloud researchers will showcase the latest trends in research through presentations, poster sessions, and discussions. Please mark your calendars and plan to join us at this unique event where industry and academia gather to share and brainstorm the future of data-centric IT solutions. We look forward to seeing you there!

A Swisscom Digital Lab at EPFL

EcoCloud's affiliate Swisscom just signed a strategic partnership with EPFL to establish a Swisscom Digital Lab at the EPFL Innovation Park. Swisscom will invest CHF 1M per year for seven years in research activities ranging from applications and software to infrastructure with specific focus on interconnected people and homes. Swisscom will also support the innovative ecosystem at EPFL by organizing events related to digitalization on campus. EcoCloud is delighted about the arrival of Swisscom on campus and looks forward to strengthening our research collaborations with them.

CloudSuite 3.0 released at HiPEAC

Cloudsuite 3.0 was released at the 2016 HiPEAC Conference in Prague in January. The third version is a major enhancement over prior releases both in workloads and infrastructure. It includes benchmarks that represent massive data manipulation with tight latency constraints such as in-memory data analytics using Apache Spark, a new real-time video streaming benchmark following today's most popular video-sharing website setups, and a new web serving benchmark mirroring today's multi-tier web server software stacks with a caching layer. To facilitate deployment, the benchmarks are integrated into the Docker container system and Google's PerfKit Benchmark. PerfKit enables automated benchmarking and a

performance comparison across a broad spectrum of cloud server systems. CloudSuite 3.0 will run on both real hardware and a QEMU based emulation platform. There is a tutorial scheduled for EuroSys in London for those interested. For further info on CloudSuite 3.0 please visit the [website](#).

EcoCloud Sponsored Workshop on Reconfigurable Computing

EcoCloud sponsored a workshop on “Reconfigurable Computing for the Masses” at the FPL Conference in London on September 4th, 2015. The workshop hosted many distinguished speakers from academia and industry to discuss the recent trends and challenges of using FPGAs to accelerate computing tasks in embedded and server platforms. More information including the workshop’s material is available [here](#).

Encyclopedia of Two-Phase Heat Transfer & Flow

The encyclopedia of two-phase heat transfer and two-phase flow is now available in eight volumes. The encyclopedia is the first comprehensive summary of the fundamentals of two-phase flows, heat transfer mechanisms, and cooling. The latter technology has been pioneered by our own John Thome, the editor-in-chief of the encyclopedia, and is emerging as the only viable approach to heat removal in future high-density server platforms. You can find more information on the encyclopedia [here](#). There will be a first-hand demo of two-phase liquid cooling in a server rack at our annual event.

Failure Sketching in Industrial Toolchains

Baris Kasikci’s and his collaborators at Intel and Microsoft have made a splash in the world of software development! Software complexity is now a major concern not only due to the emergence of multicores a decade ago but also the slowdown in silicon efficiency pushing platforms and software to heterogeneity. Baris’ proposal, “failure sketching” is an automated debugging technique that provides developers with an explanation (i.e., a failure sketch) of the root cause of a failure that occurs in execution. These results, which appeared in the flagship conference USENIX in 2015, are getting integrated in software toolchains at Intel.

NoDB & RAW Labs in the News

Ioannis Alagiannis’ research on “NoDB: Efficient Query Execution on Raw Data Files” featured as a CACM research highlight. CACM selects a few contributions among the best in computer science for publication as a research highlight. The paper presents a new paradigm, called *data virtualization*, which enables querying data in-situ with all the features of modern databases without the burden of loading the data into a database. You can find more information on the article [here](#). Anastasia Ailamaki also featured in WORK magazine on presenting RAW Labs, an EPFL startup that designs software for big data applications “through efficient queries to never-before-seen data, we aim at maximizing efficiency of analytics applications and enabling new discoveries for sciences, businesses, and their users”. You can read the article that appears in French [here](#).

Query Optimization on D-Wave

Immanuel Trummer has been pioneering novel multi-objective query optimization paradigms with award winning results through incremental algorithms, randomized algorithms, and parallel processing. He is now turning his focus onto less conventional platforms, namely quantum computers, to truly put a dent into the topic. “Our recent access to a D-Wave 2X adiabatic quantum annealer with over 1000 qubits at NASA Ames Research Center enabled us to experimentally evaluate the potential of quantum computing for solving optimization problems that arise in large-scale data analysis” he says. Quantum computers harness the laws of quantum physics for computation exploring multiple computational paths at the

same time and solving search problems that are otherwise impractical in scale on conventional platforms. Immanuel's preliminary results indicate speedups of up to four orders of magnitude compared to traditional approaches for multiple query optimizations.

Research Testbeds from Intel and Micron

EPFL is the lucky recipient of one of twenty Intel-Altera Heterogeneous Architecture Research Platform (HARP). The HARP system contains an "Intel microprocessor and an Altera Stratix® V FPGA module that incorporates Intel® QuickAssist Technology". Our group has also acquired an FPGA-enhanced Hybrid Memory Cube platform from Micron. The HMC system is Linux based and comes with two Xilinx AC-510 modules each with a 4GB HMC. These platforms will be used by EcoCloud researchers to develop accelerators for server platforms and serve as a hardware prototyping substrate for research on architectural mechanisms for in-memory rack-scale computing.

New Members

Faculty Member

We are delighted to welcome Bryan Ford and Christos Kozyrakis to EcoCloud. Bryan is a world-renowned expert in building secure systems and an associate professor of computer and communication sciences at EPFL. Bryan's interest include secure and certified OS kernels, parallel and distributed computing, privacy-preserving technologies and internet architecture. Unlike conventional approaches to system security, with technologies to patch software stacks, Bryan's approach to building systems is to build them solid and bulletproof from ground up.

Christos is a pioneer in resource-efficient cloud computing and has made seminal contributions to computer systems with technologies ranging from near-memory processing (IRAM) to transactional memory. His interests are in hardware architecture, runtime management environments, system software, and programming models for systems ranging from cellphones to warehouse-scale datacenters.

Industrial Affiliate Members

EcoCloud welcomes HGST to the Industry Affiliate Program. HGST is a Western Digital company specialized in innovative and intelligent storage solutions and storage infrastructure consultations to its customers. We look forward to fruitful collaborations with HGST on innovative and energy-efficient storage technologies and solutions.

New Projects

Consortium to Define European's Roadmap for HPC

David Atienza and Babak Falsafi are members of a European-wide consortium to define a vision for the future of HPC, to bring together research communities from future and emerging platform technologies to data analytic, management and simulation tools for users, and to create a foundation for a center of excellence in high-performance computing in Europe. The consortium is led by Chalmers University and includes partners from U. of Augsburg, BSC in Barcelona, Edinburgh, ETH, FORTH in Crete, Ghent, INRIA, University of Manchester, RWTH in Aachen, Technion and University of Stuttgart.

Exploring Manycore Architectures for Next-Generation HPC systems

David Atienza, our affiliate Eaton and several European partners received Horizon-2020 funding to explore future HPC platforms. The project, named MANGO, aims at achieving extreme resource efficiency in future QoS-sensitive HPC workloads through ambitious cross-layer system exploration for better performance/power/predictability. The system architecture will be inherently heterogeneous as an enabler for efficiency and application-based customization, where general-purpose compute nodes are intertwined with heterogeneous acceleration nodes, linked by a homogeneous interconnect.

HW/SW Co-Design for Scalable Transactional Processing

Anastasia Ailamaki will investigate the potentials of hardware/software co-design for efficient utilization of micro-architectural resources in collaboration with Huawei. Past research has shown that DBMSs severely under-utilize their micro-architectural resources with more than 50% of the CPU cycles going for memory stalls and the number of retired instructions per cycle barely reaching one on machines that are able to retire four instructions per cycle. Pure software-level optimizations are not enough to fully exploit the micro-architectural resources. This under-utilization limits the performance of DBMSs and leads to poor energy efficiency. The goal of the project is to reconsider the design of OLTP systems by making the utilization of micro-architectural resources the highest priority so as to achieve high throughput, low latency, hardware utilization and better energy efficiency.

Integrating CloudSuite into Perfkit

Babak Falsafi has received funding from Google to integrate Cloudsuite into Perfkit. Perfkit is an open source framework for measuring cloud performance from Google. The framework contains automated benchmarking tools that allow for practical benchmarking at scale. Integrating Cloudsuite into Perfkit will enable measuring representative benchmark metrics and allowing for rapid, effective and practical benchmarking at scale. In an interview with Google Cloud Performance Blog, Javier Picorel, explains: "We believe that PerfKit Benchmarker (PKB) is a step towards the standardization of cloud benchmarking. In essence, we envision PKB as the "SPEC for cloud-server systems." You can find more information on the blog [here](#).

Awards

Conference Awards

Hamza Harkous won the best dataset award for "Dissecting UbuntuOne: Autopsy of a Global-scale Personal Cloud Back-end" at the Internet Measurement Conference. The paper focuses on understanding the nature of personal clouds by presenting the internal structure and a measurement study of UbuntuOne.

Hao Zhuang received the best paper award for "StoreSim: Optimizing Information Leakage in Multicloud Storage Services" at the International Conference on Cloud Computing Technology and Science. The paper presents an effective storage plan generation algorithm for distributing data chunks with minimal information leakage across multiple clouds.

Immanuel Trummer received the ACM SIGMOD Research Highlight Award 2015 for his research on "Multi-Objective Parametric Query Optimization". The paper was also invited into the "Best of VLDB 2015" special issue of the VLDB Journal. The research introduces a new problem variant of query optimization that generalizes many previously proposed problem models, analyzes the formal properties of the new problem, and proposes an algorithm to solve it.

Jean-Eudes Ranvier received the best paper award for "RoutineSense: A Mobile Sensing Framework for the Reconstruction of User Routines" at the International Conference on Mobile and Ubiquitous Systems. The paper introduces a system for the automatic reconstruction of complex daily routines from simple user states.

Jean-Paul Calbimonte received the best paper award for "Reactive Processing of RDF Streams of Events" at the International Workshop on Detection, Representation, and Exploitation of Events in the Semantic Web DeRiVE. The paper presents a reactive model for implementing RDF stream processing systems (RSP) and studies their responsiveness property for the delivery of streaming results.

Faculty Awards

David Atienza was named IEEE Fellow for his contributions in design methods and tools in multiprocessor systems on chip. "The Grade of Fellow is conferred by the IEEE Board of Directors upon a person with an outstanding record of accomplishments in any of the IEEE fields of interest. IEEE Fellow is the highest grade of membership and is recognized by the technical community as a prestigious honor and an important career achievement." David receives this recognition for his sustained and outstanding contributions in the areas of thermal-aware design, hardware-software co-optimization methodologies for wireless body sensor nodes and low-power multi-core system architectures. David is an associate professor of electrical engineering at EPFL. He is also a member of the EcoCloud Executive Committee.

Anastasia Ailamaki and Babak Falsafi were named ACM Fellows. Fellowship is ACM most prestigious award given to the top 1% of ACM members for their outstanding contributions in computing and information technologies. According to ACM, this year's awardees' achievements "are fueling advances in computing that are driving the growth of the global digital economy." Anastasia, a professor of computer and communication sciences at EPFL, received her award for outstanding contribution to the design, implementation, and evaluation of modern database systems. Her research interests are in database systems and applications including strengthening the interaction between the database software and emerging hardware and I/O devices and automating database management to support computationally demanding and data-intensive scientific applications. She is also a founding member of EcoCloud.

Babak Falsafi receives his award for outstanding contributions to multiprocessor and memory architecture design and evaluation. Babak is a professor of computer and communication sciences at EPFL working on architectural innovation to address emerging challenges in the design and performance-scalability of future computer systems. Babak is also the founding director of EcoCloud. You can find more information on ACM 2015 Fellows [here](#).

Christos Kozyrakis received the 2015 ACM Maurice Wilkes Award for outstanding contributions to transactional memory technologies. The Maurice Wilkes award is given to individuals with outstanding contributions to computer architecture in the first 20 years of their career. Christos who joined EPFL in September 2015 was a faculty member at Stanford University when he received this award in August 2015.

Student Awards

Hao Zhuang received the best poster award for "Optimizing Information Leakage in Multicloud Storage Services" at the IEEE International Conference on Collaboration and Internet Computing.

Renata Borovica-Gajic received the best poster runner-up award at the International Conference on Data Engineering. Renata was also the recipient of a travel award from the IEEE Technical Committee on Data Engineering.

Publications:

Analytics, Control, and Optimization

- **$5e^{(x+y)}$: Searching over Mathematical Content in Digital Libraries**, Arthur Oviedo, et al. JCDL 2015.
- **A Cloud-Based eHealth Architecture for Privacy Preserving Data Integration**, Alevtina Dubovitskaya, et al. SEC 2015.
- **A Concentration-of-Measure Inequality for Multiple-Measurement Models**, Liming Wang, et al. ISIT 2015.
- **An Economic Analysis of Pervasive, Incentive-Based Demand Response**, Tri Kurniawan Wijaya, et al. IEEE SmartGridComm 2015.
- **An Energy-Aware Method for the Joint Recognition of Activities and Gestures using Wearable Sensors**, Joseph Korpela, et al. ISWC 2015.
- **An Evaluation of Diversification Techniques**, Duong Chi Thang, et al. DEXA 2015.
- **A Universal Primal-Dual Convex Optimization Framework**, Alp Yurtsever, et al. NIPS 2015.
- **Cluster-based Aggregate Forecasting for Residential Electricity Demand using Smart Meter Data**, Tri Kurniawan Wijaya, et al. IEEE Big Data 2015.
- **Comparing Events Coverage in Online News and Social Media: The Case of Climate Change**, Alexandra Olteanu, et al. ICWSM 2015.
- **Consistency of ℓ_1 -Regularized Maximum-Likelihood for Compressive Poisson Regression**, Yen-Huan Li, et al. ICASSP 2015.
- **Constrained Spectrum Control**, Jean-Hubert Hours, et al. IEEE Transaction on Automatic Control 2015.
- **CoShare: A Cost-Effective Data Sharing System for Data Center Networks**, Hao Zhuang, et al. IEEE CIC 2015.
- **Decentralizing the Cloud: How Can Small Data Centers Cooperate?** Hao Zhuang, et al. IEEE P2P 2015.
- **Designing Statistical Estimators That Balance Sample Size, Risk, and Computational Cost**, John J. Bruer, et al. JSTSP 2015.
- **Dynamic Sparse State Estimation Using ℓ_1 - ℓ_1 Minimization: Adaptive-Rate Measurement Bounds, Algorithms and Applications**, João F. C. Mota, et al. ICASSP 2015.
- **ERICA: Expert Guidance in Validating Crowd Answers**, Nguyen Quoc Viet Hung, et al. SIGIR 2015.
- **Fast Distributed Correlation Discovery Over Streaming Time-Series Data**, Tian Guo, et al. CIKM 2015.
- **Guaranteeing Input Tracking for Constrained Systems: Theory and Application to Demand Response**, Tomasz Gorecki, et al. ACC 2015.
- **Introduction to the Issue on Signal Processing for Big Data**, Georgios B. Giannakis, et al. JSTSP 2015.
- **Learning-Based Compressive Subsampling**, Luca Baldassarre, et al. CoRR 2015.
- **Limits on Support Recovery with Probabilistic Models: An Information-Spectrum Approach**, Jonathan Scarlett, et al. CoRR 2015.
- **Limits on Support Recovery with Probabilistic Models: An Information-Theoretic Framework**, Jonathan Scarlett, et al. ISIT 2015.
- **Linear Inverse Problems with Norm and Sparsity Constraints**, Volkan Cevher, et al. CoRR 2015.
- **On Crowdsensed Data Acquisition Using Multi-Dimensional Point Processes**, Saket Sathe, et al. ICDE Workshops 2015.

- **Optimization of an Airborne Wind Energy System Using Constrained Gaussian Processes with Transient Measurements**, Sanjay Diwale, et al. ICC 2015.
- **Preconditioned Spectral Descent for Deep Learning**, David Carlson, et al. NIPS 2015.
- **Quantization Design for Distributed Optimization with Time-Varying Parameters**, Ye Pu, et al. CDC 2015.
- **Quantization Design for Unconstrained Distributed Optimization**, Ye Pu, et al. ACC 2015.
- **Reactive Processing of RDF Streams of Events**, Jean-Paul Calbimonte, et al. ESWC (Satellite Events) 2015.
- **RoutineSense: A Mobile Sensing Framework for the Reconstruction of User Routines**, Jean-Eudes Ranvier, et al. ICST Trans. Ambient Systems 2015.
- **Scalable Convex Methods for Phase Retrieval**, Alp Yurtsever, et al. CAMSAP 2015.
- **Semantic Data Layers in Air Quality Monitoring for Smarter Cities**, Jean-Paul Calbimonte, et al. S4SC at ISWC 2015.
- **Sparse Group Covers and Greedy Tree Approximations**, Siddhartha Satpathi, ISIT 2015.
- **Sparsity of 1-Regularized M-Estimators**, Yen-Huan Li, et al. AISTATS 2015.
- **StoreSim: Optimizing Information Leakage in Multicloud Storage Services**, Hao Zhuang, et al. CloudCom 2015.
- **Structured Sparsity: Discrete and Convex Approaches**, Anastasios Kyrillidis, et al. CoRR 2015.
- **Towards a Highly Effective and Robust Web Credibility Evaluation System**, Xin Liu, et al. Decision Support Systems 2015.
- **What's the Frequency, Kenneth? Sublinear Fourier Sampling Off the Grid**, Petros Boufounos, et al. Algorithmica 2015.
- **Where Are the RDF Streams? Deploying RDF Streams on the Web of Data with TripleWave**, Andrea Mauri, et al. ISWC 2015.

Data Clouds & Management

- **ADDICT: Advanced Instruction Chasing for Transactions**, Pinar Tözün, et al. VLDB 2015.
- **An Incremental Anytime Algorithm for Multi-Objective Query Optimization**, Immanuel Trummer, et al. SIGMOD 2015.
- **Applying HTM to an OLTP System: No Free Lunch**, David Cervini, et al. DaMoN 2015.
- **Automated High-Throughput Characterization of Single Neurons by Means of Simplified Spiking Models**, Christian Pozzorini, et al. Plos Computational Biology 2015.
- **Characterization of the Impact of Hardware Islands on OLTP**, Danica Porobic, et al. VLDB Journal 2015.
- **Configuring Spatial Grids for Efficient Main Memory Joins**, Farhan Tauheed, et al. BICOD 2015.
- **Databases and Hardware: The Beginning and Sequel of a Beautiful Friendship**, Anastasia Ailamaki. PVLDB 2015.
- **Extending Database Task Schedulers for Multi-Threaded Application Code**, Florian Wolf, et al. SSDBM 2015.
- **Multi-Objective Parametric Query Optimization**, Immanuel Trummer, et al. VLDB 2015.
- **Multiple Query Optimization on the D-Wave 2X Adiabatic Quantum Computer**, Immanuel Trummer, et al. CoRR 2015.
- **NoDB: Efficient Query Execution on Raw Data Files**, Ioannis Alagiannis, et al. Communications of the ACM 2015.

- **Parallelizing Query Optimization on Shared-Nothing Architectures**, Immanuel Trummer, et al. CoRR 2015.
- **Probably Approximately Optimal Query Optimization**, Immanuel Trummer, et al. CoRR 2015.
- **RITA: An Index-Tuning Advisor for Replicated Databases**, Quoc Trung Tran, et al. SSDBM 2015.
- **RUBIK: Efficient Threshold Queries on Massive Time Series**, Eleni Tzirita Zacharatou, et al. SSDBM 2015.
- **Scaling the Memory Power Wall With DRAM-Aware Data Management**, Raja Appuswamy, et al. DaMoN 2015.
- **Scaling Up Concurrent Main-Memory Column-Store Scans: Towards Adaptive NUMA-Aware Data and Task Placement**, Iraklis Psaroudakis, et al. PVLDB 2015.
- **Solving the Join Ordering Problem via Mixed Integer Linear Programming**, Immanuel Trummer, et al. CoRR 2015.
- **The Homeostasis Protocol: Avoiding Transaction Coordination Through Program Analysis**, Sudip Roy, et al. SIGMOD 2015.
- **The Phase Transition in Multitype Binomial Random Graphs**, Mihyun Kang, et al. SIAM J. Discrete Math 2015.
- **THERMAL-JOIN: A Scalable Spatial Join for Dynamic Workloads**, Farhan Tauheed, et al. SIGMOD 2015.

Power Management & Cooling

- **An Indirect Criterion for the Laminar to Turbulent Flow Transition in Shear-Driven Annular Liquid Films**, Andrea Cioncolini, et al. International Journal Of Multiphase Flow 2015.
- **Dynamics of Isolated Confined Air Bubbles in Liquid Flows Through Circular Microchannels: An Experimental and Numerical Study**, Sepideh Khodaparast, et al. Microfluidics and Nanofluidics 2015.
- **Near-Optimal Thermal Monitoring Framework for Many-Core Systems-on-Chip**, Juri Ranieri, et al. IEEE Trans. Computers 2015.
- **Power-Thermal Modeling and Control of Energy-Efficient Servers and Datacenters**, Jungsoo Kim, et al. Handbook on Data Centers 2015.
- **Time-Strip Visualization and Thermo-Hydrodynamics in a Closed Loop Pulsating Heat Pipe**, Giulia Spinato, et al. Applied Thermal Engineering 2015.
- **Understanding the Self-Sustained Oscillating Two-Phase Flow Motion in a Closed Loop Pulsating Heat Pipe: 1**, Giulia Spinato, et al. Energy 2015.

Programming Models & Scalability

- **Automating Ad Hoc Data Representation Transformations**, Vlad Ureche, et al. OOPSLA 2015.
- **Efficient Lock-Free Work-Stealing Iterators for Data-Parallel Collections**, Aleksandar Prokopec, et al. PDP 2015.
- **Go Meta! A Case for Generative Programming and DSLs in Performance Critical Systems**, Tiark Rumpf, et al. SNAPL 2015.
- **Improving the Interoperation Between Generics Translations**, Vlad Ureche, et al. PPPJ 2015.
- **Isolates, Channels, and Event Streams for Composable Distributed Programming**, Aleksandar Prokopec, et al. Onward! 2015.
- **RRB Vector: A Practical General Purpose Immutable Sequence**, Nicolas Stucki, et al. ICFP 2015.

Robust Systems & Networks

- **A Thrifty Universal Construction**, Cheng Wang et al. NETYS 2015.
- **Automated Classification of Data Races Under Both Strong and Weak Memory Models**, Baris Kasikci, et al. ACM Trans. Program. Lang. Syst. 2015.
- **Beyond One Third Byzantine Failures**, Cheng Wang, et al. CoRR 2015.
- **Byzantine Fireflies**, Rachid Guerraoui, et al. DISC 2015.
- **Chaos: Scale-Out Graph Processing from Secondary Storage**, Amitabha Roy, et al. SOSP 2015.
- **Collaborative Filtering Under a Sybil Attack: Analysis of a Privacy Threat**, Davide Frey, et al. EUROSEC 2015.
- **Establishing a Base of Trust with Performance Counters for Enterprise Workloads**, Andrzej Nowak, et al. USENIX ATC 2015.
- **Exploiting NVM in Large-Scale Graph Analytics**, Jasmina Malicevic, et al. INFLOW@SOSP 2015.
- **Failure Sketches: A Better Way to Debug**, Baris Kasikci, et al. HotOS 2015.
- **Failure Sketching: A Technique for Automated Root Cause Diagnosis of In-Production Failures**, Baris Kasikci, et al. SOSP 2015.
- **Hawk: Hybrid Datacenter Scheduling**, Pamela Delgado, et al. USENIX ATC 2015.
- **Hide & Share: Landmark-Based Similarity for Private KNN Computation**, Davide Frey, et al. DSN 2015.
- **Hierarchical Cycle Accounting: A New Method for Application Performance Tuning**, Andrzej Nowak, et al. ISPASS 2015.
- **Liveness in Transactional Memory**, Victor Bushkov, et al. Transactional Memory 2015.
- **Making BFT Protocols Really Adaptive**, Jean Paul Bahsoun, et al. IPDPS 2015.
- **New Directions for Network Verification**, Aurojit Panda, et al. SNAPL 2015.
- **Privacy-Conscious Information Diffusion in Social Networks**, George Giakkoupis, et al. DISC 2015.
- **Safety-Liveness Exclusion in Distributed Computing**, Victor Bushkov, et al. PODC 2015.
- **Software Dataplane Verification**, Mihai Dobrescu, et al. Commun. ACM 58 2015.
- **The Weakest Failure Detector for Eventual Consistency**, Swan Dubois, et al. PODC 2015.
- **Towards Unconditional Tor-Like Anonymity**, Iris Safaka, et al. NetCod 2015.

Security

- **A Random Zoo: Sloth, Unicorn, and Trx**, Arjen Lenstra, et al. IACR Cryptology ePrint Archive 2015.
- **Efficient Ephemeral Elliptic Curve Cryptographic Keys**, Andrea Miele, et al. ISC 2015.
- **STEP-Archival: Storage Integrity and Anti-Tampering Using Data Entanglement**, Hugues Mercier, et al. ISIT 2015.

Server Design

- **A Unified Online Directed Acyclic Graph Flow Manager for Multicore Schedulers**, Karim Kanoun, et al. ASP DAC 2015.
- **Design of Ultra-Low-Power Smart Wearable Systems**, Gregoire Surrel, et al. LATS 2015.
- **Energy Proportionality and Workload Consolidation for Latency-Critical Applications**, George Prekas, et al. SoCC 2015.
- **Manycore Network Interfaces for In-Memory Rack-Scale Computing**, Alexandros Daglis, et al. ISCA 2015.

- **Parallelizing the Chamolle Algorithm for Performance Optimized Mapping on FPGA devices**, Ivan Beretta, et al. ACM TECS 2015.
- **Sort vs. Hash Join Revisited for Near-Memory Execution**, Nooshin Mirzadeh, et al. ASBD 2015.
- **Programming Multicore Computers: Technical Perspective**, James Larus, Communications of the ACM 2015.