CTS 2014 PANEL SESSIONS

PANEL SESSION I

Cross-Domain Analytics: Understanding and Supporting Collaboration with Big Data

PANEL MEMBERS:

Obinna B. Anya	Accelerated Discovery Lab, Almaden Research Center, California, USA
John V. Carlis	University of Minnesota – Twin Cities, Minnesota, USA
Brent J. Hecht	University of Minnesota – Twin Cities, Minnesota, USA

MODERATOR:

Daniel Keefe University of Minnesota – Twin Cities, Minnesota, USA

ABSTRACT

This panel explores the many roles of data analytics in today's cross-domain collaborations. In some instances, cross-domain analytics are required to understand big data. In others, big data holds the key to understanding and evaluating how people collaborate across domains. Panelists will present their experiences with big data and collaboration, and discussion will be guided by the following questions: How does "understanding data through collaboration" relate to "understanding collaborative discovery from big data? To what extent should these tools be tailored to specific domains or groups? How much do we need to know about another domain or group before we can intersect domain specific activities that constitute the context to various analytical processes, and cross-pollinate ideas for deeper analytics? What optimally would that other domain or group need to know about us? How much of this knowledge can we extract from data?

PANELISTS SHORT BIOS & PHOTOS:



Obinna Anya is a postdoctoral researcher in the Accelerated Discovery Lab at IBM Research – Almaden, San Jose, California, USA. His work lies in the areas of humancomputer interaction, collaborative workplaces, social informatics, and agent-based modeling. A computer scientist, his research blends methods of social science and computer science in the design of human-centred systems and environments for networkenabled organizations of the future. In particular, he examines interaction, emergence, and collaborative discovery in socio-computational systems. Obinna holds a PhD for his work on practice-centered approach to context-aware system design in e-health, an MSc in distributed systems – both from the University of Liverpool, UK – and a BSc in computer science from the University of Nigeria, Nsukka. He previously worked as a research

scientist at Liverpool Hope University, UK, where he was the lead researcher on a British Council sponsored project on context-aware collaborative environments for e-health decision support.



John V. Carlis is a professor of computer science and biomedical informatics and computational biology at the University of Minnesota. His research interests include developing better practices in data modeling and querying and developing extensions to database management systems in the context of complex evolving biomedical applications. Carlis received a PhD in business administration from the University of Minnesota. Contact him at <u>carlis@umn.edu</u>.



Brent J. Hecht is an assistant professor of computer science and engineering at the University of Minnesota. With interests that lie at the intersection of human-computer interaction, geography, and big data, his research centers on the relationship between big data and human factors such as culture. A major focus of his work involves volunteered geographic information and its application in location-aware technologies. Dr. Hecht received a Ph.D. in computer science from Northwestern University, a Master's degree in geography from UC Santa Barbara, and dual Bachelor's degrees in computer science and geography from Macalester College. He was a keynote speaker at WikiSym – the premiere conference on wikis and open collaboration – and has received awards for his research at

top-tier publication venues in human-computer interaction and geography (e.g. ACM CHI, COSIT). He has collaborated with Google Research, Xerox PARC, and Microsoft Research, and his work has been featured in the Wall Street Journal, MIT Technology Review, New Scientist, AllThingsDigital, ACM TechNews, and various international TV, radio, and Internet outlets.



Daniel Keefe is the McKnight-Land Grant Assistant Professor, specializes in visualization and interactive computer graphics. He received the NSF CAREER Award in 2011, the University of Minnesota McKnight Land-Grant Professorship in 2012, and the 3M Nontenured Faculty Award in 2013. He has published numerous articles in top journals and international conferences and has received best paper and best panel awards for his research and teaching. In addition to his work in computer science, he is also an accomplished artist and has published and exhibited work in top international venues for digital art. Before joining the University of Minnesota, Keefe did post-doctoral work at Brown University jointly with the departments of Computer Science and Ecology and Evolutionary Biology and

with the Rhode Island School of Design. He received the Ph.D. in 2007 from Brown University's Department of Computer Science, which nominated his work for the ACM Dissertation Prize, and the B.S. in Computer Engineering summa cum laude from Tufts University in 1999. He is a member of the ACM and IEEE.

PANEL SESSION II

Goals and Challenges of Collaboration in Healthcare

PANEL MEMBERS:

Obinna Anya	Accelerated Discovery Lab, Almaden Research Center, California, USA
Neale R. Chumbler	Department of Health Policy and Management, College of Public Health,
	University of Georgia - Athens, Georgia, USA
Saif Khairat	Institute for Health Informatics, University of Minnesota - Twin Cities, Minnesota,
	USA
Joseph A. Konstan	Department of Computer Science and Engineering, University of Minnesota –
	Twin Cities, Minnesota, USA

MODERATOR:

Danilo Pani	EOLAB - Microelectronics and Bioengineering Lab, Dept. of Electrical and
	Electronic Engineering, University of Cagliari, Italy

ABSTRACT

Collaborative technologies are pervading every aspect of the modern society, influencing the way we act, work and interact. In healthcare, the benefits of collaboration are well validated. Collaborative technologies and systems in healthcare and the biomedical fields potentially create new ways to develop, deliver and improve the quality and outcomes of health services. Identifying the goals and challenges of collaboration in healthcare is a key factor to drive cutting-edge research in the field.

Telemedicine and telehealth have not only created opportunities to connect to broader populations, for example in rural areas, in order to reduce costs and improve quality, but also have led to novel techniques for collaborative discovery in the biomedical field, fostering interaction among experts, and enabling cost-effective solutions. However, collaboration in healthcare continues to falter, and is rarely employed in practice. Several constraints exist. There is often a lack of common ground to support shared perception of information and activity awareness during collaboration. Security, privacy, and quality challenges remain largely unresolved. The nature and complexity of healthcare practice require processes that not only leverage tacit strategies, situational knowledge and experiences, but also vary across communities and remain often unaccounted for in the design of collaborative technologies.

This panel discusses, from several points of views, the factors that enhance or hinder collaboration in healthcare. Discussion will focus on adoption of collaborative technologies in healthcare, the limits and challenges of the current solutions, and possible evolutions of the current organizational models, highlighting how emerging techniques in areas such as big data analytics, cloud computing, security, mobile applications, multimedia data streaming, and user interaction design, could be harnessed to enhance the practice of collaboration in healthcare. Panelists will share their thoughts and experiences on aspects of collaboration in healthcare in the light of their personal academic or industrial perspectives.

PANELISTS SHORT BIOS & PHOTOS



Obinna Anya is a postdoctoral researcher in the Accelerated Discovery Lab at IBM Research – Almaden. His work lies in the areas of human-computer interaction, collaborative workplaces, social informatics, and agent-based modeling. A computer scientist, his research blends methods of social science and computer science in the design of human-centred systems and environments for network-enabled organizations of the future. In particular, he examines interaction, emergence, and collaborative discovery in socio-computational systems. Obinna holds a PhD for his work on practice-centered approach to context-aware system design in e-health, an MSc in distributed systems – both from the University of Liverpool, UK – and a BSc in computer science from the University of Nigeria, Nsukka. He previously worked as a research scientist at Liverpool Hope

University, UK, where he was the lead researcher on a British Council sponsored project on context-aware collaborative environments for e-health decision support.



Neale R. Chumbler serves as the Department Head, Graduate Coordinator, and Professor of Health Policy and Management in the College of Public Health at The University of Georgia. In these positions, Dr. Chumbler leads a diverse and interdisciplinary department with twelve tenure track faculty and nine associated faculty and coordinates and directs all aspects of the Health Policy and Management Concentration of the MPH program. He has had a longstanding interest and expertise in developing and evaluating complex health information technology interventions that deliver accessible care for functionally impaired and cognitively impaired older individuals that ultimately improve patient centered outcomes. For over 8 years, I implemented and evaluated specific interventions to improve access to care including

applications of health information technology including telehealth for community dwelling older individuals. He recently completed a randomized controlled funded trial that used a telemedicine collaborative care approach to optimize analgesic management using a stepped drug approach to drug selection, symptom monitoring, dose adjustment, and switching or adding medications. He also previously served as a PI on a multi-site Randomized controlled Trial that employed telehealth technologies to improve access to care and improve physical functioning for older adults who survived a stroke and who are residing at home, to enhance and secure extramural funds), and Interim Director of the Survey Research Center. Under his leadership, the Department of Sociology, the Institute for Research on Social Issues and the Survey Research experienced significant increases in extramural funding. A proponent of shared governance, while serving as Department Chair, Dr. Chumbler implemented a three-person Steering Committee, comprising of three faculty members and who advised the Chair on Departmental matters. He also reorganized the responsibilities of the Directors of both the Graduate and Undergraduate Programs and developed new positions of Deputy Directors of Graduate and Undergraduate Studies. Also at IUPUI, he served as the Associate Director (second-in-command) of the Center for Implementing Evidence-Based Practice, an interdisciplinary research center with 75 employees funded by the United States Department of Veterans Affairs (VA). In this same research center, he also served as the Director of the Interdisciplinary Postdoctoral Research Fellowship Program and developed and implemented productivity expectations, benchmarks and evaluation procedures for postdoctoral fellows. He further served the role as an investigator at the Regenstrief Institute, a private, not-profit research organization affiliated with the Indiana University School of Medicine.



Saif Khairat is a Clinical Assistant Professor at the Institute for Health Informatics at the University of Minnesota. Dr. Khairat is the co-Principal Investigator of the Great Plains Telehealth Resource and Assistance Center, a federal grant from the U.S. Health Resources and Services Administration. Dr. Khairat is the Chair-Elect of the Education Working Group at the American Medical Informatics Association (AMIA), and member of the Working Group Steering Committee at AMIA. Among his research interests are Telemedicine, mHealth in Diabetes care, human factors, clinical communication in Intensive Care Units. Dr. Khairat earned his PhD in Health Informatics at the Informatics Institute at the University of Missouri with a focus on ICU clinical communication. During his Informatics training, Dr. Khairat worked as a Research Fellow at the Division of

Clinical Informatics at Harvard Medical School. He also has track record of computer science training. He designed and developed a clinical content tracking system by bridging Database Management Systems and web applications. Dr. Khairat is lead author to numerous publications and serves as a scientific reviewer to national and international conferences and journals such as the Journal of Applied Clinical Informatics, American Journal of Critical Care, AMIA, and the Journal for Health Informatics.



Joseph A. Konstan is Distinguished McKnight University Professor, Distinguished University Teaching Professor and Associate Department Head of the Department of Computer Science and Engineering at the University of Minnesota. His research addresses a variety of human-computer interaction issues, including recommender systems, social computing, and applications of computing to public health. His work on the GroupLens Recommender System won the 2010 ACM Software Systems Award. Professor Konstan has been recognized for his teaching through both University and College teaching awards. He has given popular webinars on recommender systems and on ethical issues in social computing research, and has taught dozens of short courses and tutorials on recommender

systems, human-computer interaction, and related topics. Dr. Konstan received his Ph.D. from the University of California, Berkeley in 1993. He is a Fellow of the ACM, IEEE, and AAAS, and elected member of the CHI Academy, Past-President of ACM SIGCHI, the 4500-member Special Interest Group on Human-Computer Interaction, and a member of the ACM Council. He chaired the first ACM Conference on Recommender Systems in 2007, and recently chaired the CHI 2012 conference.



Danilo Pani is non-tenure Assistant Professor in Biomedical Engineering at the Dept. Electrical and Electronic Engineering of the University of Cagliari, Italy. He received the University degree (Laurea, magna cum laude) in electronic engineering from the University of Cagliari, Italy, in 2002, and the Ph.D. degree in electronic and computer engineering from the same university in 2006. Dr. Pani is member of the national Medical Informatics committee of UNINFO. He is PI of the Regional Project L.R.7/2007 "ELoRA - Low-power real-time processing of neural signals for prosthetic aids" and is involved in many national and European Projects in the field of neuroengineering. In the past he has been PI of a research project on non-invasive fetal electrocardiography and has been involved in several

project about digital signal processing architectures, telemedicine and telerehabilitation. He is author of more than 40 international publications and one patent on a telerehabilitation device. Current main research topics are embedded real-time processing of peripheral nervous system signals for neuroprostheses, real-time non-invasive fetal ECG extraction, bioinspired integrated architectures for parallel biomedical signal processing, telemedicine and telerehabilitation systems.

PANEL SESSION III

Dynamics of Organizational Effectiveness and Collaborative Technologies in a Military Environment

PANEL MEMBERS:

Jason Evgenides	Organizational Enablement, Shiloh, Illinois, USA
Janet Girton	Cyber Semantics, Shiloh, Illinois, USA
Arlene King	Strategic Communication, C5T, Shiloh, Illinois, USA
Joseph Zahn	Knowledge Management Specialist, C5T, Shiloh, Illinois, USA

MODERATOR:

Gregory Padula

Vice President-Operations, C5T, Shiloh, Illinois, USA

ABSTRACT

Have you ever wondered why the best practices of industry are proven – yet they fail in many situations? This panel will discuss the dynamics of organizational processes and supporting technologies used to support a multibilion dollar military organization operating in a global environment. The panel will discuss the ongoing development of an Enterprise Organizational Effectiveness (EOE) model that is being developed, tested and deployed in the context of standard, repeatable processes, and organizational enablement to define technology requirements. Particular interest focuses on integrating appropriate processes before adapting technologies that provide threads of information on fast moving and rapidly changing events to provide assessments for leadership decision-making. Aspects of this EOE model include Organizational Enablement, Knowledge and Information Management, and Communication. This panel will cover the steps in assessing, prioritizing, selecting, and implementing organizational effectiveness improvements. This EOE model will apply to commercial and government environments.

Supporting the process are collaborative tools. Tools that enable users to easily discover and share information are critical in assisting teams in responding to crises. The panel will discuss current and innovative information technology tools that successfully enhanced process improvement methodologies and subsequently ensured improved organizational effectiveness.

The moderator will engage a panel of logistics, operations, and knowledge management subject matter experts on developing necessary cooperative processes to mediate and achieve optimized use of supporting technologies. Panelists will share insights and knowledge on the challenges and organizational problem-solving in a military environment with a high-operational tempo.

- 1. What practical techniques can be used for technology transition in a high operational tempo?
- 2. What processes make technological implementation agile, adaptive, participative and practical?
- 3. How do you convince business partners that organizational realignment and technology can a major benefit to the success of the program?

PANELISTS SHORT BIOS & PHOTOS:



Greg Padula is the C5T Corp VP Operations and one of the founding members. In this role, he is responsible for C5T members delivering capability in a practical way for customers. He is a retired Air Force officer with operational and technical experience. He led the transformation of a 1200 aircraft global command and control organization that flies 900 missions a day to 50+ countries. This transformation included process, systems, and connectivity improvements. He was also Director of Requirements and Resources for a defense organizational \$150M IT portfolio. For the last six years, he has led a contractor team for an air, land, and surface multi-billion dollar military organization. C5T's low risk approach has resulted in hundreds of organizational, process, procedures, and IT improvements across more than 20 organizations. He has a Bachelor's degree in Electrical

Engineering and Master's degree in Logistics Management. He has Air Force acquisition certifications in Test and Evaluation and Program Management; and commercial certification in Lean Six Sigma and Knowledge Management. greg.padula@c5t.com.



Jason G. Evgenides received a B.S. in Computer Information Systems from the University of Puget Sound, Tacoma, Washington in 1984, an M.S. in Transportation Management, Air Force Institute of Technology, Wright-Patterson Air Force Base, Ohio in 1992, as well as a M.S in Strategic Studies, Air War College, Maxwell AFB, and Montgomery, Alabama in 2006. Mr. Evgenides has over 25 years of proven leadership in diverse organizations, ranging from 20 to over 400 people. During his military service, he served in numerous mobility and logistics positions at all Department of Defense worked as a transportation officer, logistics officer, action officer, executive officer, division chief and commander.

With over two decades of experience in the Department of Defense supply chain, acquisition, and logistics management industry, he integrated logistics systems, reduced operating costs and improved productivity through innovation, creativity, and organizational leadership. Mr. Evgenides has a proven track record for collaboration at all levels of organizational hierarchy and is skilled in measuring, assessing, and guiding both individual and organizational effectiveness needs while leveraging practical experience. From 2012-2014, he has served as a Senior Logistics Analyst for C5T Corporation, Shiloh, Illinois. He can be reached at jason.evgenides@c5t.com.



Janet A. Girton received a B.S. in Psychology from the University of Texas at San Antonio, San Antonio, Texas. She earned her M.S. in Military Operational Art and Science from Air University, Maxwell AFB, Montgomery, Alabama. She has more than 20 years of US Air Force operational knowledge and leadership in various military organization levels. She has served as base communications squadron commander, as well as various command control positions at major command and joint and multi-national communications positions and supported the nuclear command center arena command control and control and communications assets. With more than 25 years of C4I of experience in the Department of Defense, she provides insight into the command control, operations management, cyber

and communications aspects of support to DoD. Leveraging her operations background and communications knowledge, she leads the requirements interaction between operators and communicators, supporting organizational effectiveness and collaboration. Since 2008, she has served as a Functional Analyst for C5T Corporation. She can be reached at janet.girton@c5t.com.



Arlene F. King is a Strategic Communication consultant for the Command, Control, Communications, Capabilities, and Transformation Corporation (C5T). Since joining C5T in 2008, Ms. King has contributed to the implementation of Organizational Effectiveness, Knowledge Management, and Lean Six Sigma processes to guide the practical application of technological solutions in a military operational setting. She also applies communication trechniques to promote change. She holds a MA in Mass Communication from the University of Florida. Ms. King has spent more than 20 years developing and implementing strategic communication plans for numerous Department of Defense organizations. She is a retired Army officer with more than 26 years of military service. During 13 years of her service, she worked in Army communications, where she received training and certifications in telecommunications center operations and radio operations.

She worked as a strategic planning and operations officer developing training and operations plans for communications activities. She is certified in Lean Six Sigma and Knowledge Management. Her research interests include the impact of organizational change in operationally environments and the effects of social media in business environments. She can be reached at arlene.king@c5t.com.



Joseph A. Zahn received his B.S. from the United States Air Force Academy, Colorado Springs, Colorado in 1987, a M.S. in Aeronautical Science Technology, Embry Riddle Aeronautical University, Daytona Beach, Florida in 1997, a M. S. in Military Studies, Air Command and Staff College in 2002 as well as a M.S, in Strategic Studies, Air War College in 2007 both at Maxwell AFB, Montgomery, Alabama. During his 25 year military career, he served in numerous mobility and logistics positions from the squadron, wing, Head Quarters Air Force, and US Transportation command levels as an aircrew member, action officer, executive officer, division chief and commander. During his tenure as commander of two ingarrison squadrons at Travis AFB, California as well as commander of the largest

expeditionary aerial port of debarkation in Central Command at Kuwait City, Kuwait, he was responsible for knowledge and information program implementation. Later, while serving as the Chief, Commander's Action Group, HQ Air Mobility Command, Scott AFB IL, Vice Wing Commander at Travis AFB, California, and U.S. Transportation Command, Scott AFB, IL, his leadership enabled program development, always focusing on knowledge sharing as a means to mission success. In 2012, Mr. Zahn began working as a Knowledge Management subject matter expert for C5T Corporation in support of numerous planning and operational processes.

CTS 2014 DEMO SESSIONS

DEMO SESSION I

Smart View Entity Resolution

Mary Galvin LexisNexis Special Services, Inc. (LNSSI), Washington D.C., USA Mary.Galvin@LNSSI.com

DEMO ABSTRACT

Smart ViewTM enables the data scientist to gain new, deeper insights into entities of interest across "big" datasets; all without needing to attempt to integrate separate, disparate technologies for data processing, entity resolution, and data enrichment. The product's fully integrated set of entity resolution capabilities allow organizations to exploit the full breadth of available data. These capabilities include:

- Creation of comprehensive "Entity Intelligence" profiles from disparate, heterogeneous and complex datasets. Resultant profiles can be delivered to end users across any number of data presentation, alerting, and/or visualization channels via standards-based APIs.
- Processes for ingesting, profiling and normalizing massive data volumes at the click of a button, while simultaneously taking advantage of a massively parallel Extract, Transform, and Load data management subsystem to perform such operations behind-the-scenes.
- The ability to analyze complex networks of relationships and explore results through innovative, data science-oriented visualizations.

LexisNexis has decades of experience in the entity resolution arena. Scalable Automated Linking Technology (SALT), the highly accurate, fast and flexible technology running behind-the-scenes in prominent corporate applications, is what distinguishes LexisNexis data from that of its competitors. An example of this is LexisNexis' Accurint system, which contains billions of records from 10,000+ sources and has resolved the individuals contained therein to 250 million unique identities. Its users in the law enforcement, employee screening, insurance and banking industries all rely on identity profiles generated through SALT's entity resolution capability to guide their decision-making process.

The same technology that serves as the secret sauce behind LexisNexis' multi-billion dollar business in the risk sector is now embedded in Smart ViewTM and exposed to the user in such a way that any organization can capitalize on its powerful entity resolution capabilities.

During this demonstration, attendees will see how Smart View's entity resolution and relationship extraction algorithms have been applied to a variety of datasets in various languages and formats: Twitter profiles, cargo shipping data, international phonebook data, international movie data, etc. Time will be reserved at the end for Q&A from the audience.

REQUIREMENTS AND TARGET AUDIENCE

Knowledge of LexisNexis' High Performance Computing Cluster (HPCC) is helpful, but not required (the HPCC serves as Smart View's backend).

Anyone who is tasked with or has an interest in entity resolution as it pertains to big data is encouraged to attend.

DEMO DURATION

The demo will be presented in a 30-minute session.

A/V AND EQUIPMENT

Personal computer and a projector.

PRESENTER'S BIOGRAPHY



Mary Galvin has a decade of professional expertise in the software industry serving in a variety of technical & management roles on products and projects. Mary's technical domain expertise encompasses both human language technology (HLT) as well as data intensive processing systems such as LexisNexis' High Performance Computing Cluster (HPCC).

Mary earned her bachelor's degree in computer engineering from Villanova University in 2003, where she also received minors in computer science, Spanish, and naval science. In addition to being proficient in Spanish, she has a strong knowledge of the Arabic and

Chinese languages. Mary has been certified as a Project Management Professional (PMP) through the Project Management Institute (PMI) since March of 2010.

The 2014 International Conference on Collaboration Technologies and Systems (CTS 2014) May 19 - 23, 2014, Minneapolis, Minnesota, USA

CTS 2014 DOCTORAL DISSERTATION COLLOQUIUM

A Federated Cloud of Things for Emergency Management

Gilberto Taccari Adviser: **Luca Spalazzi** Università Politecnica delle Marche, Ancona, Italy

Designing Mobile Interactions for Athletes

Susanne Koch Stigberg Advisers: Hilda Tellioglu and Steinar Kristoffersen Vienna University of Technology, Austria and Østfold University College, Halden, Norway The 2014 International Conference on Collaboration Technologies and Systems (CTS 2014) May 19 - 23, 2014, Minneapolis, Minnesota, USA

CTS 2014 POSTER PAPERS AND POSTERS (Partial List)

POSTER PAPERS

Information Exchange and Fusion in a Collaborative Environment using Semantic Information Requirements Joshua M. Powers, Keith D. Shapiro, David S. Monk Securboration Inc., Florida, USA; C5T Corporation, Illinois, USA

An Effective Approach Using Eco-feedback to Motivate Energy Conservation Behaviors Hieu Huynh Chi Østfold University College, Halden, Norway

Saving Energy with Pleasure: Designing EnergyRace Web Application Ksenia Dmitrieva Østfold University College, Halden, Norway

Promoting Energy Efficient Behavior through Energy-Related Feedback Que Tran Østfold University College, Halden, Norway

Collaborative System to Investigate Mental Models: the Information Architecture Automatic Tool (IAAT) Cristina Olaverri-Monreal, Joel Gonçalves Technische Universität München, Germany

> A New Scheme to Evaluate the Accuracy of Knowledge Representation in Automated Breast Cancer Diagnosis Juan Shan, Lin Li Pace University, New York, USA; Murray State University, Kentucky, USA

> Disaster Relief Management and Resilience Using Photovoltaic Energy Salahuddin Qazi, William Young

State University of New York Institute of Technology, New York, USA; SUN Tree Consulting, Florida, USA

TECHNICAL POSTERS

From Microscope to Computer: Using Facebook to Assist Medical Laboratory Scientists in Nigeria Access and Navigate eLearning Courses Jarret Cassaniti, Nandini Jayarajan, Rebecca Shore, Simone Parrish, Lisa Mwaikambo Johns Hopkins Bloomberg School of Public Health Center for Communication Programs, Maryland, USA

Semantic Search & Integration to Climate Data Ranjeet Devarakonda, Giriprakash Palanisamy, Line C. Pouchard, Biva Shrestha Oak Ridge National Laboratory, Tennessee, USA Triggering Creativity through Semantic Cross-domain Web Crawling and Routing Francesco Taglino, Fabrizio Smith Institute for System Analysis and Computer Science, CNR, Rome, Italy

Integration of Emerging Learning Technologies in Secondary Schools: A Burkina Faso Case Study Romaric R. Zongo University of Minnesota – Twin Cities, Minnesota, USA

Visualization of Energy Consumption: Motivating for a Sustainable Behaviour Through Social Media Caroline Sofie Olsen Østfold University College, Halden, Norway

INDUSTRY POSTERS

Annotation and Deep Search of Semi-Structured Technical Documents Chris Macks Progeny Systems Corporation, Virginia, USA