IEEE VANCOUVER CONTACT

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Formation of the Humanitarian Initiatives Committee Vancouver branch

Wednesday 14 March
5:00 pm
UBC Campus,
Fred Kaiser Building Room 2020 (Volta)

The problems facing humanity today are complex and interdisciplinary. However, many of the present world leaders have their expertise in financial, political and/or legal domains. The application of science through engineering to find solutions is currently missing from many of today's dialogues. As one of the world's largest and most influential technical bodies, the IEEE has identified an opportunity for it to promote technical and engineering aspects when addressing these complex solutions.

The IEEE 2011 president Moshe Kam announced last October that the IEEE would be implementing a new program focused on humanitarian projects and technology and encouraged the membership to support this work. The announcement was made at the inaugural Global Humanitarian Technology (GHTC) conference in Seattle in October 2011.

The IEEE Vancouver branch has accepted this invitation and is in the process of defining a local Humanitarian Initiative Committee (HIC). The Vancouver HIC will work with industry, academic and student members to learn and identify how engineering expertise can help. It will be part of a broader network of national and international IEEE committees and will partner with existing NGO's.

On March 14 2012, IEEE members are invited to attend an information and organizational meeting. The agenda will cover: * Description of the IEEE's objectives for promoting technology in solving humanitarian problems * Experiences from the 2011 GHTC conference * Discussion of Vancouver HIC opportunities to involve local industry and academics

Additional information will be posted on the CONTACT website (www.ieeecontact.org) and the IEEE Vancouver section site (vancouver.ieee.ca) closer to the event.

If you have any questions or wish to become involved in planning, please contact Paul Lusina (paul.lusina@ieee.org or paul.lusina@gmail.com).

Five-Colour theorem and beyond

Boyan Mohar
Simon Fraser University

Tuesday 06 March
11:30 am to 12:20 pm

ASB 10900 (IRMACS presentation studio), Simon Fraser U, Bby

In 1994, Carsten Thomassen published a beautiful simple proof confirming that every planar graph is 5-list-colourable. Another beautiful proof on a similar topic was given a few years later by Mike Albertson who proved that every precolouring of a set of vertices in a planar graph that are far apart from each other can be extended to a 5-colouring of the whole graph. After presenting these enlightening contributions, the speaker will discuss possible common generalizations of these results and report on some recent progress.

Speaker: Dr. Bojan Mohar is a Canada Research Chair in Graph Theory at the Simon Fraser University. His main research interests are in the interplay of graph theory, combinatorics, algebra, geometry and topology. He has published well over 200 research papers with his main results in algebraic and topological graph theory, graph minors and theoretical computer science. He is a coauthor with Carsten Thomassen of a book Graphs on Surfaces, which is considered as the central reference for the area of topological graph theory.

How to build a brain: from single cells to cognitive systems

Chris Eliasmith
University of Waterloo

Tuesday 20 March
11:30 am to 12:20 pm

ASB 10901 (IRMACS boardroom), Simon Fraser U, Bby

How do billions of single neurons result in the complex behaviors we observe in animals and in ourselves? In this talk, I discuss my lab's approach to answering this question. In short, we build large-scale simulations at the level of single cells, which exhibit a wide range of flexible, dynamic, and cognitive behaviors. I discuss why the principles we employ are reasonable, and describe the benefits, successes, and challenges of this research.

Speaker: Professor Chris Eliasmith holds a Canada Research Chair in Theoretical Neuroscience, and is director of the Centre for Theoretical Neuroscience at the University of Waterloo. He has over 60 publications spanning neuroscience, psychology, philosophy, computer science, and engineering, on topics including working memory, mental representation, population coding, neural dynamics, computation, automatic text classification, and cognitive architectures. His recent book, How to Build a Brain (Oxford), and his earlier book, Neural Engineering (MIT Press), provide a systemmatic method for constructing large-scale cognitive models in spiking neurons

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Planning and control of massive networks

David Hill
University of Sydney

Tuesday 03 April
11:30 am to 12:20 pm

ASB 10901 (IRMACS boardroom), Simon Fraser U, Bby

The modernization of infrastructure networks requires coordinated planning and control. Considering traffic networks and electricity grids raises similar issues on how to achieve substantial new capabilities of effectiveness and efficiency. For instance, power grids need to integrate renewable energy sources and electric vehicles. It is clear that all this can only be achieved by greater reliance on systematic planning in the presence of uncertainty and sensing, communications, computing and control on an unprecedented scale, these days captured in the term 'smart grids'. This talk will outline current research on planning future grids and control of smart grids. In particular, the possible roles of network science will be emphasized and the challenges arising.

Speaker: David J. Hill received the BE (Electrical Engineering) and BSc (Mathematics) degrees from the University of Queensland, Australia, in 1972 and 1974, respectively. He received the PhD degree in Electrical Engineering from the University of Newcastle, Australia, in 1977. He currently holds the Ausgrid Chair of Electrical Engineering and an Australian Research Council Professorial Fellowship in the School of Electrical and Information Engineering at the University of Sydney, Australia. He is also a Senior Principal Researcher in National ICT Australia. His general research interests are in network systems, stability analysis, distributed control and applications to infrastructure type networks, especially the control and planning of power systems. His work is now mainly on smart grid control and future energy networks.

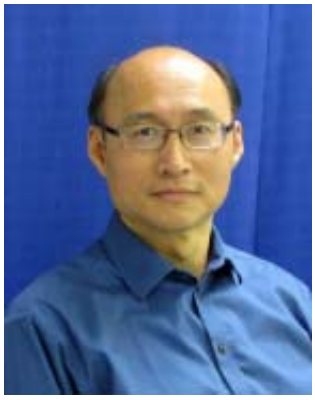
Prof. Hill is a Fellow of the Institution of Engineers, Australia, the Institute of Electrical and Electronics Engineers, USA, the Society for Industrial and Applied Mathematics, USA, the Australian Academy of Science and the Australian Academy of Technological Sciences and Engineering. He is also a Foreign Member of the Royal Swedish Academy of Engineering Sciences.

Sponsors
All 3 events sponsored by IEEE Circuits and Systems Society joint chapter of the Vancouver/Victoria sections and IRMACs Coast to Coast Seminars Spring 2012

Information
Circuits and Systems chair Ljiljana Trajkovic
ljilja@cs.sfu.ca

ED 03MAR12

Transition from CSA/UL/IEC 60950-1 to new standard product safety UL/IEC 62368-1



Michael Tang
CSA International

Wednesday 18 April
6:00PM
(finger food at 5:30PM)

Alpha Technologies Ltd
Training Room B
77000 Riverfront Gate
Burnaby

Cosponsors
Alpha Technologies Ltd;
Canadian Standard Association

Info & Registration
Joint Aerospace and Electromagnetics vice chair
Peter Lim
peter.lim@alpha.ca

Following keynote speaker Randy Tkatch, VP of Engineering Alpha Technologies Ltd, Michael Tang will introduce a safety standard for audio/video information technology and communication technology equipment, Part 1 - Safety requirements, IEC 62368-. This is a new safety standard containing requirements developed using Hazard Based Safety Engineering (HBSE) principles.

1. Background and purpose of this new safety standard – 5 ~ 10 min.
2. Principles of HBSE – 20 ~ 30 min
3. General safety principles of IEC 62368-1- 10 min
4. Application overview of IEC 62368-1 with respect to potential injuries – 5 ~ 15 min
5. CSA's position as it relates to transitioning from IEC 60950-1 to IEC 62368- 2 ~ 5 min
6. Questions and answers period: 30 ~ 60 min

Speaker: Michael Tang, Technical Adviser, CSA International ,is a Professional Engineer in BC, Canada and a Chartered Engineer in the United Kingdom with a Bachelor of Science degree in Electrical and Electronic Engineering. He has 12 years of experience in ITE products safety. In addition, he also has 18 years of experience in the field of Electrical, Electronic and Instrumentation Engineering which included the design, installation, maintenance and commissioning of electrical/instrumentation projects.

CSA Group

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IEEE Joint Aerospace and Electromagnetics Chapter

Sanja Boskovic
BCIT

Tuesday 27 March
6:00 - 7:30 PM

Room 1525 SFU Harbour Centre,515 W Hastings St

Open to public and free but space limited so please RSVP at:
https://vancouver.ieee.ca/wie

Information
Women In Engineering
Affinity Chair
Zahra Ahmadian
zahraa@ece.ubc.ca

An engineer's journey through war, cancer and life

The sustainable power engineer, Dr. Sanja Boskovic is not a typical power engineer. Raised in Yugoslavia and educated in Mechanical Engineering at the University of Sarajevo, Sanja was one of the few women practicing in power and process engineering in her country. But that was just the beginning.

In this talk Sanja will share her amazing journey through the Bosnian war, family life, graduate school, fighting cancer and finally her successful career as chief instructor at BCIT.

Speaker: Dr. Sanja Boskovic is Chief instructor and the lead Virtual Classroom Thermodynamics and Applied Mechanics instructor for BCIT's Power Engineering innovative distance education methodologies. She launches successful on site programs and ensure successful completion for all students. She has been pivotal in establishing quality instruction for clients like Norske Canada and Celgar Pulp Mill. She was the 2011 recipient of the BCIT Alumni Association Excellence in Teaching Award.

Judi Richardson
Richardson Management

Monday 16 April
6:00pm - 8:00pm
Room 1530 SFU Harbour Centre,515 W Hastings St

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Women in Engineering Affinity Group and Joint Management Chapter

Information
Adam Krolak
Joint Management chair
adamkrolak@gmail.com

The power and peril of vision

'Vision' or a painted picture of future "success" is powerful. The ability to clearly guide, challenge and inspire an organization to achieve its long term goals is the sign of an excellent leader. Yet vision alone does not lead to success and vision without strategy and execution can lead to chaos.

Speaker: Judi Richardson MBA ICD.D is the principal of Richardson Management Inc., a strategic consultancy established in 1998 to help organizations articulate and achieve their vision. RMI focuses on critical areas such as Vision & Values, Strategy and Branding. Diverse clients have included HSBC Capital, APG Hong Kong, COBS Breads and the UBC Department of Electrical & Computer Engineers among many others.

Armed with an MBA from York University and the drive of a former Canadian National Ski Team member, Judi has held leadership positions in several organizations including ACNielsen, Scott Paper, Dairyworld, Starbucks and KremeKo Inc. where she spearheaded the record-breaking Canadian launch of Krispy Kreme as VP Marketing & Business Development.

With over 25 years of experience, Judi is a certified corporate director through the Institute of Corporate Directors (ICD.D) and sits on the Board of Directors for VRX Worldwide (TSX-V:VRW), Simpson Seeds Inc. and Parkinson's Society Canada. Former board/ advisory board roles include 1800GOTJUNK, Nurse Next Door™, KremeKo Inc., North Star Montessori Elementary, kids.now and Climate Smart.

OE22 Meeting Announcement:
"The state of ocean related activities in Vancouver"

The Vancouver chapter of the IEEE Oceanic Engineering Society (OES) is pleased to announce our inaugural meeting, to be held 21 March, 2012. The theme of the evening is "The state of ocean related activities in Vancouver", and our keynote speaker will be James A.R. McFarlane, Vice President of International Submarine Engineering and previously the Head of the Office of Resources and Environmental Monitoring at the International Seabed Authority.

Meeting Details:

Date: Wednesday March 21, 2012.
Time: 19:00 - 21:00
Place: Royal Vancouver Yacht Club (http://www.royalvan.com/)
Address: 3811 Point Grey Road, Vancouver

"Coffee & cookies" will be provided.
All are welcome.

Preliminary Agenda:

19:00: Arrivals
19:10: Welcome & introductions
19:20: Plans for OE22 and future meetings
19:30: Main presentation, speaker: James A.R. McFarlane
20:15: Networking event
21:00: Close

Other OE22 Events planned for 2012

We aim to hold one OE22 meeting every quarter, i.e. March, June, September and December. These meetings are intended to be interesting to a broad audience, avoiding detailed technical presentations, and focussing on more high level topics.

Potential themes for upcoming meetings include:

- Surface applications (e.g. tankers, piloting etc.)
- Subsea applications (e.g. ROVs, AUVs, subsea networks etc.)
- Energy, Environment & Political (e.g. wave energy, effect of tankers on Haida culture etc.)

UNBC

IEEE

Light refreshments served

tabloid-orange

UNBC DEPARTMENT OF COMPUTER SCIENCE AND IEEE NBC

Invite Faculty, Students, Staff and the Public to attend the following presentation:

"Distributed Intelligent Systems: A Paradigm Shift"

Dr. William A. Gruver

President, Intelligent Robotics Corporation
Professor Emeritus
Simon Fraser University

Friday
March 23, 2012

1:00 pm – 2:30 pm

Room: 5-176

Centralized systems are unsuitable for large-scale systems integration because of their high reliance on centralized communication, high complexity, lack of scalability, and high cost of integration. The use of distributed intelligence technologies avoids these weaknesses by building intelligent systems with physical and software agents that operate autonomously to independently handle specialized tasks, and cooperate to satisfy system-level goals and thereby achieve a high degree of flexibility.

This talk provides an introduction to the technologies and applications of distributed intelligent systems for dynamically changing, networked environments. It describes how a peer-to-peer environment can be built to distribute the logistical and strategic requirements of a system, while improving robustness and scalability.

The presenter will contrast centralized and distributed systems, describe development frameworks for distributed systems, present recent advances based on multi-agent and holonic systems, and survey applications involving manufacturing automation, distributed scheduling, automated decision support, RFID tracking, and distributed energy systems. Specific examples and success stories of implementations in industrial environments worldwide will be provided.

Dr. Gruver will also give a short presentation on the IEEE Systems, Man, and Cybernetics Society at the end of this talk.

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Biomedical Engineering

THE UNIVERSITY OF BRITISH COLUMBIA

2011/12 Grand Rounds Seminar Series

Date: Wednesday, February 29, 2012
Time: 5 - 6 PM

Location: Life Sciences Centre Room 3, 2350 Health Sciences Mall, UBC

Speaker: Dr. J Maxwell Donelan; CIHR New Investigator and MSFHR Career Investigator Associate Professor Locomotion Lab Director, Department of Biomedical Physiology & Kinesiology, Simon Fraser University

Title: Controlling your every movement (but in a good way!)

Abstract: The talk will focus on two active areas of research within Dr. Maxwell Donelan's lab, beginning with biomechanical energy harvesting. This wearable technology uses principles similar to regenerative braking in hybrid cars to unobtrusively generate electricity from the natural motion of walking. At a comfortable walking speed, on the level, these devices can generate an average of 12 W of electrical power. While the current focus is on military applications, this human power production may prove useful for powering developed world biomedical devices, such as powered prosthetic limbs, and developing world health technologies, such as infrared water purification. The second half of the talk will focus on our research aimed at designing and implementing real-time controllers that accurately and automatically help runners control their training and performance. At the core of this invention is our finding that runners have a one-to-one relationship between cadence and speed, and when instructed to run at a new cadence, runners automatically and rapidly adjust their speed. We use this principle to automatically control running speed by using sensors to estimate actual speed and a controller to specify running cadence so as to minimize the difference between target speed and actual speed. A second application of our method provides automatic control of running intensity, rather than speed, by sensing and controlling heart rate. While our focus to date has been on controlling running in healthy subjects, this technology may also prove useful for helping to effectively rehabilitate gait.

Speaker's Bio: Dr. Donelan is an Associate Professor of Biomedical Physiology & Kinesiology at Simon Fraser University in Vancouver, British Columbia. He has a Ph.D. in Integrative Biology from Berkeley and did his postdoctoral work in Neuroscience at the University of Alberta. Dr. Donelan holds Career Investigator awards from the Michael Smith Foundation for Health Research and the Canadian Institutes of Health Research. He is also Chief Science Officer of Bionic Power - a university spin-off company that is developing energy harvesting technology for people whose lives depend on portable power.

We encourage you to pass this invitation on to others in your network who might be interested in attending.
Refreshments will be provided before the talk at 4:30 PM in Room 1410.

Department of Chemical and Biological Engineering
Wednesday February 29 th, 2012 (CHBE 202, 12-1 pm)

-
- Speaker : George Karniadakis, Professor of Applied Mathematics, Brown University, and Research Scientist of Mechanical Engineering, MIT

Title: Multiscale Modeling of Physical and Biological Systems

Abstract : Many physical and biological systems exhibit strong coupling among different spatial and temporal scales and their simulation with standard methods is not straightforward. We will present the main ideas of Dissipa tive Particle Dynamics (DPD) - a stochastic coarse-grained
molecular dynamics methods that can bridge seamlessly such scales and can be used in modeling complex fluids as well as soft matter. We will present specific DPD simulation studies of polymer brushes, glycocalyx, blood flow and hematological disorders such as malaria and sickle cell
anemia along with microfluidic experiments for validation of our multiscale models.

IEEE Vancouver 2012 gala and AGM

Monday 26 March 18:00 - 21:30

Vancouver Convention Centre
East Building - (with the sails) 999 Canada Place

18:00 Registration 18:30 Welcome note and officer's reports
19:00 Awards and recognition 19:30 Dinner 20:30 Keynote presentation

IEEE Vancouver is pleased to invite all members to join us for this year's Annual General Meeting and gala. We have an exciting evening planned for our members and guests – a fabulous location overlooking Burrard Inlet, delicious food, an outstanding speaker, and the opportunity to network with your friends and colleagues.

We will be hearing about the celebrations of IEEE Vancouver's 100th anniversary as we wrap up the centennial activities. The feature presentation by Dr. Dan Gelbart of UBC will be on the subject of inventions in the past 150 years.

Early bird discount of up to 20% if you register before noon on March 2nd.
$25 students and life members
$35 members
$45 non-members (1 guest per member).

You can register at http://goo.gl/2u4pt. Online payment is available and encouraged in the registration process. Guests should be registered separately using the same link. Please include your IEEE membership number and a contact email for yourself and your guest. For more information, or to arrange other means of payment, please email Alon Newton at anewton@ieee.org

- Hearts of Caesar salad • Red potatoes with yogurt and dill
- Greek style salad edemame • Black eye peas and black bean salad • Fresh asparagus mimosa
- Black Forest turkey, pepper roast beef, maple ham, prosciutto and grilled chorizo
- Grilled vegetable platter with bocconcini, balsamico glaze
- Roasted pepper crust top sirloin of aged beef • Grilled piri piri chicken breast
- Fruit salsa wild mushroom ravioli alla panna • Roasted nugget potatoes
- Bouquetiere of market fresh vegetables • Sliced seasonal fruits
- Fine selection of cakes, tarts and French pastries including Black Forest Charlotte, blueberry cheesecake, chocolate eclairs, fresh fruit flans, strawberry cointreau
- Assorted fruit creams and tiramisu • House-made biscotti
- Freshly brewed Moja organic coffee and imported teas

Thermoelectric power generation from waste heat

A co-gen application for BCIT's CEER

Mehrzad Tabatabaian
BCIT

Sanja Boskovic
BCIT

Tuesday 24 April
Noon - 115 pm

BC Hydro
Edmonds A01 - Edmonds
Centre Auditorium

Information
Power and Energy chair
Rama Vinnakota
Rama.Vinnakota@bchydro.com

The discovery and application of new clean energy sources and optimizing the efficiency of existing systems has become a major focus of today's research. The purposes of research in this area are to reduce energy consumption, expand available resources, and decrease the impact of our actions on the Environment. Our work explores the feasibility of using thermoelectric generators (TEG) to utilise available waste heat in CEER facility at BCIT to generate electricity and increase the overall efficiency by combining heat and power generations. The outcomes of this work could be expanded and applied to a bigger scale industrial plant (e.g. thermo plants, process plants) when our work-in-progress experimental results are ready for analysis.

Our research plan is to have a system with 14 commercial thermoelectric generators constructed to convert heat from the flue gasses to electrical energy. We are starting to perform a set of experiments in order to obtain data for the performance of this system including TEG modules. We are planning to use similar systems around BCIT campus for harvesting electrical energy from available waste heat. We also are looking for industrial partner(s) for bigger demonstration sites and future development of similar and modified systems. For IEEE2012 session we will present a detailed description of the technology and present the results of feasibility study (Phase 1).

Speakers: Dr. Mehrzad Tabatabaian is a Faculty Member- Instructor and Program Head- at the Mechanical Engineering Department, School of Energy at BCIT. He does research on renewable energy systems and modeling. Dr. Tabatabaian is Chair of Energy Research Committee and is actively involved in the energy-initiative activities. He has published several papers in various scientific journals and conferences, holds several patents in the energy field. Dr. Tabatabaian's recent focus is on wind and solar power which has resulted in registered and pending patents. Recently, Mehrzad was instrumental in establishing a new division for Energy Efficiency and Renewable Energy (DEERE) at APEGBC. Mehrzad offers several PD seminars for the APEGBC members on the subjects of wind power, solar power, renewable energy, and Finite-Element modeling method.

Mehrzad Tabatabaian got his BEng from Sharif University of Technology (1979), graduated from McGill University (MEng 1986, PhD 1990) in Montreal, Canada. He has been an active academic, professor, and engineer in leading alternative energy, oil, and gas industries. Mehrzad has also a Leadership Certificate from the University of Alberta. He is a member of ASME and ASEE.

Dr. Sanja Boskovic is Chief instructor and the lead Virtual Classroom Thermodynamics and Applied Mechanics instructor for BCIT's Power Engineering innovative distance education methodologies. The following are significant personal contributions.

- Incorporated new environmental technology in every class, either participating in the research or bringing the new technology to classroom and her students
- Study on the Supercritical Water Oxidation System estimating and modeling heat transfer coefficient
- Developed and patented the construction of impact separator, measuring velocity profiles, estimating separator efficiency in Fluidized Bed Boilers
- Contributed to heat transfer and sulphur caption in Pressurized Fluidized Bed Boilers

IEEE PES
Power & Energy Society®

ED 02MAR12

Gene Cheung
National Institute of Informatics, Japan

Eye-Gaze prediction via joint-analysis of gaze patterns and visual media

Thursday 08 March
14:00 to 15:00

ASB 9705
Simon Fraser U
Burnaby

Sponsored by
IEEE Circuits and Systems Society joint chapter of the Vancouver/Victoria sections

Information
Circuits and Systems chair Ljiljana Trajkovic
ljilja@cs.sfu.ca

On one hand, humans perceive visual media through their innate human visual system (HVS), known to have unique characteristics and limitations (limited speed and types of eye movements, inability to discern details away from gaze focal point, etc). On the other hand, visual media (e.g., images and video) contains low-level salient features like motion and flickers that draw human's visual attention. In this research, we seek to derive useful semantic information by jointly analyzing physical signals emitted by observer's HVS and salient features inherent in the visual media.

In particular, I will present first a gaze-based video streaming system, where the future gaze location of an observer is predicted based on previous tracked gaze patterns and pre-computed visual saliency maps of the observed video, so that only the spatial regions of future video frames are encoded in high quality, reducing streaming rate. I will discuss an extension of this streaming system, where streaming rate can be effectively reduced even for store-and-playback video content with no real-time encoding. Finally, I will discuss how one can classify video into "quiet" and "busy" according to the amount of attention shifts a video clip will induce an observer. Because of frequent attention shifts, gaze prediction for "busy" video is much harder.

Speaker: Gene Cheung received the B.S. degree in electrical engineering from Cornell University in 1995, and the M.S. and Ph.D. degrees in electrical engineering and computer science from the University of California, Berkeley, in 1998 and 2000, respectively. He was a senior researcher in Hewlett-Packard Laboratories Japan, Tokyo, from 2000 till 2009. He is currently an assistant professor in National Institute of Informatics in Tokyo, Japan.

His research interests include robust media representation, single- / multiple-view video coding & streaming, and immersive communication. He has published over 100 international conference and journal publications. He has served as associate editor for IEEE Transactions on Multimedia from 2007 to 2011 and currently serves as associate editor for DSP Applications Column in IEEE Signal Processing Magazine and APSIPA journal on signal and information processing. He has also served as area chair in IEEE International Conference on Image Processing (ICIP) 2010 and 2012, technical program co-chair of International Packet Video Workshop (PV) 2010 and track co-chair for Multimedia Signal Processing track in IEEE International Conference on Multimedia and Expo (ICME) 2011. He serves as symposium co-chair for CSSMA Symposium in IEEE GLOBECOM 2012.

He is a co-author of top 10% paper in IEEE International Workshop on Multimedia Signal Processing (MMSP) 2009 and 2011, best student paper in IEEE Workshop on Streaming and Media Communications 2011 (in conjunction with ICME 2011) and best paper finalists in ICME 2011 and ICIP 2011.

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