# IEEE DEST 2013

**DEST**
Digital Ecosystems & Technologies

7th IEEE International Conference on Digital Ecosystems and Technologies Special Theme - Smart Planet and Cyber Physical Systems as Embodiment of Digital Ecosystems

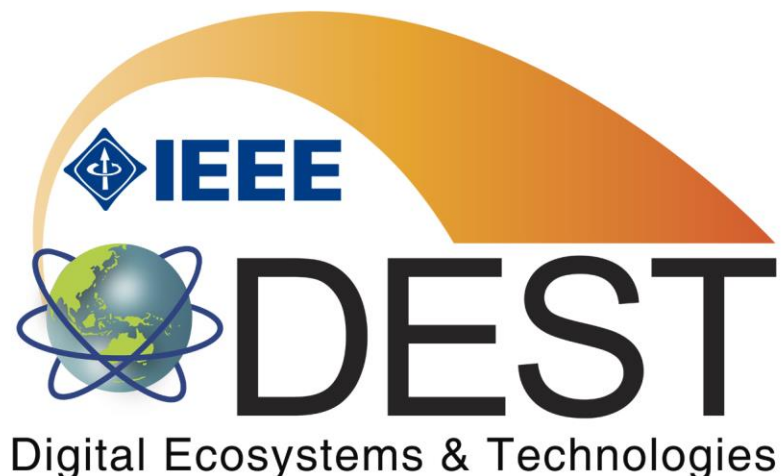24-26 July 2013 – Menlo Park, California, USA

# IEEE DEST 2013

7th IEEE International Conference on Digital Ecosystems and Technologies

Special Theme - Smart Planet and Cyber Physical Systems as Embodiment of Digital Ecosystems

# Conference Program



24-26 July 2013
Menlo Park, Stanford University, California, USA
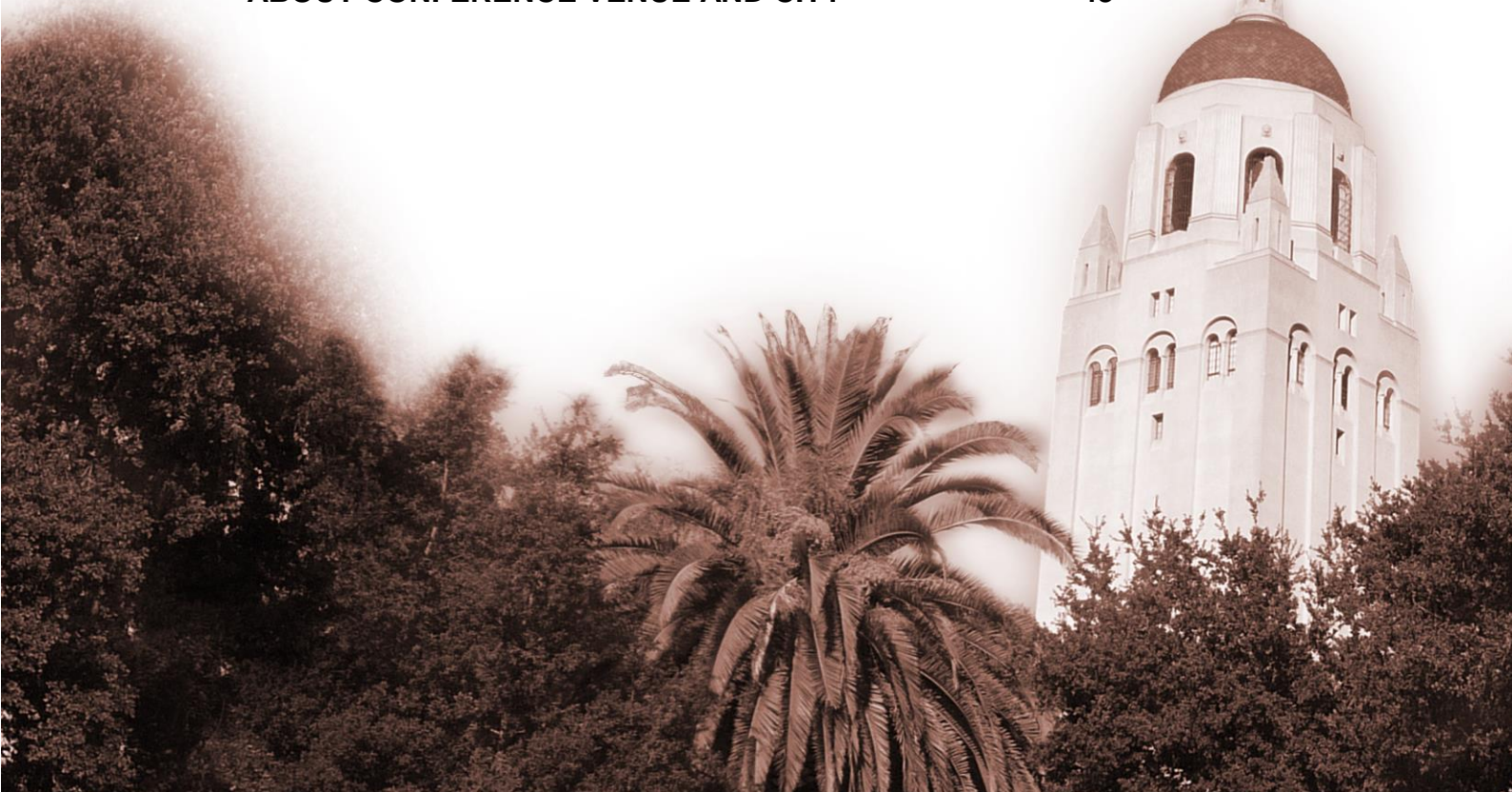http://dest2013.digital-ecology.org

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7th IEEE International Conference on Digital Ecosystems and Technologies

Special Theme - Smart Planet and Cyber Physical Systems as Embodiment of Digital Ecosystems
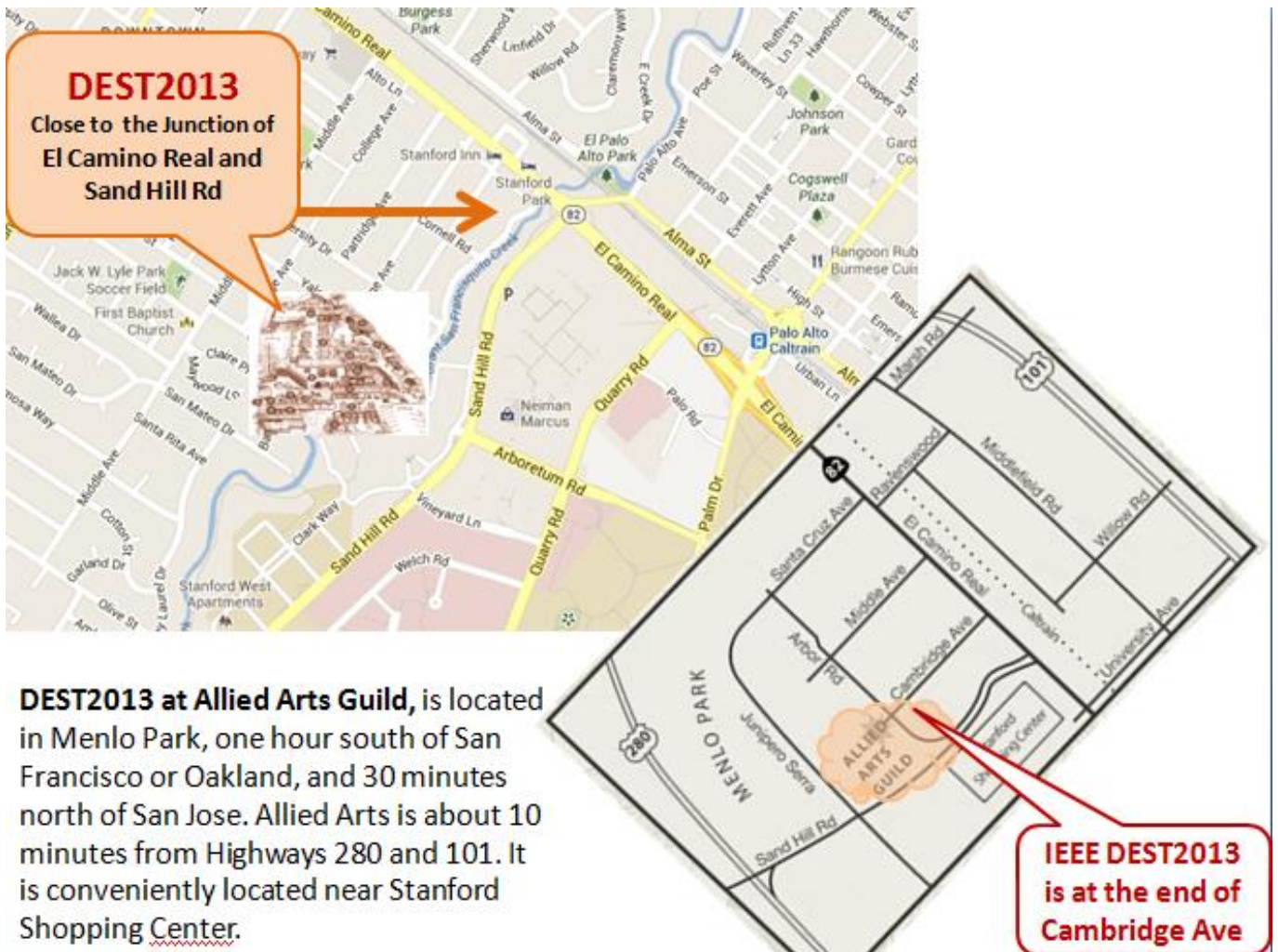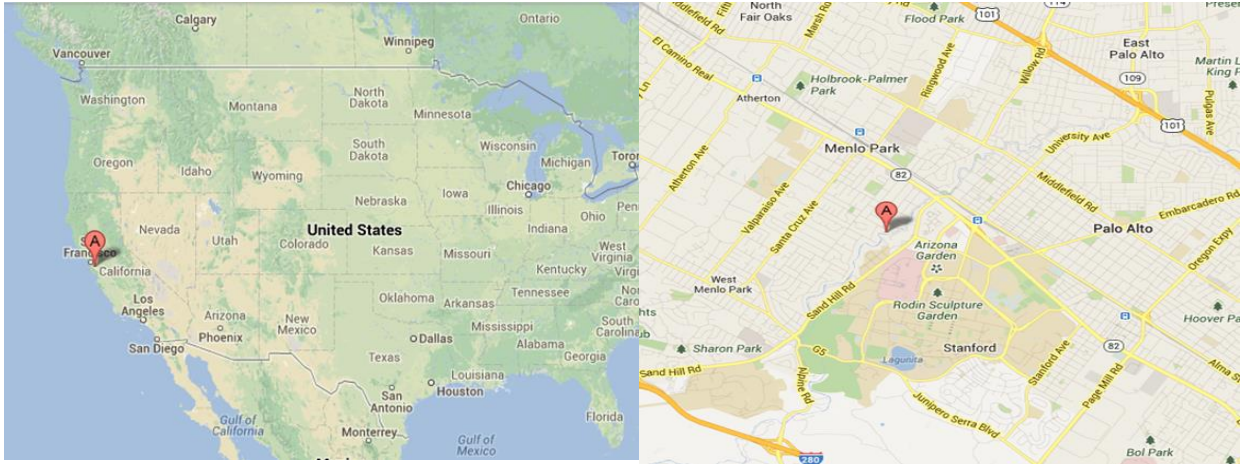
# 1.  Conference Venue

The IEEE–DEST 2013 will be held in Palo Alto, California at Allied Arts Guild in Menlo Park, nested in Stanford University. For more information please refer to "About Conference Venue and City" at the end of the booklet.





DEST2013
Close to the Junction of
El Camino Real and
Sand Hill Rd

DEST2013 at Allied Arts Guild, is located in Menlo Park, one hour south of San Francisco or Oakland, and 30 minutes north of San Jose. Allied Arts is about 10 minutes from Highways 280 and 101. It is conveniently located near Stanford Shopping Center.

IEEE DEST2013 is at the end of Cambridge Ave

**IEEE DEST2013 Conference venue and Hotels Overview**

Menlo Park Caltrain

MENLO PARK — Menlo Park Train Station

**Stanford Inn**

**Stanford Park Hotel**

10-15min walk to Conference

**Mermaid Inn Motel**

**Best Western Hotel**

**IEEE DEST2013 is at the end of Cambridge Ave**

**DEST2013**

**Stanford Shopping Centre**

Neiman Marcus

**Stanford University**

Palo Alto Caltrain

Rangoon Ruby Burmese Cuisine

Palo Alto High School

# IEEE DEST 2013

Allied Art Guild, Menlo Park, Stanford, California
24-26 July 2013

**Garden Galleries**

**Dining Room**

**Conference Room**

**Sunset Room DEST Keynotes**

**Sunset Room Patio Lunch & Tea**

parking

**Car Parking 40 spaces**

**Galleries**

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# 2.    Transportation

You can conveniently reach the location from San Francisco International Airport by car (approx. 30 minutes, free car parking available) or public transportation (approx. 60 minutes). Following are some options to reach the venue by public transport:

1) **Bus**
   - ➢ Take samTrans KX bus (San Mateo express service) from any Terminal of San Francisco Int. Airport. Important: KX Southbound towards Palo Alto
   - ➢ Take bus stop opposite to the Stanford Park Hotel (located in Menlo Park, next to Tesla Car Shop)
   You find our hotel/motel recommendations, in walking distance of the bus stop.

   *Online Schedule: http://www.samtrans.com/schedulesandmaps/timetables/KX.html*
   *Please note: The bus fare is 2 USD / way. It is recommended to carry exact change.*

2) **Train**
   - ➢ Take the train between Palo Alto / Menlo Park and San Francisco
   - ➢ San Francisco downtown can be conveniently reached from closeby Menlo Park train station via Caltrain.

   *Schedule: http://www.caltrain.com/stations/paloaltostation.html*

3) **Train system BART between San Francisco and Berkeley:**
   - ➢ The BART (Bay Area Rapid Transportation System) runs conveniently between San Francisco and downtown Berkeley. Its only a short walk to the campus of Berkeley University.

   *Bart Info: http://www.bart.gov/.*

# 3. Overview of Conference Program

| | **Day 1 - Wednesday 24<sup>th</sup> July 2013**<br><br>Keynotes, SEED Workshop and Research Tracks | | |

| | **Day 1 - Wednesday 24th July 2013** |
|---|---|
| | Keynotes, SEED Workshop and Research Tracks |
| 08:00am-09:00am | **Conference Registration And Morning Tea** *(Sunset Room Patio)*<br><br>Including Innovation Tour Registration for Transportation Support on Day 3 of the conference |
| 09:00am-09:15am | **Opening Speech and talk on Security with Perceptual Computing** *(Sunset Room)*<br><br>Speaker: Dr Michael Condry, Senior Security Technologies Strategist, Intel<br><br>Intel, San Jose and Conference General Co-Chair |
| 09:15am-10:00am | **Keynote Speech: Z-numbers—A New Direction in the Analysis of Uncertain and Complex Systems** *(Sunset Room)*<br><br>Speaker: Professor Lotfi Zadeh, Director, Berkeley Initiative in Soft Computing (BISC)<br><br>University of California Berkeley<br><br>Chair: Professor Tharam Dillon, DEBI Institute and Honorary Conference Co-Chair |
| 10:00am-10:45am | **Keynote Speech: Cyber Physical Systems –Cloud Computing Ecosystems-CPS & Cloud of Things**<br><br> *(Sunset Room)*<br><br>Speaker: Professor Tharam Dillon, DEBI Institute, Australia |
| 10:45am-11:15am | **Tea Break** *(Sunset Room Patio)* |
| 11:15am-12:00pm | **Introduction and SEED Framework Overview Workshop chair:** Jenny Huang, Strategic Standards, AT&T and Researcher, iFOSSF *(Sunset Room)* |
| 12:00am-01:00pm | **Panel Session: Digital Ecosystem for Societal Empowerment** *(Sunset Room)*<br><br>**Moderator:** Ken Homer, Founder, Collaborative Conversation<br><br>**Panelists:**<br><br>• Hans Kielland Aanesen,CEO EPR-forum<br><br>• Jenny Huang, Strategic Standards, AT&T and  Researcher, iFOSSF<br><br>• Achim Karduck, Professor, Furtwangen University<br><br>• Mireille Mather, Executive Director, Foundation for Sustainable Development |

| | |
|---|---|
| | • Tom Rausch, Program Manager, Good World Solutions |
| **01:00pm-01:45pm** | **Lunch Break (*Sunset Room Patio*)** |
| 01:45pm-03:15pm | **SEED Workshop – Part 2** *(Sunset Room)*<br><br>**1:45 – 2:15 Digital Ecosystems and SEED - Co-Innovation in Education**<br><br>**Presenter:** Achim Karduck, Professor, Furtwangen University<br><br>**2:15 – 2:45 The Future Service Model for Home and Community Health Care**<br><br>**Presenter:** Hans Kielland Aanesen, CEO EPR-forum<br>**2:45 – 3:15 Role-based Ontology Tool for Sustainable Development Knowledge Management**<br><br>**Presenters:**<br><br>• Kouji Kozaki, Associate Professor, Institute of Scientific and Industrial Research, Osaka University<br><br>• Osamu Saito, Academic Programme Officer Institute for Sustainability & Peace, United Nations University | **Conference Research Track B**<br>Convergence of Technologies for Sustainable Infrastructures<br><br>*(Conference Room)* |
| **03:15pm–03:30pm** | **Tea Break (*Sunset Room Patio*)** |
| 03:30pm-05.00pm | **SEED Workshop – Part 3** *(Sunset Room)*<br><br>**3:30 – 4:30 Sustainable Development Roadmap – hands-on session using Hozo tool**<br><br>**4:30 – 5:00** Map analysis and next steps | **Conference Research Track H**<br>Cyber-Physical Energy Systems<br><br>*(Conference Room)* |
| 05:00pm onwards | **CONFERENCE RECEPTION (*Dining Room*)**<br><br>Delicious Chinese Food from Su Wong<br><br>**Reception Speech: Digital Ecosystems- The resources for future humanity and society**<br><br>Speaker: Professor Ernesto Damiani, University of Milan,<br><br>Co-Founder of IEEE DEST conference series |

# Day 2 - Thursday 25 July 2013

## Keynotes, Research Tracks, SEED Workshop, Gala Dinner

| | |
|---|---|
| 08:00am-09:00am | **Conference Registration And Morning Tea** *(Sunset Room Patio)*<br><br>Including Innovation Tour Registration for Transportation Support on Day 3 of the conference |
| 09:00am-09:15am | **Opening Speech and Innovation Adoption Initiation** *(Sunset Room)*<br><br>Speaker: Professor Achim P. Karduck, Furtwangen University, Germany |
| 09:15am-10:00am | **Keynote Speech: Massive Data Analytics for Smart Planet** *(Sunset Room)*<br><br>Speaker: Dr. Hamid Pirahesh, IBM Fellow, ACM Fellow<br><br>Chair: Professor Achim P. Karduck, Furtwangen University, Germany |
| 10:00am-10:45am | **Keynote Speech: Social Media for Sustained Digital Ecosystems** *(Sunset Room)*<br><br>Speaker: Professor Christian Wagner, City University of Hong Kong<br><br>Chair: Professor Achim P. Karduck, Furtwangen University, Germany |
| 10:45am-11:15am | **Tea Break** *(Sunset Room Patio)* |
| 11:15am-01:00pm | **Conference Research Track A** Foundations of Digital Ecosystems & Cyber Physical Systems Engineering *(Sunset Room)*    **Conference Research Track C** Digital Humanities *(Conference Room)*    **Conference Student Track K** Big Data Ecosystems *(Dining Room)* |
| 01:00pm-01:45pm | **Lunch Break** *(Sunset Room Patio)* |
| 01:45pm-03:15pm | **Conference Research Track A** Foundations of Digital Ecosystems & Cyber Physical Systems Engineering *(Sunset Room)*    **Conference Research Track I** Collaborative Platforms for Sustainable Logistics and Transportation *(Conference Room)*    **Conference Student Track K & Track G** Big Data Ecosystems, Platforms for Social and Community Involvement / Engagement *(Dining Room)* |
| 03:15pm-03:45pm | **Tea Break** *(Sunset Room Patio)* |

| 03:45pm-05:15pm | **Conference Research Track A & Track F** Foundations of Digital Ecosystems & Cyber Physical Systems Engineering, Healthcare and Sustainable Living *(Sunset Room)* | **Conference Research Track I** Collaborative Platforms for Sustainable Logistics and Transportation *(Conference Room)* | **Conference Student** SEED Workshop *(Dining Room)* |
|---|---|---|---|
| 7:00pm onward | **Conference Gala Dinner „Wild and Golden West"** Location: Buck´s Restaurant @ Woodside, at the heart where Pioneers, Innovators, and Silicon Valley entrepreneurs meet. The historic hometown of Gordon E. Moore, Neil Young, and formerly Steve Jobs etc. Dinner Speech @7pm: Computers that understand speech: Where are we now? Speaker: Dr. Roberto Pieraccini, CEO, ICSI (The International Computer Science Institute, Berkeley 9:00pm onward: Pioneer Saloon @ Woodside Historic Landmark Dinner Host: "The Science of Dance for health, rejuvenation and longevity" and demonstration by Professor Hugh Ching from 9:00pm onwards *Dance to surprise and dress to impress* | | |

# Day 3 - Friday 26th July 2013

The Innovation Forum @ Silicon Valley

Co-Chairs: Achim P. Karduck, O. Sinan Tumer

Location: Morning: Allied Arts Guild

Afternoon: Stanford Campus

**Keynotes, Innovation Adoption Forum,**

**Sustainable Stanford and Stanford Woods Institute for the Environment**

| | |
|---|---|
| 08:30am-09:00am: | Morning Tea (Sunset Room Patio) |
| 09:00am-09:45am | **Keynote: SAP Co-Innovation, Envision the Future, Crossroots Innovation (Sunset Room)**<br><br>Speakers: O. Sinan Tumer, Senior Director SAP Co-Innovation Lab, USA |
| 09:45am–10:30am | **Keynote: Game On Innovation! Prediction markets, virtual currencies & social scores applied (Sunset Room)**<br><br>Speaker: Michael Cayley, Cdling Capital Services Inc., Sunnyvale, California, USA |
| 10:30am–10:45am | **Keynote: Technology Innovation for the Networked Life (Sunset Room)**<br><br>Speaker: Danika Patrick, Innovation Lead, AT&T Foundry, Palo Alto, USA |
| 10:45am–11:00am | Tea Break ( Sunset Room Patio) |
| 11:00am–12:15pm | **Innovation Adoption Forum Panel and Call for Involvement (Sunset Room)**<br><br>Chair: Achim P. Karduck<br><br>Elizabeth Chang, Curtin University and Berkeley University, Australia/USA<br>Ernesto Damiani, University of Milano, Italy<br>Jenny Huang, AT&T Inc., iFOSSF, USA<br>Jie Liu, Fudan University, China<br>Danika Patrick, AT&T Foundry, Palo Alto, USA<br>O. Sinan Tumer, SAP Co-Innovation Lab, USA<br>Christian Wagner, City University Hong Kong, China |
| 12:15pm-02:00pm | Transfer to Stanford Campus & Lunch Break – Self-Org Lunch |
| 02:00pm-03:30pm | **Sustainable Stanford (Stanford Woods Institute)**<br>**Fahmida Ahmed** |

| | |
|---|---|
| | Director of Office of Sustainability, Sustainability & Energy Management<br><br>Stanford University, Palo Alto, USA<br><br>**Jiffy Vermylen**<br><br>Sustainability Coordinator at the Office of Sustainability<br><br>Stanford University, Palo Alto, USA |
| 03:30pm-05:00pm | **Stanford Campus Tour**<br><br>Visit of Hoover Tower<br>Conference Closing Speech<br>Best paper awards, Journal paper invitation<br>Professor Elizabeth Chang, Professor Achim P. Karduck |
| 5:00pm-onward | **Open Social Meetings at Stanford campus**<br><br>Conference Organizing Committee Dinner<br><br><br>**Recommendation:** 06:00pm onwards: Enjoying the evening @ Stanford Jazz Festival: Jazz Camp Showcase (admission free). Please line with: https://stanfordjazz.org/jazz-festival/events/jazz-camp-showcase/<br><br>"See over 200 kids having the time of their lives playing in bands and improvising jazz!"<br><br>Braun Music Center and Dinkelspiel Auditorium @ Stanford Campus |

# 4.    Welcome from the Conference General Chairs

Welcome to the 7th IEEE International Conference on Digital Ecosystem Technologies 2013 (DEST 2013), taking place from July 24 - 26, 2013 in Menlo Park, California, USA. The focus of DEST 2013 is on Complex Systems Engineering in the context of SEED (Social, Economic, and Environmental Engineering).

The venue place of DEST 2013 is the Allied Arts Guild of the Lucy Packard Foundation, with its beautiful and historic garden oasis, with its inspiring environment for working artists. The location reflects both for us, an ecosystem for Breakthrough Innovations and Quality of Life. DEST 2013 bridges the Bay Area. UC Berkeley holds the patronage of DEST 2013, and our venue place taps into in the heart of the Silicon Valley, in direct neighborhood to Stanford University.

We like to thank our Distinguished Keynote Speakers, who bring their global expertise at the forefront of research and co-innovation into DEST 2013. Please refer to the keynote overview for their bios. We are particularly honored, that Professor Lotfi A. Zadeh from UC Berkeley, the Father of Fuzzy Logic, will open our conference with his "Directions in the Analysis of Uncertain and Complex Systems". From Professor Zadeh´s perspective at the ultimate forefront of research, wisdom, and sustainable momentum, his keynote will provide a trajectory for Digital Ecosystems and its potential for SEED for the decades ahead.

In the Oasis Gardens of Allied Arts Guild, we aim to host a conference with sustainable networking opportunities and impact. The high-quality research papers from Asia/Pacific, The Americas, Europe, and Africa will certainly trigger lasting collaboration opportunities.

The Digital Ecosystem paradigm acknowledges the Evolutionary Process of the digital revolution.  DEST 2013 will host the "SEED Inauguration Workshop" by iFOSSF (The International Free and Open Source Solutions Foundation), founded by Jenny Huang. Our Digital Ecosystem paradigm and "The SEED-Framework" of IFOSSF complement each other, since the "Framework is a digital ecosystem enabled blueprint, that aims to facilitate collaborative sustainable development through an emphasis on local-led innovation". The SEED Inauguration Workshop @ DEST 2013 will launch with a distinct set of international contributors, with special input from the Silicon Valley innovation ecosystem.

The "Innovation Forum @ 2013" will continue the Innovation Adoption tradition, launched at DEST 2010 in Dubai. Top level strategic and operational views on the Collaborative Ecosystem for economic growth, social development, and individual well-being are provided and discussed. The Forum provides a mix of keynotes from a Technology Leader and a "Silicon Valley Angel", combined with an Open Forum with distinct participants from the "Global Arena", plus insights from Sustainable Stanford.

The social events will capture the Spirit of The Valley from a different angle. Our Gala Dinner "Wild and Golden West" in the small town of Woodside lets us feel the pulse of The Valley in its varieties. It´s the hometown of Gordon E. Moore, Joan Baez, Neil Young, and formerly Steve Jobs. "Innovation is in the Air", and we celebrate where Pioneers, Innovators, and Silicon Valley Enrepreneurs like to meet.

Our deep acknowledgement goes to the presenting researchers, who share all their hard research work with our Digital Ecosystem community. Our sincere thank you goes to the Honorary Chairs for their trust and support, to the Organization and Program Committee. We like to express our particular thanks to Samin Mirgheshmi for the great Web-Portal, Gaurangi Potdar for her always reliable Conference Secretary (both Perth, Australia), and to Fulvio Fratti (Milano, Italy), our International Publicity and Publication Chair, for his always productive and smooth coordination support for the overall conference. All three are pillars for DEST! We would additionally like to thank all the sponsors of this conference, namely the Institute of Electrical Electronic Engineers (IEEE), and IEEE Industrial Electronics Society (IEEE-IES).

The very momentum for the positioning and energizing of the Digital Ecosystem conference series and the resulting Research and Innovation Ecosystem roots back and is relentlessly driven by its founders: Professor Elizabeth Chang, Professor Tharam Dillon, and Professor Ernesto Damiani. Representatively, Professor Damiani will certainly express the very essence of their motivation in his Reception Speech:

**"Digital Ecosystem - The Resources for Future Humanity and Society"**

On behalf of Conference General Chairs and the entire organization committee, we welcome you to a stimulating conference with sustainable results in Menlo Park, California.

**Josephine Cheng**
IBM Ltd.

**Michael Condry**
Intel Corp.

**Achim P. Karduck**
Furtwangen University

# 5.  Message from the Technical Program Chairs

We are proud to present the technical program of the 7th IEEE International Conference on Digital Ecosystems and Technologies (IEEE-DEST 2013).  IEEE-DEST conference series has the highest citation rate among all IEEE-IES conferences. IEEE Transactions on Industrial Informatics and IEEE Transactions on Industrial Electronics publish special sessions for this conference.

Digital Ecosystems inherit concepts of open, loosely coupled, demand-driven, domain clustered, agent-based self-organized collaborative environments where species/agents form a temporary coalition (or longer term) for a specific purpose or goals. Within this environment every agent is proactive and responsive for their own benefit or profit. The essence of digital ecosystems is inspired by ecological and biological system concepts, and creating value by making connections through collective intelligence and promoting collaboration instead of unbridled competition and ICT-based catalyst effects in a number of domains, to produce networked enriched communities, humanities and societies.

In the present Digital Age, strong development of digital network infrastructure has dominated our service delivery, economic growth and life style. Future applications in domains such as Health-Care, Energy, Transportation and Data-Incentive society demand infrastructures that are more agile than those operated currently. Digital Ecosystem Technologies encompass Human Space Computing and Cyber Information Engineering, starting from Web 3.0 to Web of Things, from Heterogeneity to Elasticity, from Internet of Things to Cloud of Things which has become a major theme for digital economy and digital society.

IEEE DEST 2013 program includes ten technical tracks and one workshop. The conference is scheduled over three days and provides a number of activities and opportunities for intellectual scientific discussion and exchange between the attendees. The submitted manuscripts were subject to IEEE refereeing standard and each paper was reviewed by at least 3 independent reviewers from the international program committee. It additionally provides an extremely interesting social program.

In 2013, the distinguished SEED Inauguration Workshop "Building a Digital Ecosystem for Societal Empowerment" will take place in cooperation with IEEE DEST 2013. Further, the Innovation Adoption Forum underpins the importance of public-private partnership as the key for delivering sustainable solutions for our Complex Living and Business Environment – and thus our Digital Ecosystem Habitat. Our Keynotes, Panels and Sessions will tackle the multifaceted challenges and solutions from various stakeholders' perspectives.

Putting together a high-quality program like this is always a team effort, and we would like to acknowledge many important contributions.  First of all, we would like to thank all authors whose papers are presented in these IEEE DEST 2013 proceedings.  We would like to thank all IEEE DEST 2013 keynote and invited plenary speakers who took great effort to synthesise their materials and presentations.  Heartfelt thanks are also due to our Track and Workshop Chairs for their efforts in soliciting qualified submissions and organising the review process, finally, we would like to thank all IEEE DEST 2013 International Program Committee members who volunteered their time and efforts to review and select the quality papers.

Finally, we would like to congratulate all participants and organisers of IEEE DEST 2013 for their effort in bring in a great success for the conference.



**Elizabeth Chang**
Curtin University

**Roberto Pieraccini**
The International
Computer Science
Institute and Berkeley

**Ernesto Damiani**
University of Milan

# 6.  IEEE DEST 2013 Conference Sponsors

# 7. Conference Organizing Committee

**Honouray Co-Chair**
Lotfi Zadeh
Bodgan Willianoski

**General Chairs**
Josephine Cheng, IBM, USA and China
Michael Condry, Intel, USA
Achim P. Karduck, Furtwangen Uni, Germany

**Technical Programme Chairs**
Elizabeth Chang, Curtin Uni. Australia
Roberto Pieraccini, The International Computer
Science Institute, Berkeley
Ernesto Damiani, University of Milan, Italy

**Local Publicity Chairs**
Edy Portmann, BISC, UC Berkeley
Mark Hedges, Kings College, UK

**International Publicity and Publication Chair**
Fulvio Frati, University of Milan, Italy

**Regional Area Chairs**
Moataz A. Ahmed, KFUPM, Saudi Arabia
Paolo Ceravolo, Università degli Studi di Milano,
Italy
Ralph Deters, University of Saskatchewan,
Canada
Christian Guetl, Graz University of Technology,
Austria
Farookh Hussain, UTS, Australia
Jie Liu, Fudan University, Shanghai, China

**SEED Inauguration Workshop Chair**
Jenny Huang, AT & T Inc., iFOSSF USA

**Innovation Adoption Chairs**
Achim P. Karduck, Furtwangen University,
Germany
O. Sinan Tumer, SAP Research, USA

**Conference Advisory Board**
Tharam Dillon, Chair IEEE TC-II
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Armando Colombo, Schneider Electric, Germany
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Wolfgang Prinz, Fraunhofer FIT, Germany
Csaba A. Szabo, Budapest University, Hungary
Sirin Teriknay, Ozyegin University, Turkey
O.Sinan Tumer, SAP Research, Germany
Xinghuo Yu, IEEE IES AdCOM

**Journal Special Issues Chair**
Farookh Hussain, UTS, Australia

**Tutorial Chairs**
David Suendermann, International Computer
Science Institute and UC Berkeley
Milos Manic, University of Idaho, USA

**Workshop Chairs**
Gamil Serag-Eldin, EECS, UC Berkeley,

**Conference Secretary and Treasurer**
Gaurangi Potdar, DEBI, Australia

**Webmaster and Graphic Designer**
Samin Mirgheshmi, DEBI, Australia
Surasak (Poe) Komchawliaw, DEBI, Australia

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# 8. International Program Committee

- Anas Abou El Kalam, Institut National Polytechnique de Toulouse, France
- Rafael Accorsi, University of Freiburg, Germany
- Mohamed Achemlal, Orange Labs, France
- Jose M Alcaraz Calero, Hewlett-Packard, UK
- Claudio Agostino Ardagna, Università degli Studi di Milano, Italy
- Valentina Emilia Balas, Aurel Vlaicu University of Arad, Romania
- Helen Balinsky, Hewlett-Packard Laboratories, UK
- Karima Boudaoud, Ecole Polytechnique de Nice Sophia Antipolis, France
- Daniele Bonetta, Università della Svizzera Italiana, Switzerland
- Richard Chbeir, University of Bourgogne, France
- William Cheung, Hong-Kong Baptist University Hong Kong, China
- Avigdor Gal, Technion - Israel Institute of Technology, Israel
- Ioana Georgiana Ciuciu, Free University of Brussels, Belgium
- Philippe Cudre-Mauroux, University of Fribourg, Switzerland
- Frédéric Cuppens, Telecom Bretagne, France
- Nora Cuppens-Boulahia, Telecom Bretagne, France
- Alfredo Cuzzocrea, ICAR-CNR and University of Calabria, Italy
- Schahram Dustdar, Vienna University of Technology, Austria
- Eduardo Fernàndez-Medina Patòn, University of Castilla-La Mancha, Spain
- Avigdor Gal, Israel Institute of Technology, Israel
- Mohand-Said Hacid, Université Claude Bernard Lyon 1, France
- Gunnar Hartvigsen, University of Tromso & Norwegian Centre for Integr. Care and Telemedicine, Norway
- Peter Hermann, Norwegian University of Science and Technology, Trondheim, Norway
- Wei-Chiang Hong, Oriental Institute of Technology, Taiwan China
- Chi Hung, Tsinghua University, China
- Leila Ismail, University of the Emirates, U.A.E.
- Meiko Jensen, University Bochum, Germany
- Farookh Khadeer Hussain, Curtin University, Australia
- Markus Küster, Fachhochschule Worms, Germany
- Marcello Leida, EBTIC (Etisalat BT Innovation Centre), UAE
- Antonio Mana Gomez, University of Malaga, Spain
- Gregorio Martinez Perez, University of Murcia, Spain
- Mohamed Mosbah, University of Bordeaux, France
- Haris Mouratidis, University of East London, UK
- Balan Pillai, Standford University, US
- Manfred Reichert, University of Ulm, Germany
- Thomas Risse, L3S Research Center, Germany
- Etienne Riviere, Université de Neuchàtel, Swizerland
- Tom Routen, Thingsprime, Switzerland
- Gabriele Ruffatti, Engineering Group, Italy
- George Spanoudakis, City University of London, UK
- Peter Spyns, Vrije Universiteit Brussel - STAR Lab, Belgium
- Davor Svetinovic, Masdar Institute of Technology, Abu Dhabi, UAE
- Margaret Tan, Nanyang Technological University, Singapore
- Irene Vanderfeesten, Eindhoven University of Technology, The Netherlands
- Andreas Wombacher, University of Twente, The Netherlands
- Eduardo Fernandez, Florida Atlantic University, USA
- Davide Storelli, University of Salento, Italy
- Debasis Giri, Haldia Institute of Technology, India
- Fritz Steimer, Furtwangen University, Germany

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# 9. Keynotes and Invited Speakers

**Keynote Speech:**
Z-numbers—A New Direction in the Analysis of Uncertain and Complex Systems

**Speaker:**
Professor Lotfi Zadeh, Director, Berkeley Initiative in Soft Computing (BISC)
University of California Berkeley

**Keynote Speech:**
Cyber Physical Systems –Cloud Computing Ecosystems-CPS & Cloud of Things

**Speaker:**
Professor Tharam Dillon, DEBI Institute, and La Trobe University, Australia

**Keynote Speech:**
Massive Data Analytics for Smart Planet

**Speaker:**
Dr. Hamid Pirahesh, IBM Fellow, ACM Fellow

**Keynote Speech:**
Social Media for Sustained Digital Ecosystems

**Speaker:**
Professor Christian Wagner, City University of Hong Kong

**Keynote Speech:**
SAP Co-Innovation, Envision the Future, Crossroots Innovation

**Speaker:**
O. Sinan Tumer, Senior Director SAP Co-Innovation Lab, USA

**Plenary Talk:**
Technology Innovation for the Networked Life

**Speaker:**
Danika Patrick, Innovation Lead, AT&T Foundry, Palo Alto

**Plenary Talk:**
Game On Innovation! Prediction markets, virtual currencies & social scores

**Speaker:**
Founder, Cdling Capital Services Inc.
Director, Startup Grind Toronto Sunnyvale, California, USA

**Dinner Speech (Thursday 25 July 2013):**

**Title:**
Computers that understand speech: Where are we now?

**Speaker:**
Dr. Roberto Pieraccini, CEO, ICSI (The International Computer Science Institute), Berkeley

**Reception Speech (Wednesday 24 July 2013):**

**Title:**
Digital Ecosystems- The resources for future humanity and society

**Speaker:**
Professor Ernesto Damiani, University of Milan, Co-Founder of IEEE DEST conference series

**Dinner Host Demonstration (Thursday 25 July 2013):**

**Title:**
The Science of Dance for health, rejuvenation and longevity

**Speaker:**
Professor Hugh Ching

# 10. Seed Inaugural Workshop

**Building a Digital Ecosystem for Societal Empowerment**
**Wednesday July 24, 2013**

**Workshop Chair**
Jenny Huang
Strategic Standards,
AT&T Inc.
Director of Research,
iFOSSF.org

**Workshop Facilitator**
Ken Homer
Founder
Collaborative
Conversation

**Expert on Tap**
Achim Karduck
Professor
Furtwangen
University

**Expert on Tap**
Mireille Cronin Mather
Executive Director
Foundation for
Sustainable
Development

**Expert on Tap**
Dr. Kouji Kozaki
Associate Professor
Institute of Scientific and
Industrial Research
Osaka University

**Expert on Tap**
Dr. Osamu Saito
Academic
Programme Officer
Institute for
Sustainability &
Peace
United Nations
University

**Expert on Tap**
Hans A Kielland
Aanesen
CEO
EPR-Forum

**Expert on Tap**
Tom Rausch
Program Manager
Good World Solutions

We are excited to bring you a thought provoking workshop for this year's conference, The SEED Framework.

Traditional approaches to Social, Economic and Environmental Development (SEED) have historically employed a closed, top-down model in which problems are viewed narrowly and the input of local stakeholders is rarely sought. More recent efforts to address development from a holistic, multidisciplinary perspective—while a major step in the right direction—have been hindered by a lack of appropriate tools and well-defined processes to enable disparate resources to work effectively together towards common goals.

The SEED Framework, developed by iFOSSF (International Free and Open Source Solutions Foundation), is specifically designed to support locally-led innovation with self-organizing, multidisciplinary collaborations and, most importantly, to translate concepts and ideas into actions. Combining the strength of both structured and unstructured workforces, the framework employs an open, "coopetition" strategy that integrates existing standards and practices across multiple sectors, enabling a high-level, results-oriented collaboration with a deep awareness of the local culture.

6 Steps Co-creating Sustainable Solutions
4 Enabling Components

1. NEEDS
2. STRATEGY
3. INCUBATION
4. LOCALIZATION
5. EVALUATION
6. CREATION

ECOSYSTEM GOVERNANCE
PARTNERSHIP MODELING
BENCHMARK & MEASUREMENT
SEMANTIC KNOWLEDGEBASE

We are bringing together some leading researchers and practitioners in the field of sustainable development as "Experts on Tap" to both seed and guide this conversationally-based workshop. We recognize that a tremendous amount of wisdom and knowledge resides in the participants and we have designed this workshop to be highly participatory. The key components of the SEED Framework neatly dovetail with many existing DEST2013 tracks and the model provides an exciting and unprecedented opportunity to integrate participants' individual contributions within a greater whole.

Moreover, the six-step SEED process—incorporating needs identification, multifaceted research, team-building, investment strategy, and real-world results—both facilitates information flow and paves the way for new affiliations with businesses, NGOs, and other strategic partners. Successful projects can lead not only to new technology implementations and deployment, but new businesses, job creation, and curriculum development for education.

We envision the SEED Framework having the potential to shift industry and government investments toward more equitable and productive resource distribution globally and locally. With the aim of helping advance the science of sustainability in advanced ICT practice, participants will learn and co-create a new model of sustainable community development.

# 11. Conference Program in Detail

**Conference Tracks**

Tracks deals with deep ICT foundations of digital ecosystems, including large-scale, virtualized infrastructures, hosting ecosystem services and processes.

Ecosystems require a novel approach to ICT technology development, closely related to the engineering of complex systems includes how the technological support for digital ecosystems, presents contributions in various application domains, it requires convergence of multi discipline of science and engineering studies. Radically increasing the involvement of stakeholders with smart planet and complex cyber physical systems.

For example in energy systems or healthcare systems. In the longer term, approaches for enabling collaborative ecosystems may lead to high-impact solutions for today´s most pressing challenges.

The tracks will identify domain requirements, research challenges and systems solutions with respect to the concept of Digital Ecosystems, Smart Planet and Complex Cyber Digital Systems, as outlined in the background and objectives of IEEE DEST 2013. Within this context, the tracks will focus on, but not be limited to, the issues like - scalability and availability, heterogeneity, elasticity, utility, mobility, integrity and evolvability.

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## List of Tracks

**Track A: Foundations of Digital Ecosystems & Cyber Physical Systems Engineering**

**Track B: Convergence of Technologies for Sustainable Infrastructures**

**Track C: Digital Humanities**

**Track D: Cyber-Security Ecosystem**

**Track E: Hybrid Biological-Digital Systems**

**Track F: Healthcare and Sustainable Living**

**Track G: Platforms for Social and Community Involvement / Engagement**

**Track H: Cyber-Physical Energy Systems**

**Track I: Collaborative Platforms for Sustainable Logistics and Transportation**

**Track J: Fuzzy Semantic computing in digital ecosystems**

**Track K: Big Data Ecosystems**

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# Day 1

## Day 1 - Wednesday 24 July 2013
### 09:00 am - 09:15 am *Sunset* Room

## Opening Speech & Chair

**Opening Speech:**
Security with Perceptual Computing

**Speaker:** Dr Michael W. Condry
Intel, Senior Security Technologies Strategist, San Jose, USA
Conference General Co-Chair

**Abstract**:
Computer Security his highly desired but is confronted with exceptionally limited adoption, particularly in consumer and small business markets, because of its complex usability and user interfaces.  Utilizing perceptual computing (sensors, recognition, etc.) allows for the facilitation of safer computing in these markets with the complex usability. I this presentation overviews the direction, strategies, and advantages of this approach to security enablement.

**Short–Bio**:
After receiving his Ph.D. from Yale University Computer Science in 1980, Michael's career has followed a mixture of academic and industry positions, mostly industry. He had teaching and research positions at Princeton and University of Illinois and industry roles AT&T Bell-Labs, Sun Microsystems, and Intel. His background includes projects in computer architecture, software, firmware, operating systems, networking, internet applications, and computer security. Currently, Michael is currently the lead scientist for computer security and user experience enablement at Intel that address the procedures and technologies for stronger adoption.

Michael is also a senior board member for the IEEE Industrial Electronics Society, he created and chairs Industry Forum conference series and co-chairs Technical Committee on standards.  Michael is also a member of the IEEE Computer Society.

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# Day 1 - Wednesday 24 July 2013
## 09:15 am -10:00 am *Sunset* Room

# Keynote Speech

**Keynote Speech:**
Z-numbers—A New Direction in the Analysis of Uncertain and Complex Systems

**Speaker:**
Professor Lotfi Zadeh
BISC – The Berkeley Initiative in Soft Computing
Berkeley University

**Abstract:**
Decisions are based on information. To be useful, information must be reliable. Basically, the concept of a Z-number relates to the issue of reliability of information. A Z-number, Z, has two components, Z=(A,B). The first component, A, is a restriction (constraint) on the values which a real-valued uncertain variable, X, is allowed to take. The second component, B, is a measure of reliability (certainty) of the first component. Typically, A and B are described in a natural language. Example: (about 45 minutes, very sure). An important issue relates to computation with Z-numbers. Examples: What is the sum of (about 45 minutes, very sure) and (about 30 minutes, sure)? What is the square root of (approximately 100, likely)? Computation with Z-numbers falls within the province of Computing with Words (CW or CWW). In this lecture, the concept of a Z-number is introduced and methods of computation with Z-numbers are outlined. The concept of a Z-number has a potential for many applications, especially in the realms of economics, ecosystems, biomedicine, decision analysis, risk assessment, prediction, anticipation, rule-based characterization of imprecise functions and relations.

**Short-Bio:**
Lotfi A. Zadeh is Professor Emeritus, Computer Science Division, Department of EECS, University of California, Berkeley. In addition, he is serving as the Director of BISC (Berkeley Initiative in Soft Computing). Since the publication of his first paper on fuzzy sets in 1965, his research has been focused on fuzzy logic and its applications.

Lotfi Zadeh has received many awards, among them the IEEE Medal of Honor, IEEE Education Medal, IEEE Richard W. Hamming Medal, the ACM Allen Newell Award, the Honda Prize, the Okawa Prize, the Kaufmann Prize and Gold Medal, Grigore Moisil Prize, the Kampe de Feriet Award, Bolzano Medal, the Nicolaus Copernicus Medal, Norbert Wiener Award, the Benjamin Franklin Medal, the Friendship Order from the President of the Republic of Azerbaijan and the BBVA Foundation Frontiers of Knowledge Award. He was inducted into the Silicon Valley Engineering Hall of Fame, the AI Hall of Fame and the Nixdorf Museum Wall of Fame. He is a recipient of twenty-five honorary doctorates, and is a member of the National Academy of Engineering. In addition, he is a foreign member of the Finnish Academy of Sciences, the Polish Academy of Sciences, the Korean Academy of Science & Technology, the Bulgarian Academy of Sciences, the Azerbaijan Academy of Sciences, Hungarian Academy of Engineering and Romanian Academy of Technical Sciences and a member of the International Academy of System Studies. His work is associated with 115,191 Google Scholar citations.
http://www.cs.berkeley.edu/~zadeh/

# Keynote Speech

**Keynote Speech:**
Cyber Physical Systems –Cloud Computing Ecosystems-CPS & Cloud of Things

**Speaker:**
Professor Tharam Dillon
La Trobe University, DEBI Institute, Australia

**Abstract:** Cyber Physical Systems (CPS) involve the connections of real world objects into networked information systems including the web. It utilises the framework and architecture for such CPS systems based on the Web of Things previously developed by the authors. There is an increasing tendency to integrate these CPS Systems with Cloud Computing to produce the Cloud of Things or a CPS Cloud Ecosystem.

**Professor Dillon Short-Bio:**
Professor Tharam Dillon is internationally recognized for his research on Semantic Web, Web services, knowledge discovery, and data mining, neural networks, intelligent systems, object-oriented systems, communications, fault tolerant systems, and distributed protocol engineering. He is head of the IFIP International Task Force WG2.12/24 on Semantic Web and Web Semantics, and the IEEE/IES Technical Committee on Industrial Informatics. He has published 12 books, 650 research papers as book chapters, in journals, and in international conferences. His research has received over 7,500 citations with a Hurst index of 39 (Google scholar), and over 55 PhD theses completion. Research interests include: Cyber Physical Systems, Wireless Sensor Networks, Semantic Web, Ontologies, XML Systems, Bioinformatics, Expert and Intelligent systems, Data Mining, etc. His research has made significant contributions to a number of application areas including logistics, banking and finance, electrical power systems, telecommunications and management.

# Day 1 - Wednesday 24 July 2013

| | |
|---|---|
| 10:45 am - 11:15 pm | **Tea Break  (Sunset Room Patio)** |
| 11:15 am - 12:00 pm | **Introduction and SEED Framework Overview**<br>**Workshop chair:**  Jenny Huang, Strategic Standards, AT&T and  Researcher, iFOSSF *(Sunset Room)* |
| 12:00 am - 01:00 pm | **Panel Session:  Digital Ecosystem for Societal Empowerment** *(Sunset Room)*<br>**Moderator:** Ken Homer, Founder, Collaborative Conversation<br>**Panelists:**<br>• Hans Kielland Aanesen,CEO EPR-forum<br>• Jenny Huang, Strategic Standards, AT&T and  Researcher, iFOSSF<br>• Achim Karduck, Professor, Furtwangen University<br>• Mireille Mather, Executive Director, Foundation for Sustainable Development<br>• Tom Rausch, Program Manager, Good World Solutions |
| 01:00 pm- 01:45 pm | **Lunch Break (Sunset Room Patio)** |

| 01:45 pm - 03:15 pm | SEED Workshop | Paper Presentations | Track B |
|---|---|---|---|
| 01:45 pm - 03:15 pm | **SEED Workshop – Part 2** *(Sunset Room)*<br>**1:45 – 2:15 Digital Ecosystems and SEED - Co-Innovation in Education**<br>**Presenter:** Achim Karduck, Professor, Furtwangen University<br>**2:15 – 2:45 The Future Service Model for Home and Community Health Care**<br>**Presenter:**  Hans Kielland Aanesen, CEO EPR-forum<br>**2:45 – 3:15 Role-based Ontology  Tool for Sustainable Development Knowledge Management**<br>**Presenters:**<br>• Kouji Kozaki, Associate Professor, Institute of Scientific and Industrial Research, Osaka University<br>• Osamu Saito, Academic Programme Officer Institute for Sustainability & Peace, United Nations University | **Paper Presentations** | **Track B: Convergence of Technologies for Sustainable Infrastructures** (Conference Room) |
| | | | **Title/Author** |
| | | | **CoPrA: A Tool For Coding and Measuring Communication In Teams**<br>Fulvio Frati, Italy, Università degli Studi di Milano<br>Isabella Seeber, Austria, University of Innsbruck |
| | | | **What Groupware Functionality Do Users Really Use?**<br>Nils Jeners, Germany, RWTH Aachen<br>Oleksandr Lobunets, Germany,  Fraunhofer FIT |
| | | | **Software Ecosystems Governance to Enable IT Architecture Based on Software Asset Management**<br>Benno Albert, Brazil, COPPE/UFRJ e Petrobras<br><br>Rodrigo Santos, Brazil, COPPE/UFRJ<br>Claudia Werner, Brazil, COPPE/UFRJ |

| | | | |
|---|---|---|---|
| | | | ***30 mins for each presentation*** |
| 03:30 pm - 05:00 pm | **SEED Workshop – Part 3** *(Sunset Room)*<br>**3:30 – 4:30  Sustainable Development Roadmap –<br>hands-on session using Hozo tool**<br>**4:30 – 5:00** Map analysis and next steps | **Paper Presentations** | **Track H: Cyber-Physical Energy Systems**<br>(Conference Room) |
| | | | **Title/Author** |
| | | | **Sensemaking and Robust Decision Engineering:<br>Synchrophasors and their Application for a Secure Smart Grid**<br>Steve Chan, United States, Massachusetts Institute of Technology<br><br>Simone Sala, United States, Massachusetts Institute of Technology,<br>Columbia University |
| | | | **Closing the Loop - From Citizen Sensing to Citizen Actuation**<br>David Crowley, Ireland, NUI Galway, Ireland<br><br>Edward Curry, Ireland, Digital Enterprise Research Institute, Ireland<br><br>John Breslin, Ireland, NUI Galway |
| | | | **Real-time Building Occupancy Sensing Using Neural-Network<br>Based Sensor Network**<br>Tobore Ekwevugbe, United Kingdom, Institute of Energy &<br>Sustainable Development<br><br>Neil Brown, Vijay Pakka, Denis Fan, United Kingdom, Institute of<br>Energy & Sustainable Development |
| | | | ***30 mins for each presentation*** |

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# CONFERENCE RECEPTION
**Day 1 – Wednesday 24 July 2013**
**5.00pm onwards**

**Location:** Dining Room, Delicious Chinese Food from Su Wong

**Reception Speech**: Digital Ecosystems- The resources for future humanity and society
**Speaker**: Professor Ernesto Damiani, University of Milan, Co-Founder of IEEE DEST conference series

## ------- End of Day 1 -------

# Day 2

## Day 2 - Thursday 25 July 2013
### 09:00 am - 09:15 am *Sunset* Room

# Opening Speech & Chair

**Opening Speech & Innovation Adoption Initiation**

Professor Achim P. Karduck
Furtwangen University, Germany
Conference General Co-Chair

**Abstract:** The "Innovation Forum at DEST 2013" will continue the Innovation Adoption tradition, launched at DEST 2010 in Dubai. Top level strategic and operational views on the Collaborative Ecosystem for economic growth, social development, and individual well-being will be provided and discussed.

The opening speech by Professor Achim P. Karduck will reflect on IEEE DEST 2013 in the context of the previous DEST conferences and the co-innovation potential of Digital Ecosystems for Social, Economic, and Environmental Engineering (SEED). In 1987 the UN Commission on Environment and Development defined sustainable development as: *„meeting the needs of the present without compromising the ability of future generations to meet their own needs*"*.* Our conference hopes to help realize this goal by working towards the harmonization produced by the underlying evolutionary process of the effective and efficient utilization of resources, financial investment objectives, progress of technology advancement, and institutional change. It only made sense for DEST 2013 to also host the "SEED Inauguration Workshop" by the International Free and Open Source Solutions Foundation.

The opening speech relates DEST 2013 and the Innovation Adoption Forum to the radical change that is possible and required for SEED, as outlined by the current Club of Rome President Ernst Ulrich von Weizsäcker in Factor 5 [1]. Weizsäcker provides examples for transforming the global economy on an economic path that is environmentally sustainable by increasing the resource productivity by factor 5 in various sectors in the industrialized regions, while being economically more profitable and balancing quality of life priorities.

[1] *Weizsäcker von E. et al.: Factor Five: Transforming the Global Economy through 80 % Improvements in Resource Productivity, Published with The Natural Edge Project, Routledge Publishing, 2009.*

**Short–Bio**:
Achim P. Karduck is a Professor for Telematics and Software Architecture at Furtwangen University, Germany. His research activities are in the area of Collaborative Systems, Digital Ecosystems, Innovation Adoption Strategies, and SEED (Social, Economic, and Environmental Development). His research is often done in conjunction with industrial partners and international research centers such as

Daimler Research, SAP Research, Singapore Internet Research Center. He has lectured and researched internationally at Tongji-University Shanghai (China), Universidade Federal de Santa Catarina (Brazil), and the Grand Ecole EMAC (Albi, France). In 2009, Achim P. Karduck was appointed Adjunct Professor at Curtin University of Technology (Perth, Australia).

He is strongly involved in the successes of the IEEE DEST (International Conference on Digital Ecosystems and Technologies) conference series. This year he serves as General Co-Chair of IEEE DEST 2013 in Menlo Park (USA), and served as Co-Chair for DEST 2011 in Campione (Italy) and DEST 2010 in Dubai (UAE), and since DEST 2010 as well as Co-Chair for the newly introduced Innovation Adoption Forum with.

Achim P. Karduck holds a B.Sc. Hons in Computer Science from Furtwangen University (Germany), a Master of Science degree in Man-Computer Systems from De Montfort University (UK), and a Ph.D. in Telematics from Freiburg University (Germany).

Before his University career, he headed the Innovation Department for New IS of Swiss Bank Corporation in Basel, Switzerland. He was subsequently appointed head of UBS Private Banking New Technologies US in New York, USA.

## Day 2 - Thursday 25 July 2013
### 09:15 am - 10:00 am *Sunset* Room

# Keynote Speech

**Keynote Speech:**
Massive Data Analytics for Smart Planet

**Speaker:**
Dr. Hamid Pirahesh
IBM Fellow, ACM Fellow

**Abstract:** Information technology is going through a fundamental change, influenced primarily by (1) economically scalable big computation and big storage, (2) Accelerated pace of analytics around semi-structured and unstructured data in the context of semantically rich data objects in the main stream data processing, (3) Much increased human interaction with the cloud due to the use of GPS enabled smart phones, and its application in our daily lives, including location based service, social networking, and smart phone based retail, (4) Cloud Computing, (5) Emergence of cognitive Systems, such as IBM Watson, which are mainly taught not programmed.

Continuous arrival of huge amount of data (10's, 100's and even 1000 TB per day) from numerous sources requires continuous discovery of information. Applications such as healthcare analytics, genomic, and climate optimized agriculture are getting national level attention. There is a major shift in investing in smarter planet applications, such as those associated with instrumented cities, green initiatives, and smart power grids. Many of these applications play a significant role in major economies around the world

**Short–Bio:** Hamid Pirahesh, Ph.D., is an IBM fellow, ACM Fellow, and a senior manager responsible for the exploratory database department at IBM Almaden Research Center in San Jose, California. He also has direct responsibilities in various aspects of IBM information management products and is a member of IBM SWG architecture board. He received his Ph.D. from the University of California at Los Angeles in the area of database systems.

Pirahesh is a member of IBM Academy. He has served as an associate editor of ACM Computing Surveys and has served on program committee of major computer conferences. Hamid is a winner of

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several test of time award papers in major information management conferences. Hamid's current focus is analytics at the massive scale on highly scalable servers, and is heavily involved IBM BigInsights product. Hamid was a principle member of the original team that designed the query processing architecture of the IBM DB2 UDB relational DBMS and delivered the product to the marketplace. He has made major contributions to query language industry standards. His research areas include cloud computing, OLAP and aggregate data management, query optimization, data warehousing, Service Oriented Architecture, management of semi-structured and unstructured data, Information integration in web based federated and distributed systems. He also serves as a consultant to various IBM product divisions, including the software division and IBM Global Services.

# Day 2 - Thursday 25 July 2013

## 10:00 am - 10:45 am *Sunset* Room

# Keynote Speech

**Keynote Speech:**
Social Media for Sustained Digital Ecosystems

**Speaker:**
Professor Christian Wagner
City University of Hong Kong
School of Creative Media / Information Systems

**Abstract:** Virtual communities operate as dispersed groups that communicate and collaborate using social media. Not surprisingly, their operational characteristics are similar in many ways to those of regular ecosystems. Similarities range from the influences required to create digital ecosystems online via social media, to the roles of different ecosystem participants, the exchange of benefits between participants, and the overall outcomes. This talk explores these important similarities between online communities and ecosystems. It also identifies the important differences between these digital ecosystems and their counterparts in the real world. Through this exploration, we will encounter some social media based ecosystem idiosyncrasies, such as "if you build it they won't come", or "biggest fish first". In recognizing these differences the presentation will draw conclusions on the benefits of using the digital ecosystem perspective for the understanding of social media based systems.

**Short-Bio:**
Christian Wagner is Professor of Information Systems at City University's Information Systems Department. He received his Ph.D. in Business Administration from the University of British Columbia in 1989. Thereafter he spent seven years as a faculty member at the University of Southern California, before joining City University in January 1996. Wagner specializes in the development and study of decision support systems, creativity support, and knowledge management with wikis and weblogs.

He is Professor Associate Provost (Quality Assurance) of City University Hong Kong, and Associate Dean of the School of Creative Media.

# Day 2 - Thursday 25 July 2013

| 11:15 am – 01:00pm | Paper Presentations | Track A: Foundations of Digital Ecosystems and Complex Environment Engineering (Sunset Room) | Track C: Digital Humanities (Conference Room) | Track K: Big Data Ecosystems (Dining Room) |
|---|---|---|---|---|
| | | Title/Author | Title/Author | Title/Author |
| | | Many-player Inspection Games in Networked Environments<br>Gabriele Gianini, Italy, Universita' degli Studi di Milano<br>Ernesto Damiani, Italy University of Milan<br>Tobias R. Mayer, David Coquil, Harald Kosch, Germany, University of Passau<br>Lionel Brunie, France | CENDARI: establishing a digital ecosystem for historical research<br>Richard Gartner, Mark Hedges, United Kingdom, King's College London | Big-data Integration Methodologies for Effective Management and Data Mining of Petroleum Digital Ecosystems<br>Dr Shastri Nimmagadda, Russia, Russian Federation, Schlumberger<br>Prof Heinz V Dreher, Australia, Curtin University |
| | | The Cover Time of Neighbor-Avoiding Gossiping on Geometric Random Networks<br>Gabriele Gianini, Italy, Universita' degli Studi di Milano<br>Ernesto Damiani, Italy University of Milan | TEXTvre: textual scholarship and the institutional ecosystem<br>Mark Hedges, Tobias Blanke, United Kingdom, King's College London<br>Malcolm Illingworth, United Kingdom, University of Edinburgh | The Inquiry into Telecom Enterprises' Cloud Computing Strategy: A Case Study of China Telecom<br>Jie Liu, Rui Dai, China, Fudan University |

| | | **Python: Characteristics Identification of a Free Open Source Software Ecosystem**<br>Rick Hoving, Gabriel Slot, Slinger Jansen, Netherlands, University Utrecht | **Towards Automated Identification and Analysis of Argumentation Structures in the Decision Corpus of the German Federal Constitutional Court**<br>Constantin Houy, Tim Niesen, Peter Fettke, Peter Loos, Germany, Saarland University | **Unstructured Data Extraction in Distributed NoSQL**<br>Richard Lomotey, Ralph Deters, Canada, University of Saskatchewan |
|---|---|---|---|---|
| | | *30 mins for each presentation* | *30 mins for each presentation* | *30 mins for each presentation* |
| 01:45 pm – 03:15 pm | **Paper Presentations** | **Track A: Foundations of Digital Ecosystems and Complex Environment Engineering**<br>(Sunset Room) | **Track I: Collaborative Platforms for Sustainable Logistics and Transportation**<br>(Conference Room) | **Track K: Big Data Ecosystems & Track G: Platforms for Social and Community Involvement / Engagement**<br>(Dining Room) |
| | | Title/Author | Title/Author | Title/Author |
| | | **Digital Ecosystems and SEED Co-Innovation in Education**<br>Achim P. Karduck<br>Furtwangen University<br>Germany | **Addressing Agility in Collaborative Processes: A comparative Study**<br>Yiannis Verginadis, Greece, Dimitris Apostolou, National Technical University of Athens<br>Anne-Marie Barthe-Delanoe, Frederick Benaben, France, Mines Albi - Universite de Toulouse | |

| | | |
|---|---|---|
| **An Evolutionary Economics Approach to Ecosystem Dynamics** Vincent Blijleven, Joey Van Angeren, Slinger Jansen, Sjaak Brinkkemper ,Netherlands, Utrecht University | **How to anticipate the level of activity of a sustainable collaborative network: the case of urban freight delivery through logistics platforms** Lucile Faure, France, Guillaume Battaia, Guillaume Marquès, France, Ecole des Mines de Saint-Etienne Romain Guillaume, France, Université de Toulouse IRIT Carlos Alberto Vega-Mejia, Jairo R. Montoya-Torres, Andres Munoz-Villamizar, Carlos L. Quintero-Araujo, Colombia, Universidad de La Sabana | **The Critical Mass in Collaborative Digital Business Ecosystems for Innovation: A Case Exploration of Readiness and Willingness** Dietmar Nedbal,  University of Applied Sciences Upper Austria Patrick Brandtner,  University of Applied Sciences Upper Austria  and Michael A. Erskine,   University of Colorado Denver |
| **E-co-innovation for making e-services: Living Labs as a human-centered digital ecosystem for education with ICT** Noel Conruyt, France, University of Reunion Island | **Development of Landmark Based Routing System for In-car GPS Navigation** Benjamin Zeeb, Qingling Kong, Jianhong Xia, Elizabeth Chang, Australia, Curtin University | **The Role of Task Difficulty in the Effectiveness of Collective Intelligence** Christian Wagner,  City University of Hong Kong Ayoung Suh,  Ewha Womans University, Korea |
| *30 mins for each presentation* | *30 mins for each presentation* | *30 mins for each presentation* |
| | | |

| 03:45 pm - 05:15 pm | | **Track A: Foundations of Digital Ecosystems and Complex Environment Engineering & Track F: Healthcare and Sustainable Living** (Sunset Room) | **Track I: Collaborative Platforms for Sustainable Logistics and Transportation** (Conference Room) | **SEED workshop** (Dining Room) |
|---|---|---|---|---|
| | **Paper Presentations** | Title/Author | Title/Author | Title/Author |
| | | **Complementor Embeddedness in Platform Ecosystems: The Case of Google Apps** Joey Van Angeren, Netherlands, Utrecht University Vincent Blijleven, Netherlands, Utrecht University Slinger Jansen, Netherlands, University of Utrecht Sjaak Brinkkemper ,Netherlands, Utrecht University | **Towards a predictive model for decision support in road crisis management** Guillaume Mace Ramete, Matthieu Lauras, Laurent Steffan, France, Université Toulouse - Mines Albi Lamothe Jacques, Frédérick Bénaben, France, Ecole des Mines d'Albi-Carmaux Anne-Marie Barthe-Delanoë, France, Université Toulouse - Mines Albi Hélène Dolidon, France, Centre d'Études Techniques de l'Équipement de l'Ouest Lionel Lilas, France, Centre Régional d'Information et de Coordination Routière de l'Ouest | **ehealth - The Future Service Model For Home And Community Health Care** Hans A. Kielland Aanesen, Norway, EPR-Forum John Borras, United Kingdom, OASIS |

| | | **RESTful dissemination of healthcare data in mobile digital ecosystem**<br>Rahnuma Kazi, Ralph Deters, Canada, USASK | **Z-AHP: A Z-number Extension of Fuzzy Analytical Hierarchy Process**<br>Ali Azadeh, Iran, Tehran University<br>Morteza Saberi, Australia, Elizabeth Chang, Curtin University<br>Nasim Zandi Atashbar, Iran, Tehran University<br>Peiman Pazhohehsfar, Iran, Islamic Azad University,<br>Dr Shastri Nimmagadda, Russia, Russian Federation, Schlumberger | **Ontology Exploration Tool for Social, Economic and Environmental Development**<br><br>Kouji Koz, I.S.I.R., Osaka University Terukazu Kumazawa, Research Institute for Humanity and Nature    Osamu Saito, United Nations University Riichiro Mizoguchi , Japan Advanced Institute of Science and Technology |
|---|---|---|---|---|
| | | **A Scalable Multi-Agent Architecture in Environments with Limited Connectivity : Individualised care for healthy pregnancy**<br>Msury Mahunnah, Kuldar Taveter, Estonia, Tallinn University of Technology | | **A Framework for Collaborative Social, Economic and Environmental Development**<br>Jenny Huang, Karen Hsueh, Amanda Reynolds, United States, iFOSSF |
| | | *30 mins for each presentation* | *30 mins for each presentation* | *30 mins for each presentation* |

# Conference Gala Dinner "Wild and Golden West"
## Day 2 – Thursday 25 July 2013
## 7.00 pm onwards

**Location:** Buck´s Restaurant @ Woodside, at the heart where Pioneers, Innovators, and Silicon Valley entrepreneurs meet. The historic hometown of Gordon E. Moore, Neil Young, and formerly Steve Jobs etc.

**Dinner Speech @7pm:** Computers that understand speech: Where are we now?
Speaker: Dr. Roberto Pieraccini, CEO, ICSI (The International Computer Science Institute), Berkeley

9:00pm onward: Pioneer Saloon @ Woodside Historic Landmark

**Dinner Host:** "The Science of Dance for health, rejuvenation and longevity" and demonstration by Professor Hugh Ching from 9:00pm onwards

### *Dance to surprise and dress to impress !!*


## ------- End of Day 2 -------

# Day 3

## Day 3 - Friday 26 July 2013
09:00 am - 09:45 am *Sunset Room*

## Keynote Speech

**Keynote Speech:**
Co-Innovation, Envision the Future, Crossroots Innovation

**Speaker:**
O. Sinan Tumer
Senior Director SAP Co-Innovation Lab, Princeton, USA

**Abstract:**
In today's fast pace global economy, the eco-system for innovation will extend well beyond conventional, technological concepts of IT infrastructure. It will enable a rapid process from formulation of new ideas, through R&D, to evaluation for commercial viability, market acceptability and commercialization. .

The formation of Market-driven Research & Innovation Clusters in the IT sector will bring together leading companies applying IT, ISVs, SIs, technology vendors, government research and academic institutions in a network of an innovation eco-system focused on turning inventions much faster into innovations successful in the global market. The concept enables a secure test environment for technical validation and development of "proof of concepts" for innovative business scenarios.

The keynote will address the challenges to close the gap between R&D and Go-to-Market and how SAP is forming a collaborative environment to stimulate co-innovation and the development of high-impact business solutions. Such clusters are designed to boost open innovation by ensuring that all relevant stakeholders, including end users and ecosystem partners are closely involved throughout R&D and to the commercialization process of new products and services.

**Short-Bio:** Sinan Tumer is the Senior Director of SAP Co-Innovation Lab in the East Coast region of USA. He is responsible for establishing an open innovation process by harnessing SAP's partner ecosystem to deliver innovative business solutions to SAP's customers. Previously he was responsible for managing international research policies at SAP Research with special emphasis on innovation deployment and adoption programs of the US Federal Government and the European Commission like pre-commercial public procurement, technology procurement and pre-competitive R&D for commercialization. As the Director of Operations at SAP Research, he was responsible for operations of SAP Research centers around the globe.

Sinan joined SAP in 1991 at SAP America in Philadelphia. Before transferring to SAP's global research senior management team in 2000, he held various management positions at SAP America as the Consulting Director of the North East region and as the Software Partner Alliance Director. Prior to his career at SAP, he had held various IT management positions, eight years as Systems Integration consulting at Andersen Consulting and Price Waterhouse, as well as Information Systems management positions at leading consumer products companies for six years.

Sinan is serving on the Foundation Board of German Center for Research & Innovation as the Co-President in NY USA. He is an Advisory Board member of the BILAT USA consortium funded by the European Commission promoting US-EU Transatlantic innovation cooperation. He is also a member of the International Advisory Board and Co-Chair of the Innovation Adoption Forum of IEEE DEST (Digital Ecosystems) Series. Sinan holds Master degree in Systems Engineering and Master of Science degree in Computer Sciences, both from Georgia Institute of Technology, Atlanta Georgia USA.

## Day 3 - Friday 26 July 2013
### 09:45 am - 10:30 am *Sunset Room*

# Plenary Talk

**Title:**
Game On Innovation! Prediction markets, virtual currencies & social scores applied

**Speaker:**
Michael Cayley
Founder, Cdling Capital Services Inc.
Director, Startup Grind Toronto Sunnyvale, California, USA

**Short-bio:** Michael Cayley is joining Canada's Crowdfunding team as National VP of Startup Advocacy. With the same motive, Cayley founded Cdling Capital Services Inc. Cdling (pronounced "seedling") is a ratings agency that measures risk and builds trust in the era of low cost, globally funded startups.
Having attracted over US$50-million in investment and closed over $21-million in pre-launch sales for startups in China, the USA and domestically, Michael is living the struggle of the self-funded, pre-revenue Founder in Canada. He understands the pace of global innovation. He founded & funded the Ontario Cross-border Technology Innovation Ecosystem (OCTIE) study and he designed and taught the first, post graduate level, social media course in a full time program in Canada: crowdsourcing over 100 global experts as mentors.
Cdling grew out of Michael's Social Capital Value Add thesis, conceived during his MBA in Paris, linking social media to corporate valuation. SCVA was selected as a finalist amoung 379 entries from 48 countries in Ashoka's WeMedia: Power of Us competition and was published as a ChangeThis manifesto in 2008.
In 2012, Cdling was selected for the Canadian Technology Accelerator Program in Sunnyvale, California, where Cayley connected with the Founders of Startup Grind, the fastest growing startup blog and meetup network emerging out of Silicon Valley. In April, he was appointed Director of Startup Grind Toronto and is leading an innovative series of events to inspire, educate and connect startups.

## Day 3 - Friday 26 July 2013
### 10:30 am - 10:45 am *Sunset Room*

# Plenary Talk

**Title:**
Technology Innovation for the Networked Life

**Speaker:**
Danika Patrick, Innovation Lead, AT&T Foundry, Palo Alto, USA

**Short-Bio:** Danika Patrick is an Innovation Lead in the AT&T Foundry, Palo Alto. She brings her experience doing user-centered research and design strategy to create new products and services that delight customers. She is currently working on the future of the connected car and limitless education.
As one of the first hires in the Foundry, she has been instrumental in shaping the culture and processes of the Foundry to ensure AT&T is meeting its goal of relentless innovation for human progress.

Her previous projects include leading the mobile healthcare platform research, design and development, AT&T's next-gen communication effort, exploring limitless education and recently innovation strategy for U-verse call center customer experience.

In her spare times she is an advocate in the bay area for Women in Technology, organizing and evangelizing events to support college and high-school girls. She loves meet-ups about typography. Her favorite mode of transportation in San Francisco is her bike and she volunteers on the Young Leaders Group at the San Francisco Bike Coalition.

Before AT&T, Danika was a dedicated engineer. She worked at Mercedes-Benz in Stuttgart Germany and then designed jet engines at Pratt and Whitney Aircraft. She moved to California to go to Stanford University to get a Masters in Design.

## Day 3 - Friday 26 July 2013
### 11:00 am - 12:15 pm
*Sunset Room*

# Innovation Adoption Forum Panel and Call for Involvement

**Chair:**
Achim P. Karduck

**Panel:**
Elizabeth Chang, Curtin University and Berkeley University, Australia/USA
Ernesto Damiani, University of Milano, Italy
Jenny Huang, AT&T Inc., iFOSSF, USA
Jie Liu, Fudan University, China
Daniela Patrick, AT&T Foundry, Palo Alto, USA
O. Sinan Tumer, SAP Co-Innovation Lab, USA
Christian Wagner, City University Hong Kong, China

## Day 3 - Friday 26 July 2013
### 02:00 pm - 03:30 pm
*Stanford Woods Institute*

# Sustainable Stanford

**Fahmida Ahmed**
Director of Office of Sustainability, Sustainability & Energy Management
Stanford University, Palo Alto, USA

**Short-bio:** Fahmida Ahmed directs the Office of Sustainability and designs the campus program Sustainable Stanford. She chairs the Sustainability Working Group, integrates academic research into program design, directs office's education and outreach efforts, and supports the department's long term energy infrastructure planning, Fahmida Ahmed received the 2012 Sustainability Champion Award presented by the California Higher Education Sustainability Consortium for her leadership in the sustainability arena. She is a member of Board of Directors for Association for Advancement for Sustainability in Higher Education. Before joining Stanford in 2008, she was the Sustainability Specialist at UC Berkeley, where she architected and managed their climate program (climateaction.berkeley.edu). Fahmida earned a B.A. in Economics from Smith College and Master's in Environmental Science and Management from the Bren School in UC Santa Barbara. Her academic apprenticeships include positions in National Oceanic and Atmospheric Administration and Lawrence Berkeley National Laboratory. Prior to her career in sustainability, Fahmida worked in financial services and high-tech. As a

marketing manager in Siebel Systems (Now Oracle Inc) and project manager in Providian Financial (now Washington Mutual), her initiatives focused on cross functional products and services design and implementation. Fahmida leads the Office of Sustainability and the campus program Sustainable Stanford. She chairs the Sustainability Working Group, connects the Sustainability Working Teams, coordinates implementation of sustainability projects, supports Stanford's long-term resource infrastructure planning, and manages the office's communications and evaluation programs.
http://sustainable.stanford.edu
http://woods.stanford.edu/

**Jiffy Vermylen**
Sustainability Coordinator at the Office of Sustainability
Stanford University, Palo Alto, USA

**Short-bio:** Jiffy Vermylen is the sustainability coordinator in the Office of Sustainability to support further development and implementation of campus-wide initiatives. Jiffy, who was working as a senior project engineer for DPR Construction, focuses on rolling out department and building-level conservation programs, improving communications and training, and establishing programmatic evaluation standards. Jiffy earned a bachelor's degree in civil and environmental engineering from Princeton and a master's degree in structural engineering and geomechanics from Stanford. Jiffy supports further development and implementation of the campus-wide Sustainable Stanford initiative. Her portfolio includes roll-outs of the department/building-level conservation programs, related communications and training for the campus community, and overall program evaluation standards and criteria, especially for the built environment.

# TOURS
**Day 3 – Friday 26 July 2013**
**3:30pm-5:00pm**

**Stanford Campus Tour**
Visit of Hoover Tower
Conference Closing Speech
Best paper awards, Journal paper invitation
Professor Elizabeth Chang, Professor Achim P. Karduck

# Open Social Meetings at Stanford campus
Conference Organizing Committee Dinner

# Recommendation
06:00pm onwards: Enjoying the evening @ Stanford Jazz Festival: Jazz Camp Showcase (admission free). Please line with: https://stanfordjazz.org/jazz-festival/events/jazz-camp-showcase/ "See over 200 kids having the time of their lives playing in bands and improvising jazz!" Braun Music Center and Dinkelspiel Auditorium @ Stanford Campus

# 12. About Conference Venue and City

## Allied Arts Guild in Menlo Park

Allied Arts Guild in Menlo Park, nested in Stanford University, close to intersection of El Camino Real and Sand Hill Road, Stanford, California. Allied Arts Guild has been chosen as the conference venue. The Allied Arts Guild is an enchanting complex of conference centre, shops, gardens, artists´ studios and the restaurant. It is adjacent to the campus of Stanford University, in the heart of the Silicon Valley. Surrounded by the high-tech atmosphere of the Valley, it´s a green oasis with a historic Spanish colonial architecture. It´s conference rooms and the patio areas offer of course free WLAN-connectivity.

**At Stanford University, keynotes and the gala dinner will take place at the Knight Management Center**. The round-style Arbuckle Dining Pavillion, with it´s open space walls towards the Community Court of the Graduate School of Business, will be a unique setting for networking and the exploration of new paths.

The IEEE-DEST 2013 venue reflects perfectly the momentum and spirit of the Silicon Valley and the Bay area, blending technological and social advancement with the responsibility for sustainable socio-economic-ecologic development.

**Hotels:** Hotels of all categories and price ranges are in walking distance of Allied Arts Guild. As well, Stanford shopping mall is in walking distance.

**Transportation:** You can conveniently reach the location from San Francisco International Airport by car (approx. 30 minutes, free car parking available) or public transportation (approx. 60 minutes). Bus service via the Airport is running twice per hour with the KX-Bus. San Francisco downtown can be conveniently reached from closeby Menlo Park train station via Caltrain. From there, it´s only a hop by BART (Bay Area Rapid Transportation System) to downtown Berkeley, and a short walk to the campus of Berkeley University.

## Palo Alto, California

The IEEE DEST-CEE 2013 will be hosted in Palo Alto, California. Situated in the heart of the Silicon Valley, it´s right in the epicenter of the Digital Ecosystem revolution. The research and innovation ecosystem here is legendary, fuelled by the unique spirit and entrepreneurship of The Valley and The Bay Area. Bridging the Bay, UC Berkeley and Stanford University are world renowned for their global impact in science and technology, trends setting in society and ecology/sustainability, and economic development. Companies such as IBM, Intel, google, facebook linkin and numerous other technology drivers are in direct proximity.From San Jose to Woodside to Berkeley, the spirit is "in the air" – today as much as in the past decades. IEEE DEST-CEE 2013 will take place in the heart of the Silicon Valley, at stunning conference locations in Paolo Alto and at Stanford University. People around the globe enjoy the Californian Way of Life, blending it´s vibrant socio-technoligical momentum with the tranquility of the Pacific, it´s redwood forests, and San Francisco and Berkeley as the spirited places for those who still see it as the counter-culture centre of the Sixties. Free Speech and "Flower Power" are forever in Berkeley´s and San Francisco´s "DNA", as much as Venture Capital Companies and technology leaders team up in The Valley. IEEE-DEST 2013 taps and gets involved into this ecosystem.

**We look forward to your involvement!**

For all technical enquires regarding these proceedings, please contact:
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Digital Ecosystems inherit concepts of open, loosely coupled, demand-driven, domain clustered, agent-based self-organized collaborative environments where species/agents form a temporary coalition (or longer term) for a specific purpose or goals. Within this environment every agent is proactive and responsive for their own benefit or profit. The essence of digital ecosystems is inspired by ecological and biological system concepts, and creating value by making connections through collective intelligence and promoting collaboration instead of unbridled competition and ICT-based catalyst effects in a number of domains, to produce networked enriched communities, humanities and societies.

HOCHSCHULE FURTWANGEN UNIVERSITY | HFU

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Digital Ecology & Business Intelligence debi Institute International

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