

INSPIRING our LEADERS of TOMORROW

Learning Labs

LOCATION: Noorden

DATE: Sunday, August 24, 2014, 9:15 AM

SPEAKER: Donna L Hudson, PhD

TOPIC: IEEE and the Life Sciences Technical Community

IEEE
SECTIONS
CONGRESS
/// 2014

IEEE and the Life Sciences

- How are engineers connected to areas in the Life Sciences?
- What are the benefits of making these connections?
- Who are the players in these emerging area?
- How can you join in these exciting undertakings?
- How can we get more people involved?

IEEE and the Life Sciences

- ▶ Life Sciences Technical Community
 - Part of IEEE Technical Activities
 - Supports cooperation and collaboration among IEEE Technical Societies
- ▶ Founding Society Members
 - Circuits & Systems (CAS)
 - Communications (COMSOC)
 - Computer (C)
 - Consumer Electronics (CE)
 - Control Systems (CS)
 - Engineering in Biology and Medicine (EMB)
- ▶ Open to adding new societies

Convergence of Technologies

EMBS: Computational Biology, health informatics, imaging, signal processing, bio-nanotechnology, bio robotics, cardiopulmonary systems, micro-technology and bioMEMs, neuro engineering, therapeutic systems, wearable medical sensors and systems

Computer: Software engineering, artificial intelligence, mobile data management, intelligent agents, pattern recognition, healthcare informatics, bioinformatics, bioengineering

Circuits and Systems: Biotechnology: (proteomics, genomics, drug delivery, tissue engineering), medical imaging; Bionics: artificial cochlear, retina, medical monitoring, telemetry, biosensors, sensor interfacing; Biomechanics: robotics, image guided surgery, prosthetics, bioMEMS, cardiology, fluid biomechanics

Relevant Technologies (continued)

COMSOC: EHR, ePrescribing, healthcare information systems, telemedicine, biosensors, wearable sensors, eHealth (health grid/health cloud), E-health services in smart environments (smart homes, smart medical institutions, smart cities)

Consumer Electronics: Methodologies in biomedical engineering. reviews of methods applied to clinical problems, biomedical technology's role in new directions, new clinical applications

Control Systems: Discrete event systems, distributed event systems, hybrid systems, intelligent control, robotic control, medical and healthcare systems, nonlinear systems, systems biology

LSTC Activities

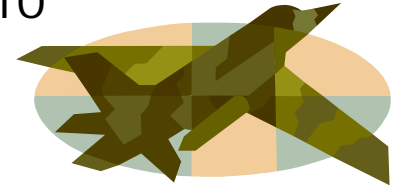
- ▶ **IEEE *Life Sciences Letters* Open Access eJournal**
 - Launched in 2014,
 - Publishes timely high quality manuscripts that apply methods of quantitative analysis to biological problems at the molecular, cellular, organ, human and/or population levels
- ▶ ***Life Sciences Portal***
 - <http://lifesciences.ieee.org/>
- ▶ ***Current Non-IEEE Conference Collaborations***
 - HIMSS (Health Information Management Systems)
 - Orlando, February 2014; Chicago, April 2015
 - IHA mHealth Summit
 - Washington, DC, December 2014

Life Sciences Letters eJournal

- ▶ *“Life Science Letters”* (LSL)
 - IEEE journal dedicated to Life Sciences
 - Electronic only, Open Access
 - Rapid turnaround time to publication, short article format
 - Planned launch fall 2014, first issue winter 2014
- ▶ Initially include following scientific themes
 - Personalized Medicine
 - Pharmaceutical Engineering
 - Synthetic Biology
 - Systems Biology
- ▶ Editorial Board with distinguished leaders
 - Editor-in-Chief Frank Doyle, Deputy Editor Mathukumalli Vidyasagar
 - Senior Editors: Leroy Hood, Richard Braatz, Ron Weiss, Hiroaki Kitano

How Can I Participate?

- ▶ Attend Conferences (selected listings for next two month only)
 - EMB: Chicago, August 26-30
 - Consumer Electronics: Berlin, Germany, September 7-10
 - Computer: Xi'an, China, September 11-13
 - Communications: Delhi, India, September 24-27
 - Control: Nice, France October 8-10
 - Circuits and Systems: Lausanne, Switzerland, October 22-24



- ▶ Join a Society
 - Find societies that fit your interest
 - Meet new colleagues
 - Forge new collaboration



- ▶ Volunteer



Working together: A prescription for success



Questions/Comments?

