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 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 date management, intelligent agents, pattern recognition, healthcare informatics, bioinformatics, bioengineering

**Circuits and Systems:** Biotechnology: protiomics, 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 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 months 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?