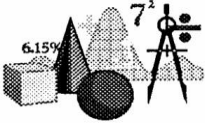




SPARKS

Daytona Section Newsletter
August 2021



<https://r3.ieee.org/daytona/>

SPECIAL EDITION

SOMETHING NEW – OUR PROGRAMS ARE CHANGING

Electrical Engineering – Future Outlook:

In 2006, only one technology company was among the 10 largest corporations in the world. In 2019, seven technology companies were in the top ten.

2006	2019
• Exxon Mobil	➤ Apple
• General Electric	➤ Microsoft
• Gazprom	➤ Amazon
➤ Microsoft	➤ Alphabet
• Citicorp	➤ Berkshire Hathaway
• Bank of America	➤ Facebook
• Royal Dutch Shell	➤ Alibaba
• BP	➤ Tencent Holdings
• Petro China	• JP Morgan Chase
• HSBC	• Johnson & Johnson

Rise of the Tech Companies. Source: The Economist

Electrical technology and electronics are deeply embedded into the fabric of our society, supporting the way we live, work and play while bringing new efficiencies to our global lifestyles, industries, and businesses. Now we are entering another new era of rapid growth in electrical technology and the digital economy. Some of the market forces driving this growth include:

- Big data & migration of data, logic, and applications to the cloud. Computers will talk to and learn from other computers.
- Consumerization of IT with the rise of social media, and wearable devices that enable the monitoring of our health.

- Mobile devices that will upend healthcare; for example, enabling our smartphones to diagnose common ailments from the snap of a photo.
- 5G communications and powerful cell phones. The cell phone will replace discrete cameras.
- The Internet of Things (IoT) leading to the Internet of Everything (IOE).
- Artificial Intelligence (AI) with Virtual Reality (VR) and Augmented Reality (AR). AI is helping farmers predict weather patterns and increase crop yields to fight world hunger. It's helping to maximize the efficiency of our power grid, critical infrastructure, and global supply chains.
- New battery technologies, electric and autonomous vehicles. Also enabling the "Smart Grid", and new power generation technologies.
- "Smart" Materials and Devices

Many of the most cutting-edge technologies of the day (like big data, cloud computing, 5G, virtual reality, neural networks, high-powered computer chips, and advanced algorithms) are coming together or "converging," enabling computers to talk to - and learn from - other computers. Future computers will be able to analyze trillions of data points to make decisions in mere nanoseconds and update themselves automatically in real time - without the need for a human operator. Computers will be able to use AI to take in a massive amount of data and interpret patterns to make extremely accurate predictions that advise humans and other computers. And when computers can communicate and learn from each other...all types of breakthroughs will be brought into the mainstream.

Already AI is helping autonomous vehicles see the road and help cars react to changing road conditions in a fraction of a second. It's upending healthcare by enabling a smartphone to diagnose common ailments from the snap of a photo. It's helping doctors operate on patients from miles away. It's helping farmers predict weather patterns and increase crop yields to fight world hunger. It's helping to maximize the efficiency of our power grid, critical infrastructure, and global supply chains.

"Smart machines" are going to make the processing and sharing of information between each other—and us—faster and easier paving the way for ever more amazing innovations we can't even conceive of – yet. The future applications are endless...

It is our intent to devote this year's Section meetings to talk about the **applications** for these new technologies, and impact they will have on our way of life. Rather than cover the nitty-gritties of design and technical details, we intend to focus on how these technologies will be used and what benefit consumers should expect to get from them.

We would appreciate your feedback on this approach. Please let us know if you think this will improve member interest in our meetings (or not).

Program Committee

Dr. Jianhua Liu - Chair
 Vice Chair, Daytona Section
 liu620@erau.edu

Ronald Gedney, LF
 Secretary, Daytona Section
 r.gedney@ieee.org

Allan Jusko, LSM
 Editor, Daytona Section
 a.jusko@ieee.org

2021 SECTION OFFICERS

Chair – Shawn Wilkerson
386-322-7999 shawnwilkerson@ieee.org

Vice Chair – Dr. Jianhua Liu
386-226-7713 liu620@erau.edu

Treasurer – Dr. Eduardo Rojas
386-226-7701 rojase1@erau.edu

Secretary – Ron Gedney
386-847-8094 rgedney@aol.com

Awards Chair – Rich Kent
206-369-1965 rtkentjr@msn.com

Life Member Chair – Ron Gedney, LF
386-847-8094 r.gedney@ieee.org

Vice Chair – Martin Oksenhorn, LM
383-283-4339 moksenho@yahoo.com

Student Activities Chair – Rebecca DeMarco
1-623-200-8867 demarcr1@erau.edu

Webmaster – Dr. Helen Hernandez
386-872-0483 hhernandez@ieee.org

SPARKS Editor – Allan Jusko
386-671-3706 a.jusko@ieee.org

Embry Riddle Aeronautical University

Student Advisor – Computer Society Chapter Advisor
Dr. Keith Garfield
386-226-7081 garfielk@erau.edu

Student Chapter Chair – Victoria Rutenbeck
Rutenbev@my.erau.edu

WIE Chair – Gabrielle Stoney
stoney@my.erau.edu

Bethune-Cookman University

Student Advisor - Dr. Xiaohe Wu
386-481-2673 wux@cookman.edu

Student Chapter Chair – Brent McGlashon
Brent.a.mcglashon@students.cookman.edu