Faculty in Electrical Engineering (TT, Full-Time, Part-Time Lecturers)

Lynne Slivovsky | Bryan Mealy | John Oliver | Bridget Benson | Andrew Danowitz | Joseph Callenes Sloan | Paul Hummel | Nazeih Botros | Amin Malek Mohammadi

Gary Perks | Tina Smilkstein | David Braun | John Planck (Shared with CSSE)

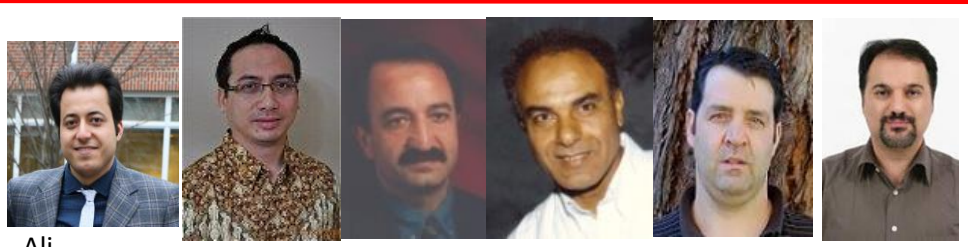
Computers Technical Area Group

Ben Hawkins (50% Biomedical) | Vladimir Prodanov | Xiaomin Jin | Dennis Derickson | Dean Arakaki | Sam Agbo | Bill Ahlgren | Mostafa Chinichian | Sid Vyas

Circuits, Electronics, Photonics, Biomed area group

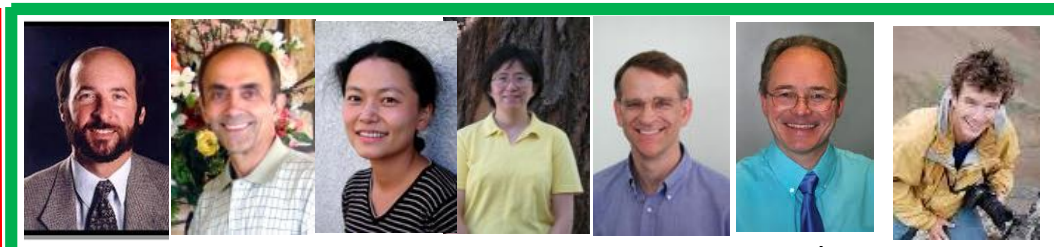
Part Time Lecturers

Dan Malone
Mike Wilson
Kurt Behpour
Chuck Bland
Steve Dunton
Dave Retz
Asit Rairkar
Joe Sparks
Hiren Trada
Dave McDonald
Rich Murray
Max Muscarrela



Ali Dehghan Banadaki | Taufik | Ahmad Nafisi | Ali Shaban | Dale Dolan | Majid Poshtan

Power and Energy Area group



Art MacCarley | John Saghri | Jane Zhang | Helen Yu | Wayne Pilkington | Fred DePiero | Clay McKell

Systems Technical Area Group

Electrical Engineering – Top Employers

Defense Companies
1. Raytheon
2. Northrop Grumman

Communications Industry
1. Cisco Systems
2. ViaSat

Semiconductor Industry
1. Texas Instruments
2. Analog Devices

Electronic Test and Measurement
1. Keysight
2. Anritsu

Electric Utility Companies
1. LADWP
2. SDG+E

Computer Systems
1. HPE
2. Intel

Consumer Electronics
1. Apple
2. Amazon lab 126

Construction Engineering
1. Mazetti
2. Schneider Electric

Government
1. Lawrence Livermore Nat. Labs
2. China Lake

Vision: EE looking forward

"Preparing our students for the Data-Intensive World"

Systems Level and Multidisciplinary Experiences:

- Curriculum that brings together skill sets in digital hardware, analog hardware and software from early classes and gives immersive experiences later in the curriculum (beyond traditional senior project experiences).
- Incorporate more project based activities earlier into the curriculum while maintaining rigorous Laboratory experiences. The project-based activities should include digital, analog and software elements.
- Incorporate elements of Machine Learning into existing courses and add technical electives.

Continued transformation from Analog to Digital:

Markets/Applications continue the transformation from analog to digital: audio, video, signal processing, imaging control systems, communications, autonomous systems. EE needs to track these changes.

Improved Software Skills:

Easily accessible software curriculum in any quarter that works into the EE student's schedule.

"Promote an Inclusive Environment"

"Once in a lifetime opportunity for re-making our Energy Systems Infrastructure"

-Enhance Power and Energy Curriculum and Labs with microgrid project, industrial controls and associated course upgrades. REC solar project completion.
-Increase the number of Grad Students coming in from other institutions to utilize our great curriculum and labs (this would apply to all EE sub-disciplines but We have a clear competitive advantage in Power and Energy).

"Give students more opportunity to customize their coursework and career interests at the B.S. Level"

-Free up at least four more technical elective units.
-Add options to free up electives (e.g.choose 2 out of 3)
-Provide better guidance on how to customize an EE Specialization from our broad area of topics.

"Upgrade graduate course offerings and research to reflect current needs/trends for our graduate students and industry"

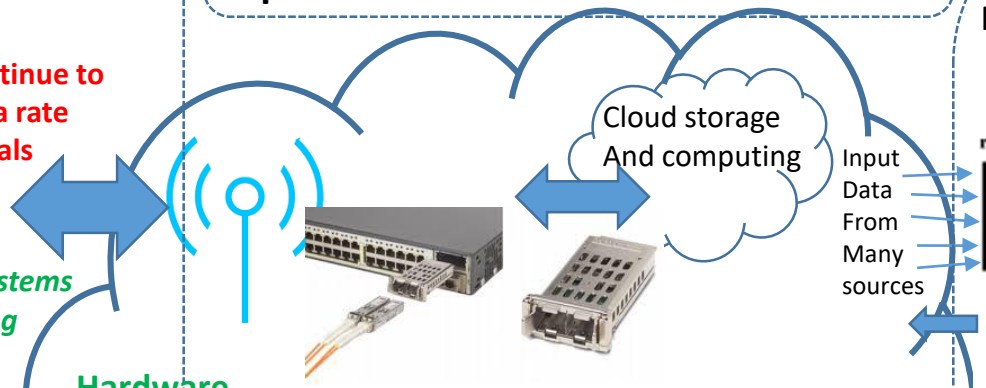
EE Vision: "Preparing Students for a Data-Intensive World"

Computer Technology Development Driven by Bandwidth/Speed/Power and Security Needs

Advances in semiconductor technology, computing platforms, and software continue to drive applications that require high data rate communication networks to achieve goals

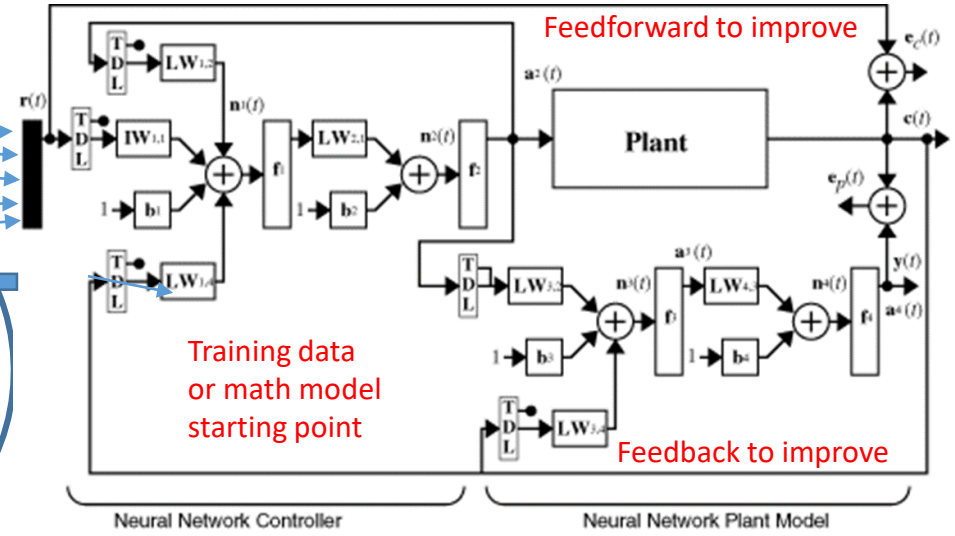
EE414 Robotic System Integration
EE 431/531/532/423/524 VLSI Design
EE 439/EE442/ Real Time Computing Systems
EE446 Design of fault tolerant computing
EE521 Computer Systems
EE523 Digital Systems Design
EE542 Advanced Embedded Systems
EEXYZ We need to advance our Curriculum to meet needs in this area

Generating Massive Data, Transporting The Data, and Analyzing the Data for Optimal Decisions Drive our field



USING DATA FOR BETTER DECISIONS

Matlab/Simulink Real-Time AI/Deep Learning System Example

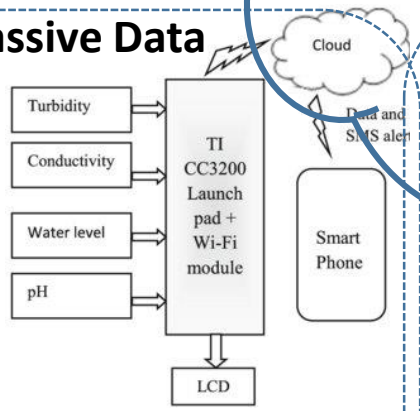


DATA PROCESSING:
New methods of working with large data sets to make decisions including AI/Deep Learning/ Advanced Controls is Very important. New hardware and software Platforms Will be important for industry in the coming decades.

EE432/472 Digital Controls
EE419/459 Digital Signal Processing
EE424 Remote Sensing
EE428 Computer Vision
EE509 Computational Intelligence
EE513 Control System Theory
EE514 Advanced Topic in Automatic Control
EE516 Pattern Recognition
EE528 Digital Image Processing
EEXYZ We need several other courses In this are to be created including a course on Design for AI/Deep Learning at the undergrad and grad level. We have a good base to build from here.

Machine IOT Massive Data

Massive Number of Internet of Things (IOT) Sensors are coming on line. Vehicles, Smart Cities, Remote Sensing, Homes, biologic sensors etc. A wealth of data is generated and then you need to process it to make good decisions – See Block On data for better Decisions.



EE412/452 Advanced Analog-Sensors
EE470/471 IOT Class-processors and sensors
EEXYZ: We need to further our Investment in this area.

Local and World-Wide Communication Networks

-wireless ("5G" 2020 and "6G" 2030)
-wireline (Tbit/s data rates on fiber)

EE403/443 Fiber optics and Photonics
EE 405/455 High Frequency Amplifiers
EE 502/529 Microwave Frequency Design
EE440/480 Wireless Communication
EE415/416/456 Digital Communications
EE475 Ethernet Networking
EE504 Software Defined Radio
EE533 Antennas
We need to review these courses to make sure they are addressing future comm. systems needs

EE Vision: “Once in a lifetime opportunity for re-making our Energy Systems Infrastructure”

The World is reducing dependency on fossil fuels and moving toward renewable energy sources. This will require a re-design of our electric power delivery system with distributed generation, energy storage, microgrid networks and Electric Vehicle charging stations everywhere. Smart Cities and Energy efficient construction will Also be major trends. Our curriculum and Research activity with students needs to move with these major shifts.

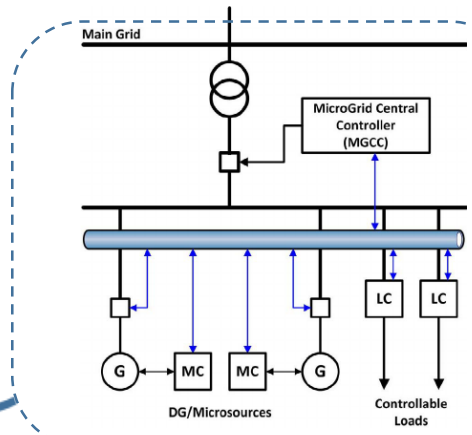
EE406/407 Power Systems
EE410/411 Power Electronics
EE420 Sustainable Energy Systems
EE417 Electric Machines
EE434 Automotive Engineering
EE444 Power System Laboratory
EE450 Solar PV Systems
EE433 Introduction to Magnetic…
EE518 Power System Protection
EE519 Advanced Power Systems
EE520 Advanced Solar PV
EE527 Advanced Power Electronics
EEXYZ We plan on an industrial Automation course, courses around Smart grid and perhaps security Of critical infrastructure

Energy System Network

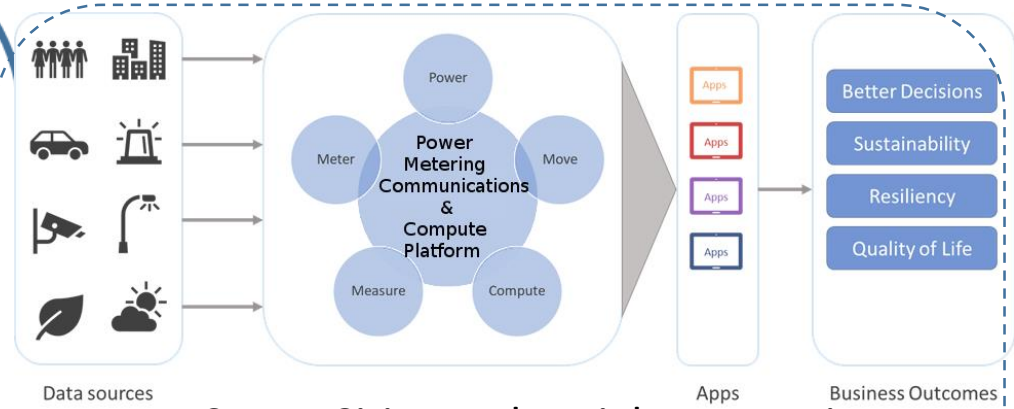
Massive shift in energy production and distribution toward renewables

altnerative-enegy-sources.com

Nexaraenergy.com

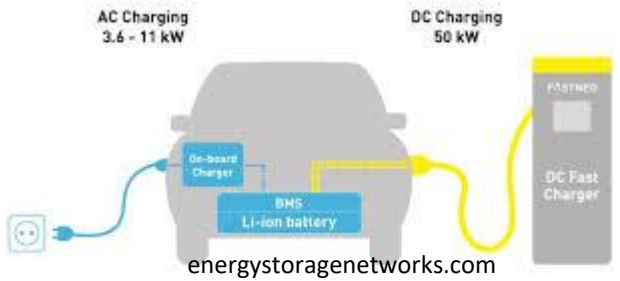


Microgrids, Smart Grids, And Grid Security



Smart Cities, Industrial Automation in utilities and roads, Building codes- net energy neutral, sensors everywhere, more city-managed electric utilities

Increased use of Electric Energy Sources for vehicles



energystoragenetworks.com