November 2, 2019 - Chico Preview Day

EECE Department
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400 1st Street
Chico, CA 95929-0888

CHICO STATE
ELECTRICAL & COMPUTER ENGINEERING
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Our Students

- 94 BS Computer Engineering majors
- 168 BS Electrical/Electronic Engineering majors
- 39 students who are minoring in Computer Engineering
- Both programs are accredited by the Engineering Accreditation Commission of ABET
- Scholarships and Awards:
  - 41 EECE students (15.8%) on Dean’s List in Spring 2018
  - Our students were awarded 5 College scholarships for the 2018-2019 academic year.
  - Graduating seniors Matthew Hardenburgh, Andres Marquez, John Schad and Michael Doris received the 2019 EECE Faculty and Chair Awards.

STUDENT ACTIVITIES

The CSU Chico IEEE Micromouse Team does it again! Robert Goldansky and Michael Musick won the IEEE Region & Central Area Micromouse and the UCLA All-American Micromouse competitions in Spring 2019. We are rooting them on as they step up to a new compete next year, the California Micromouse Competition at UC San Diego. Robert and Michael are also the president and vice president of our CSU Chico IEEE Student Branch this year.

Our IEEE Drone Team plan to compete in the national Collegiate Drone Racing Championship in Spring 2020. This will be the first race for the team, which was formed in Fall 2018. Our pilots are rapidly honing their skills as they navigated their drones around Chico – which they design and built themselves.

Keep up with these and the other activities that our IEEE Student Branch has going on by following the link on the EECE Department/Student Organizations webpage.

Eta Kappa Nu (HKN) made huge contributions to the EECE community during the academic year. Members volunteered their time to serve as lab assistants in our lower division classes and as weekend lab monitors, which helped our students enormously as they worked to complete various design projects. HKN honor society includes outstanding mechatronic students along with our equally outstanding computer and electrical/electronic engineering students.

The Society of Women Engineers hosted their 7th Annual Imagineer Day. Over 250 K-8th graders came to campus for the day-long STEM experience. SWE recruited volunteers from a number of clubs to support this event. The 7th & 8th graders applied their scientific, engineering, and artistic talents to the design of biomimetic robots under the guidance of volunteers from the CSU Chico IEEE student branch. Everyone is looking forward to the next Imagineer Day!

DEPARTMENT UPDATES

New instructional techniques are revolutionizing our EECE laboratories! First, OCNL 346, the lab classroom where students construct and test digital circuits (EECE 144) and programs for their field-programmable gate arrays (EECE 343) and microcontrollers (EECE 344) has been completely remodeled. The old lab benches have been replaced with collaborative workstations with integrated power strips. Students now power their circuits via the USB outlets, without the need to be tied to benchtop power supplies. The lab also has a large touch screen display with three auxiliary monitors that can be used by individual students to show off their experimental results to the rest of the class. The increase in student engagement during the lab classes has been phenomenal. A high-resolution webcam will be used when teaching distance learning classes, tapping student presentations, and hosting video conferences. The funds for the OCNL 346 remodel were came from a CSU Chico Student Learning Fee proposal, authored by Dr. Hadil Mustafa, and with the generous support of the College of Engineering, Computer Science, and Construction Management.

There is new equipment in EECE 144, EECE 211L, and EECE 343 activities and EECE 344 and labs. Students are using some of the world’s smallest oscilloscopes, arbitrary function generators, and digital logic analyzers on the market and all of these instruments come in one package. The ADI ADALM2000 and Digilent Analog Discovery II, both of which are operated from students’ laptops, are used in EECE 144, 211L and 344.

DE2-115 field-programmable gate array (FPGA) boards were purchased over the summer by the EECE and MMEM departments with additional funds supplied by the College of Engineering, Computer Science, and Construction Management.
California State University, Chico 2021/2022 Curriculum

Bachelor of Science in Electrical and Computer Engineering

**Freshman Year Fall**
- ECE 101: Engineering Ethics & Professional Practice
- ECE 102: Introduction to Electrical Engineering
- MATH 125: Calculus I
- CHEM 151A: General Chemistry I

**Freshman Year Spring**
- ECE 103: Digital Logic Design
- MATH 126: Calculus II
- CSCI 111: Computer Science I
- CI/ENG 101: First Year Seminar

**Sophomore Year Fall**
- ECE 211: Circuit Analysis
- ECE 221: Signals and Systems I
- MATH 241: Multivariable Calculus
- CI/ENG 201: Second Year Seminar

**Sophomore Year Spring**
- ECE 281: Power Systems
- MATH 242: Advanced Calculus
- CSCI 251: Introduction to Computer Architecture
- CI/ENG 202: Third Year Seminar

**Junior Year Fall**
- ECE 331: Microprocessor & Assembly Language
- MATH 311: Probability and Statistics
- CI/ENG 301: Fourth Year Seminar

**Junior Year Spring**
- ECE 321: Control Systems
- EECE 361: Analog Circuits
- CI/ENG 302: Capstone I

**Senior Year Fall**
- ECE 411: Digital Signal Processing
- EECE 462: Digital Logic Design
- CI/ENG 401: Capstone II

**Senior Year Spring**
- ECE 441: Computer Engineering Design
- EECE 463: Power Electronics
- CI/ENG 402: Capstone III

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If you aren't able to attend Chico Preview Day, contact CSU Chico Admissions Office to arrange a tour of the College of Engineering, Computer Science, and Construction Management and a time to talk with an EECE faculty member about studying computer or electrical/electronic engineering. Go to www.csuchico.edu/admissions/tours for more information.

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California State University, Chico 2020/2021 Curriculum

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"I am really happy I did end up at Chico State instead of Cal Poly. I’ve been able to afford living easily, the program provided is enjoyable, and the college provides a lot of resources to the students. I may be able to finish my bachelor’s degree debt free."

-Randall Fowler, BS Electrical/Electronic Engineering

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"I love the EECE department and its staff. The entire department was welcoming and fostered a place of collaboration and learning that positioned me to excel. I wouldn't be where I am today without their help and support."

-Josh Kurash, May 2019 graduate who is now employed at Chevron

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**FACULTY SPOTLIGHT**

Congratulations to Dr. Kurtis Kredo II! He received the CSU Chico Outstanding New Project Investigator Award. Dr. Kredo is the principal investigator on a project “High Speed, Cost Effective Simulation and Design Techniques for PEPDS”, funded by the Office of Naval Research (ONR). The project began in December 2018 and will run through December 2022. The goal of the research project is to explore simulation and design techniques for Power Electronic Power Distribution Systems (PEPDS). The results from this project will enable system designers to simulate, design, and implement a system using a single representation of the model or algorithm underdevelopment.

His research collaborators include Drs. Roy Crobie, John Zener, Hatid Mustafa, and Zahrasadat Alavi. Not shown are Mr. Nick Conant (BS CMP) and Mr. Konstantin Reboc (CSU) who undergraduate researchers on the ONR project. Dr. Kredo also serves as the director of the CSU Chico McLeod Institute of Simulation Sciences.

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**RESEARCH PROGRESS**

EECE faculty have done it again! Dr. Hassan Salehi with co-PIs Dr. Ghang-Ho Lee and Dr. Patrick Donnelly (OSU-Bend) received a NSF Major Research instrumentation (MRI) grant in September 2019. The research team will use the optical computer tomography system and deep learning work to advance their research on biomedical sensing, imaging, and analytics and will help catalyze interdisciplinary efforts in healthcare and industrial non-destructive testing. Dr. Zahrasadat Alavi and Dr. Kathleen Meehan with Dr. Monica So (CHEM) are co-PIs on a NSF MRI grant led by Dr. Ozgul Yasar (MMEM). This grant will fund the purchase of a Raman spectroscopy system, which will enhance the nanomaterials characterization research that is building at CSU Chico.

Dr. Zahra Alavi and Dr. Hassan Salehi have each received a CSU Chico Research, Scholarly, and Creative Activities (RSCA) award. Dr. Alavi and two undergraduate research assistants, Mr. Tomas Galvan-Huerta (BS ELEC) and Mr. Jose Johnson (CHEM), are employing Fourier transform infrared (FTIR) spectroscopy to evaluate chemical and quality changes of fresh fruits and vegetables during processing for retail food. Dr. Salehi is researching applications of a hybrid imaging modality based on optical illumination and ultrasound detection, optical-resolution photoacoustic microscopy (OR-PAM).

Mr. Majd Barchini, (BS ELEC), jumped at an opportunity to join Dr. Hassan Salehi’s research group shortly after transferring to CSU Chico from Butte College in Spring 2018. He presented the results of his project, “Deep Learning Classification of Optical Coherence Tomography Images for Oral Radiology: Optimization Methods” at the 2019 IEEE MIT Undergraduate Research Technology Conference in October. Mr. Pouya Zakeri, a Chico High School student who is contributing to Dr. Salehi’s research projects, also presented his work at the same conference. His poster is entitled “Deep Learning Classifier for Oral Radiology Application: Learning Rate Investigation”.

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**ENGINEERING MATH BOOTCAMP**

Dr. Zahrasadat Alavi with four other ECC faculty members (Drs. Buffardi (CSCI), Greene (MMEM), Johnson, (MMEM) and Meehan (EECE) and generous assistance from CSU Chico MESA Engineering Program offered the First Annual Engineering Math Bootcamp this summer. Goals of the camp are to assist students develop a strong foundation in critical areas of mathematics and to expose them to the engineering and computer science disciplines before beginning their freshman year. Students enjoyed launching pellets with their trebuchets and racing their robots through mazes and along circuitous paths. There was extremely positive feedback about the projects and measurable improvements in math skills at the end of the camp. Students commented on the community of students and faculty that was established during the three weeks. We hope to expand enrollment in the next summer’s bootcamp.

If you are coming to CSU Chico in Fall 2020, watch your email in May 2020 for announcements about the program!