Madison Section Newsletter

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Upcoming Events

C-Motive Capacitive Motor Technology

- Date: 11:45 AM Thursday, April 17th, 2014
- Speaker: Justin Reed, President and CEO of C-Motive Technologies Inc.
- Location: Promega BioPharmaceutical Technology Center
  Room Number: 122
  5445 E Cheryl Pkwy
  Fitchburg, Wisconsin

Topic: Closing the Gap – The Evolution of C-Motiveâ€™s Capacitive Technology Platformâ„¢

C-Motive Technologies Inc. is a Madison, WI-based startup developing electrostatic machines and devices using its proprietary Capacitive Technology Platform™, which brings electrostatics into competition with the electromagnetic devices pioneered by the likes of Tesla and Edison. Rather than use magnetic fields, C-Motiveâ€™s machines and devices leverage electric fields - no copper windings, no expensive, heavy steel electromagnets. C-Motive instead uses electric voltage across closely stacked stationary and rotating aluminum plates. C-Motiveâ€™s innovations prove for the first time that electric charges, rather than currents, can produce practical motion on an industrial scale. The secret rests within C-Motiveâ€™s patented Hydroflex Plate Stacking System™, which delivers more electrical capacitance than ever demonstrated on a macro scale. This presentation will walk through the development of these technologies and discuss some of their applications.

Biography: Justin Reed is the President and CEO of C-Motive Technologies Inc., a Madison, WI-based startup developing fundamentally new types of electric machinery for industry. Reed received the M.S. in 2009 from the University of Wisconsin-Madison and the B.S. in 2005 from the University of Washington in Seattle, both in Electrical Engineering. He is currently finishing his Ph.D. at UW-Madison in the Wisconsin Electric Machines and Power Electronics Consortium (WEMPEC) under Prof. Giri Venkataramanan. Reed specializes in multilevel power converters and high-frequency power electronics, and has a strong background in electromechanical power conversion with 12 published research papers. He attended the Wisconsin Entrepreneurial Bootcamp and Dutch Block Program in 2009.

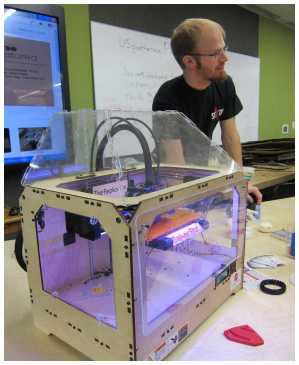
Tour of the Charter Street Power Plant

- Date: TBD in May, 2014
- Speaker/Tour Guide: TBD
- Location: Charter Street, Madison
- Tour will be approximately one hour

The primary fuels for the Charter Street Heating Plant are natural gas and fuel oil. Fuel oil is used as a back up fuel source. The Charter Plant is capable of producing steam at 800,000#/hr, 26,000 tons of chilled water, 9.8 megawatts of electricity and 7080scfm of compressed air. In an effort to maximize the fuel efficiency, a portion of the steam load at the Charter Plant is used to produce up to 9.8 megawatts of electricity. The tour will also include a talk on the difficulty of upgrading the plant given the changing political climate and elimination of the biofuels component for the plant. The Wisconsin Energy Initiative (WEI) program was utilized to upgrade and maximize the electric and chilled water production capacity of the Charter Plant.

Talk and Demo of 3D Printing Technology

- Date: Thursday, June 5th, 2014
- Speaker: Chris Meyer, Sector67
- Location: Sector67, 2100 Winnebago Street (East Side of Madison)
- Time: 11:45 AM to 1:00 PM
- This will be during the IEEE-Madison ECN Meeting Time for June



- Bring your own lunch. Beverages and snack items are available to purchase at Sector67

Chris Meyer is a local expert on 3D printing and all things related to Hacker Spaces. He will give a brief presentation on the Sector67 3D printing technology and demonstrate how it is done. If you are not familiar with Sector67, check out their web site here. You will be amazed at the things that are happening at Sector67.

• Section News

V. John Mathews Talk Review (Provided by Tom Kaminski):

Dr. Mathew provided a concise view of the bioengineering issues associated with connecting to living neurons and processing signals to control living tissue. He explained how Utah's device was surgically implanted to connect to neurons and showed how neurons could be stimulated to cause muscle contraction. His research identified ways to provide reasonably precise control by applying a constant voltage pulse whose duration and frequency could be varied. He also explained how laboratory animal subjects so instrumented were probed with an automatic analysis tool to identify how to stimulate appropriate muscle action. Muscle fatigue was also discussed and he showed how to provide stimulus to reduce muscle fatigue.

University of Wisconsin Student IEEE Section Projects Funding

The IEEE-Madison Section has partially funded a proposal from the University of Wisconsin Student Branch that the Executive Committee determined to be a worthwhile project. We have applied to the IEEE Technical Activities Board to possibly fund a portion of the work, but more money is needed. See UWisc-IEEE for information on the student chapter's current activities. The aim of UW-Madison IEEE Student Projects is to allow students to gain hands-on experience with practical design and fabrication techniques. The projects allow participants to practice computer layout and fabrication skills without the pressure of a graded class. During promotion chapter project managers emphasize that no previous experience is necessary, and that participation is not limited to electrical and computer engineering majors. Three projects were configured -- the first project is a simple solar photovoltaic (PV) charger for cell phones and digital music players. The second project, named the â€œcolor organâ€, is a BoosterPack for the TI Tiva C LaunchPad that allows the LaunchPad to sample audio, process it, and then drive an LED matrix on the color organ, forming an audio spectrum analyzer. The third project, named the â€œbreathalyzerâ€, is also a BoosterPack for the TI Tiva C Launchpad that detects the concentration of alcohol in breath, estimates the corresponding blood alcohol content (BAC) of the user, and outputs the BAC on seven segment LEDs.

Please consider a personal or Corporate donation to the Wisconsin IEEE Student Branch to support these efforts.

• Regular Meetings

◦ Section Meetings

The third Thursday of January through May and September through December is reserved for a meeting to provide recent research, developments, trends and/or innovations in one of our membership's technical areas.

◦ IEEE-MSN-ECN Networking Meetings

- Purpose: Presentations, Discussions, networking
- Date: First Thursday of even-numbered months
- Time: 11:45 AM to 1:00 PM
- Location: Sector67, 2100 Winnebago Street (East Side of Madison)
- Parking: Park in lot or on Winnebago Street.
- Process: Members are encouraged to make introductions, describe endeavors, and make request for: contacts in target companies, needs, resources.
- Contact: For assistance, call Tim Chapman 2 0 6 - 2 5 7 0

• Membership Upgrades

Those interested in upgrading their IEEE membership level should send their resumes or other information showing five years of significant performance in an IEEE-designated field to Charles J Gervasi (cj@cgervasi.com). Madison Section Board will attempt to find Senior IEEE members knowledgeable in the applicantâ€™s area of practice who may be able to provide references. You are invited to attend the informal networking portion of the monthly Section meetings (starting at 11:30am) to meet the Section Board members and discuss intentions.

About IEEE

The Institute of Electrical and Electronics Engineers or IEEE (read I-Triple-E) is an international non-profit, professional organization dedicated to advancing technology innovation and excellence for the betterment of humanity. IEEE and its members inspire a global community through IEEE's highly cited publications, conferences, technology standards, and professional and educational activities. It has the most members of any technical professional organization in the world, with more than 300,000 members in around 150 countries. The IEEE consists of 38 societies, organized around specialized technical fields, with more than 300 local organizations that hold regular meetings. For more information, please visit: IEEE.ORG

Madison IEEE Section

The IEEE-Madison Section of the IEEE is a section in Region 4 of the IEEE-USA organized to serve IEEE members in the Madison, WI area with over 600 members. the 2014 Officers and Board Members are Tom Kaminski - Chair, Steve Schultheis, Vice Chair, Charles Gervasi - Treasurer, Brandon Zemlo - Secretary, Timothy Chapman - Webmaster, Tom Kaminski - ECN Chair, Members at Large: Mitch Bradt, Clark Johnson, Dennis Bahr, Craig Heilman, Sandy Rotter.

Job Openings

Check out WIEES.com for electrical engineering jobs in Madison and the surrounding region. This site is maintained as a service for electrical engineers. Jobs are displayed starting with the most recent postings first. You can filter results by location and job type. If you are hiring an electrical engineer in our area, for full-time or contract work, you can post the job in the *Contact Us* section on the WIEES.com site. Here is a sampling of the new job listings:

- Hardware Design Engineer in Middleton, WI

Contact Us

The IEEE-Madison Section has a number of volunteer positions open if you are interested in helping out. Please direct any questions or comments to Tom Kaminski via email to tjkaminski-at-ieee.org.

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