



June 16, 2015

IEEE Winnipeg Section Newsletter

Volume 1, Issue 1

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IEEE Winnipeg Section

sites.ieee.org/winnipeg/

Newsletter Archive

sites.ieee.org/winnipeg/about/newsletter/

IEEE Canada Newsletter

news.ieee.ca/current/

New Winnipeg Chapter! GRSS-AESS

The Winnipeg IEEE Geoscience and Remote Sensing Society (GRSS) and Aerospace and Electronics System Society (AESS) joint Chapter was founded on 16th of April, 2015 as the only such active Chapter in the Canadian prairies.. University of Manitoba has an extensive research history in both GRS and AES, with exciting on-going projects across various faculties. In addition, there are strong aerospace and remote sensing industries across the Manitoba. Therefore, the idea behind starting this joint Chapter is as follows:

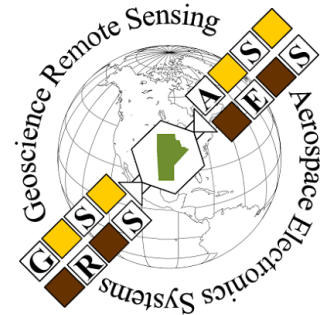
(i) To facilitate the communication between individual researchers in GRSS-AESS across Winnipeg section through holding volunteering events, workshops, and technical talks.

(ii) To help establish a connection with researchers in other Chapters across Canada. To this end, we will take advantage of IEEE distinguished lecturers from both societies. Moreover, it will encourage more members to engage with IEEE GRSS-AESS activities and meet one-another.

(iii) To initiate academic interest in both GRSS and AESS at an undergraduate and graduate level.

(iv) To assist in formation of a stronger dialogue between University of Manitoba and industry partners in Manitoba (e.g. Boeing, Standard Aero, Magellan). To this end, we will invite industry representatives in both GRSS and AESS fields for technical talks to discuss the areas of interest and possible collaboration between industry and academy.

The GRSS-AESS logo was designed by the Chapter chair to encompass the spirit of both aerospace and remote sensing.



The officers of this Chapter are as follows:

Chapter chair: Nariman Firoozyn (firoozyn@myumanitoba.ca)

Vice Char: Dario Schor (schor@ieee.org)

Visit the Chapter website at: https://webinabox.vtools.ieee.org/wibp_home/index/CH07175

2015 IEEE Capstone Awards Recipients at the UofM

The IEEE Winnipeg Section Capstone Awards recognize outstanding student projects from their final year of undergraduate studies both at the University of Manitoba and Red River College. There are four awards for each institution:

- (i) Ted Glass Memorial Award
- (ii) IEEE Winnipeg Section 1st Place Award
- (iii) IEEE Winnipeg Section 2nd Place Award

(iv) IEEE Winnipeg Section 3rd Place Award

The awards consist of individual certificates and a team cash prize. The projects are selected by a panel of industry judges based on the quality of written report (40%), completing goals and meeting project requirements (30%), technical complexity (20%), and nomination letters (10%).

The IEEE Winnipeg Section Ted Glass Award recognizes students who demonstrate excellence through their project and volunteer involvement. The recipients from the University of Manitoba in 2015 are Yang Su, Cassandra Aldaba, Jeff Winkler, Haiyue Wang, and Tianqi Liang, with academic supervisor Dr. Jun Cai (Group 01) for the project "Design and Implementation of a Wellness Monitoring System..."

Upcoming Events
IEEE YP Barbeque

YP will be hosting its summer BBQ on July 7 starting at 6:30 pm at Assiniboine Park (Picnic Site 4 near the volleyball court). Admission is \$5 for IEEE members, \$10 for non members. Rain location TBA. Map and further details at ieeey.ca/bbq.

Please RSVP via email to: rsvp@ieeey.ca.

IEEE Waves Section Distinguished Lecturers

The IEEE Winnipeg Waves section will be hosting two Distinguished Lecturers in the near future:

Prof. Levent Gurel, of Bilkent University, Turkey.
 Date: July 17, 2015

Prof. Ari Sihvola, of Aalto University, Finland
 Date: Oct. 19 - 21, 2015.

For more information on these lectures, please contact Puyan Mojabi at: puyan.mojabi@umanitoba.ca.

To submit an upcoming event for the next edition of this newsletter, please contact Newsletter Editor Brent Schellenberg at:

schellenberg.brent@gmail.com

Submissions will be accepted until September, 2015.

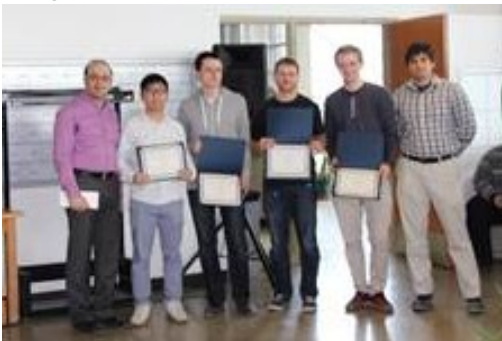
2015 IEEE Capstone Awards Recipients at the UofM (continued)

...via Body Area Networks." The students designed a set of non-invasive wearable sensors capable of posture recognition, electrocardiography measurements, indoor positioning within a medical facility, and step detection to estimate physical activity. The readings from the sensors transmit data to both a central database and mobile devices for real-time monitoring.



Ted Glass Memorial Award recipients Group 01.

The IEEE Winnipeg Section 1st, 2nd, and 3rd Place Awards recognize the excellent technical projects from students. First place at the UofM went to Chen Niu, Brent Schellenberg, Michael Kleiber, and Jasper Taylor supervised by Dr. Puyan Mojabi and Dr. Ahmad Byagowi (Group 08) for their project "Design and Implementation of a Bi-polar Planar Near-field Antenna Measurement System." The project used a grid of near-field measurements captured with a robotic arm to infer far-field patterns to evaluate antenna performance using custom software tools.



IEEE Winnipeg Section 1st Place Award recipients Group 08.

Second place at the UofM was given to Jordan Bartel, Kara Sainen, Qian (Bill) Song, Thomas Neusitzer working with Dr. Greg Bridges (Group 11) on a "Design and Implementation of a Wireless High Voltage Power Line Sensor." The prototype inductively harvested energy from power lines to power sensors and a micro-controller that sampled current, temperature, and acceleration (for detect-

ing power lines sagging) and transmitted that to a base station.



IEEE Winnipeg Section 2nd Place Award recipients Group 11.

The UofM 3rd place project was a "Design and Implementation of a Multilevel Variable-Frequency Drive" by Kale Ewasiuk, Edwin Iofinu, Curtis Shumksi, and Matthew Szyda under the supervision of Prof. Shaahin Filizadeh (Group 03). The students developed a single-phase prototype of the multilevel converter to drive a fixed resistive-inductive load of 100VA with low output voltage harmonic distortions.



IEEE Winnipeg Section 3rd Place Award recipients Group 03.

The projects demonstrate excellent skills in design, analysis, simulation, implementation, and testing across different applications. The judges commented on the quality and depth shown in the reports. Most importantly, they were impressed with the amount of testing performed on the finished projects to evaluate how they met the requirements. Congratulations to all the students and supervisors involved! On behalf of the IEEE Winnipeg Section, we wish all the graduating students great success in their future endeavours.

More information on the U of M Capstone group projects can be found at: http://ece.eng.umanitoba.ca/undergraduate/ECE4600/ECE4600_Files/Archive/2014/

The IEEE Power and Energy Society's mission is "to be the leading provider of scientific and engineering information of energy for the betterment of society, and the preferred professional source for our members"

Chapter Highlight: Power and Energy Society

The IEEE Power and Energy Society (PES) Winnipeg Chapter serves over 90 members consisting of industry leaders, practitioners, academics, and students with a common professional interest in power and energy. The IEEE PES' mission is "to be the leading provider of scientific and engineering information of energy for the betterment of society, and the preferred professional source for our members" as approved by the IEEE PES Governing Board, 17 July 2003. The Winnipeg Chapter adopts this mission as our own to specifically apply to the Winnipeg community. Additionally, the Winnipeg chapter strives to be internally recognized as an outstanding IEEE PES Chapter.

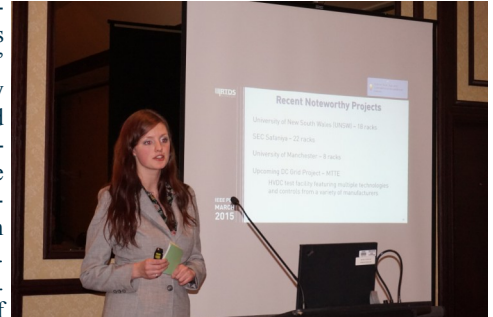
Our Chapter offers numerous Technical Meetings throughout the year. The planning committee has hosted five Technical Meetings featuring various presentations including: "Mobile Substations" by CG Power Systems, a study report on "Compact High Voltage Direct Current Transmission" by Electranix Corporation, "What's New in Real Time Digital Power

System Simulations" by RTDS Technologies, a study report on "Parabolic Concentrated Solar Systems for Heating Applications in Cold Climates" by the University of Manitoba, and "Montana-Alberta Tie Line (MATL) Remedial Action Scheme" by Dr. Semah K.M. Kodsiof Teshmont.

The planning committee are committed to hosting five more Technical Meetings this year. For more details and to register for future events, please visit our website at: <http://sites.ieee.org/winnipeg-pes/>.

The planning, coordinating, and

delivery of these events are not possible without the diligence of our volunteers. The IEEE PES



Winnipeg Chapter is always in search of new volunteers to help build on our successes. If you are interested in becoming a volunteer for the IEEE PES Winnipeg Chapter, please contact Michael Sefton. We also have an open invitation to anyone who would like to deliver a presentation at one of our Technical Meetings. If you have a topic to present to the Winnipeg PES, please contact Michael Sefton (m.sefton.2015@ieee.org).



IEEE Young Professionals Workshop at Millennium Library

On May 23, 2015, the Winnipeg Millennium Library and the IEEE Young Professionals (YP) affinity group (formerly GOLD) held an "Introduction to Arduinos" workshop. Unlike most IEEE workshops, this activity was designed for beginners who had no programming or circuit design experience. The objective was to engage participants, encourage them to learn more about embedded systems, and intrigue them to think of creative

ways in which they could incorporate electronics into projects and other activities on their own.

The 14 participants ranged in experience from first year university students to retired seniors, and had varying backgrounds that included everything from librarians, instructors, and scientists. When asked what attracted them to the workshop, the answers varied from, "I read about Arduinos online and

wanted to try them out," "we want to introduce new technologies at school for our students," and our favourite, "my grandson was talking about these and I wanted to learn more." Whatever the motivation, it was an exciting afternoon with lots of hands-on experiments.

The workshop began with an overview of an Arduino board and its development environment. This allowed...

"My grandson was talking about these and I wanted to learn more."

Contribute to the Next Issue of Carrier Wave

Please submit any contributions to be considered for the next issue of this newsletter by:

September 18th, 2015

All contributions can be sent to:

Brent Schellenberg

schellenberg.brent@gmail.com

The next issue of Carrier Wave is tentatively scheduled for **October, 2015**.

IEEE Young Professionals Workshop at Millennium Library (continued)

...participants to become familiar with some of the terminology, the compilation/programming process, and the hardware available. Additional components were introduced for three subsequent exercises with increased complexity on LEDs, reading push buttons, and reading temperature sensors. For each example, participants were guided through the process of building their circuit on a breadboard, programming the Arduino with some sample code, and testing it. Once they had the base example working, the participants were issued a small challenge to modify either the circuit, the code, or both to make them apply the knowledge in a different way.



Special thanks to Brenda Giesbrecht and Dennis Penner from the Winnipeg Public Library for organizing the event. Thanks to presenters Troy Denton and Dario Schor, as well as volunteers Mark Roy and Mahmoud Alzaibak for all their

hard work in delivering the content and guiding participants through the exercises.

For more information on YP workshops, please contact the Matthew McQuaker, YP Chair, at matt@mcquaker.ca or visit iceey.ca.

Message from the Editor

Thank you for all those who have read, and contributed to this newsletter.

This is the first issue of the re-incarnation of the IEEE Winnipeg Section newsletter, which is being produced and distributed to inform the community of upcoming/past events, as well as serving as a record of what has happened in the IEEE Winnipeg Section.

Like any good control system, this newsletter requires feedback in order to fix mistakes and improve on previous results. Any and all suggestions, criticism, and ideas are welcome, in addition to your article and event contributions. I look forward to hearing from you.

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