

# Good News

College of Science, Engineering and Technology

Faculty and Staff Achievements

July-December 2016

Department of  
Automotive and Manufacturing Engineering Technology

**Ahmed, S.** 2016. Ergonomic teaching and learning case study: Human factors for the cognitive classroom. *Industrial and Systems Engineering at Work*, August 2016.



Biology Faculty, **Drs. Cohen, Goellner, and Sharlin**, and their undergraduate research students attended the Midbrains Conference at the University of St Thomas in St. Paul. Students from each lab presented posters that highlighted their undergraduate research projects. Midbrains is the annual undergraduate neuroscience conference which provides a forum for undergraduate students in the Midwest to present research findings, to attend research lectures and special panels, and to meet other undergraduate students interested in the neurosciences. Congratulations to Jaden Roddick from Dr. Cohen's lab who was awarded a Poster of Distinction. Only three total awards were presented to students.

## *Presentations*

Fraley, P. and **Ruhland, C.T.** 2016. The effects of leaf optics on photodegradation of *Artemisia tridentata* litter sampled along an elevational gradient. 2016 Botanical Society of America's annual meeting in Savannah, Georgia. (NSF DOE DE-FG36-08GO88156 ). Detailed findings as part of Dr. Ruhland's National Science Foundation grant "Photodegradation in deserts: litter optical and structural considerations"

**Sharlin, D.** 2016. Adaptations to thyroid disrupting chemicals. 86<sup>th</sup> Annual Meeting of the American Thyroid Association, Denver, CO.

**Cohen, R.E.** 2016. The brain on steroids: How the brain and steroid hormones interact in a lizard species. Department of Biology Seminar, St. Catherine University, St. Paul, MN.

\*Abdilahi, A., Day, A.B., and **Cohen, R.E.** 2016. Seasonal variations in the dorsolateral and medial cortex, the reptilian homologue of the hippocampus. Society for Neuroscience, San Diego, CA.

\*Klecker, C.E. and **Cohen, R.E.** 2016. An investigation of steroidogenic acute regulatory protein (StAR) gene expression in the green anole lizard brain and gonad. Society for Neuroscience, San Diego, CA.

**Krenz, J. D.,** \*Congdon, J.D., Schlenner, M.E., Pappas, M.J., Brecke, B.J. 2016. Blanding's turtles (*Emydoidea blandingii*) use a sun compass during natal dispersal. 8<sup>th</sup> World Congress of Herpetology, Hangzhou, China. August 16, 2016.

## *Publications*

**Steven D. Mercurio**, professor of biology, recently published "Understanding Toxicology: A Biological Approach" through Jones and Bartlett Learning in Burlington, Mass. To accompany the book, Mercurio also produced lectures, a test bank in the book and an additional test bank with answers for instructors and an instructor's manual through Jones and Bartlett Learning on each chapter. Mercurio's book is described as a novel approach to toxicology and the first book aimed at undergraduate and graduate students alike.

\*Warnke, A. and **Ruhland, C.T.** 2016. Alfalfa variety selection for maximum fiber content, protein and nitrogen fixation. Department of Energy (#DE-FG36-08G088156):

\*Warnke, A. and **Ruhland, C.T.** The effects of harvest regime, irrigation and salinity on stem lignocellulose concentrations in alfalfa (*Medicago sativa* L.) *Agricultural Water Management* 176: 234-242.

Rock, K., Kinkead, L., and **Secott, T.** 2016. The biological reducing agent Oxyrase improves the resuscitation of dormant *Mycobacterium smegmatis* and *Mycobacterium avium* subsp. paratuberculosis. *Microbiology Research*, 7(1). doi:<http://dx.doi.org/10.4081/mr.2016.5695>

**Cohen, R.E.,** \*Lima, M.M., Miller, K.E., and Brenowitz, E.A. 2016. Adult neurogenesis leads to the functional reconstruction of a telencephalic neural circuit. *The Journal of Neuroscience*. 36(34): 8947-8956.

Department of

## Chemistry and Geology

### *Presentations*

**Pribyl, J., Hadley, M.,** and \*Doss, E 2016. Relationships between student success, study skills and time spent studying in a preparatory chemistry course. Biennial Conference on Chemical Education (BCCE), Greeley, CO, August 2016.

**Hadley, M., Pribyl, J.R.** and \*Schneider, J. 2016. Impact of the assignment of group homework on students' self-reported study habit. Biennial Conference on Chemical Education (BCCE), Greeley, CO, August 2016.



Minnesota State Mankato's **Department of Computer Information Science** was recognized with an Excellence in Curriculum Programming Award during a ceremony at a Minnesota State Academic and Student Affairs Leadership Conference on Thursday, Oct. 20. The Department of Computer Information Science was noted for being a frontrunner in its constantly advancing, dynamic field. Its program and majors were noted as being a leader within the Minnesota State system in terms of recruitment and employment of its graduates and more. The department's graduates have applied their knowledge and leadership skills while being hired for jobs in companies such as 3M, General Mills, Brown Printing, Thompson-Reuters, GMAC-RFC, Federated Insurance, and Securian.

**Christophe Veltsos**, associate professor in the department of computer information science, has been working for nearly six months with IBM's Institute for Business Value to provide input into the design of a study, the analysis of the results and the write-up of the results. The study of "700 Computer Information Security Officials and other security professionals in 35 countries, representing 18 industries" sought to "better understand what security challenges organizations are facing, how they are addressing these challenges and how they view cognitive security solutions and their potential." A link to IBM's Cognitive Security landing page is [here](#).

During his sabbatical year, **Christophe Veltsos** wrote over 30 articles on cyber-security for IBM's SecurityIntelligence blog. (Link <https://securityintelligence.com/author/christophe-veltsos/>) Chris also authored a white paper for a MN-based business, entitled "Maturity Assessment, Profile, and Plan - A MAPP to Clearer Information Security." Chris also co-founded and is Executive Board Member of the Minnesota Cyber Careers Consortium (MnC3), a partnership between industry and academia to develop Minnesota's workforce in cybersecurity.

**Dr. Rajeev Bukralia** from Computer Information Science (CIS) department recently started a student club (Recognized Student Organization or RSO) in data science and data analytics. The club is called DREAM (Data Resources for Eager & Analytical Minds). More than 40 students have become members since its launch in November 2016. DREAM students will work collaboratively on data analytics projects (such as hackathons and competitions). In addition, guest lectures from industry and academic experts are being planned. IBM recently approved a request for free access to IBM Watson Analytics for students and faculty so DREAM students will be provided access to Watson Analytics.

### *Opportunities*

A two-day SAS analytics training organized by the SAS instructors on our campus is scheduled for March 24-25, 2017. The training will be open to students, faculty, and staff. The registration information will be shared in February. For additional information, contact Dr. Rajeev Bukralia.

### *Presentations*

**Veltsos, C.** 2016. Cybersecurity basics for small and medium sized businesses. CyberSecurity Summit, Minneapolis in June 2016. Additional information on the summit can be found here: <http://cybersecuritysummit.org/small-business-forum/>

### *Publications*

**Veltsos, C.** (2016). The role of cognitive security in addressing the incident response speed gap. Security Intelligence. Nov. 22, 2016.

**Veltsos, C.** (2016).. Cognitive security key to addressing intelligence and accuracy gaps. Security Intelligence, Nov. 29, 2016.



**Mohammed Diab** was elected chief operating officer/president-elect of the Project Management Institute-Minnesota Chapter.

**Mohammed Diab** was accepted to Kiewit's Faculty Scholar Program which gives faculty an opportunity to receive work experience to enrich their careers and transfer to the classroom. He spent summer 2016 working on the Highway 53 Relocation Project near Virginia, MN.

Three teams from the Construction Management Program competed in the Quiz Bowl Competition at the University of Minnesota. All teams performed professionally. One of the teams placed second, one point behind the first place team from the University of Minnesota.



## *Publications*

**Wu, X.H.**, Smith, D. and Yang, T. 2016. MIMO antennas for a terrestrial point-to-point wireless link: From the optimum antenna spacing to a compact array. *Progress in Electromagnetics Research B*, vol. 67, pp. 59-70, 2016.

Ji, P., **Wu, X. H.** and **Zhang, Q.** 2016. A four-port circular patch antenna for polarization modulation. *IEEE International Symposium on Antennas and Propagation*, Fajardo, Puerto Rico, Jun. 26 - Jul. 1, 2016.

Gu, Z., Huang, D. , **Wu, X. H.** and **Zhang, Q.** Substrate integrated e-plane horn antenna. *IEEE International Symposium on Antennas and Propagation*, Fajardo, Puerto Rico, Jun. 26 - Jul. 1, 2016.

Huang, D., **Wu, X. H.** and **Zhang, Q.** Concept of substrate integrated e-plane waveguide and waveguide filter. *International Workshop on Antenna Technology: Small Antennas, Innovative Structures, and Applications*, Cocoa Beach, FL, USA, Feb. 29 - Mar. 2, 2016.

**He ,N.**, **Huang, H.W.** and \*Cai, O. Teaching touch Sensing Technologies Using ARM Cortex-M4 Microcontrollers", *Journal of Computers in Education (CoED)*, April - June Issue, 2016.

**He ,N., \*Oke, V. and Allen, G.** 2016. Model-based verification of PLC programs using Simulink Design. Proceedings of the IEEE International Conference on Electro/Information Technology (EIT), Grand Forks, ND, May, 2016, pp 211-216.



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The following students from the Integrated Engineering Department presented research at the 2016 National Conference on Undergraduate Research:

Cole Goodyear, Damaris Onchaba, Therez Ranta: "A Methodology for the Development of an Index of Cardiac Dyssynchrony."

Stanley Adom, Zhejian Wang: "A Web Application to Support Research on Epistemic Beliefs."

Zhejian Wang, Sung Woo Choi: "Enhancing an Offline Transcriber for the Speech Recognition Virtual Kitchen (SRVK) Toolkit."

John Her: "Experimental Determination of Flow through Porous Filter Media."

Katherine Rasley: "Hybrid Renewable Power Systems: Feasibility Analysis and Design."

Jacob Tilley, Billy White, Robert Mclean: "Development of an air quality sensor network to measure the dispersion of aircraft pollution near the Minneapolis-Saint Paul airport."

## *Presentations*

Karlin, J., **Bates, R.**, Allendoerfer, C., **Ulseth, R.**, Ewert, D. 2016. Credentialing in the CSET education change process, *Frontiers in Education*, October 2016, Erie, PA.

**Bates, R.**, Fosler-Lussier, E., Metze, F., Larson, M., Levow, G.-A., Mower Provost, E. 2016. Experiences with shared resources for research and education in speech and language processing, *Proceedings of Interspeech, Special Session: Sharing Research and Education Resources for Understanding Speech Processing*, 2016.

**Bates, R.**, Allendoerfer, C., **Ulseth, R.**, Johnson, B. 2016. On the use of outcomes to connect students to an engineering identity, culture and community, *Proc. 2016 American Society for Engineering Education Annual Conference*.

Allendoerfer, C., Wilson, D., Plett, M., **Bates, R.**, Floyd-Smith, T., Veilleux, N. 2016. Student perceptions of faculty support: Do class size or institution type matter? Proc. 2016 American Society for Engineering Education Annual Conference.

Karlin, J., Allendoerfer, C., **Bates, R.**, Ewert, D., **Ulseth, R.** Situating the research to practice cycle for increased transformation in engineering education, Proc. 2016 American Society for Engineering Education Annual Conference.

**Sleezer, R., Swanson, J., Bates, R.** 2016. Using failure to teach design. Proc. 2016 American Society for Engineering Education Annual Conference.

**Bates, R.** 2016. Simplifying ABET EAC accreditation criteria: Did ABET go too far? ASEE webinars on proposed ABET EAC changes. ASEE Ad Hoc Committee on ABET EAC Changes, February 16, 2016.

### *Refereed Abstracts*

**Bates, R.** & Kim, E. 2016. The Speech Recognition Virtual Kitchen Toolkit, SIGCSE, 2-5 March 2016.

A purple banner with white and yellow text. The text reads "Department of Mathematics and Statistics" in a bold, sans-serif font. To the right of the text, there is a large, faint, stylized logo that appears to be "CSJET".

## Department of Mathematics and Statistics

### *Publications*

**Wu, H., Rahman, M.** and Patwary, A. S. 2016. A study of a generalized modified Weibull model: An exponentiated Weibull case. *Advances and Applications in Statistics*, **49**(5), 357-367.

Satter, F.I. and **Rahman, M.** 2016. Estimating beta inverse Weibul distribution by the method of quantile estimates. *International Journal of Research and Innovation in Applied Science (IJRIAS)* [www.ijrias.org](http://www.ijrias.org), I(VI), 1-9.

Shaha Alam Patwary, M., Gokhale, D.V. and **Rahman, M.** 2016. On testing equality of two independent proportions: To pool or not to pool. *Far East Journal of Theoretical Statistics*, **52**(3), 193-312.

Department of

## Physics & Astronomy

CSET

**Ka-Wah Wong** was recently awarded research grants from NASA to study black hole accretion and interstellar medium of a starburst galaxy using the Chandra X-ray Observatory.

### *Presentations*

**Palma, R.** 2016. NASA's Genesis and Stardust missions. Le Centre de Recherches Pétrographiques et Géochimiques, "Missions Spatiales" series, Nancy, France, November 8, 2016.

**Palma, R.** 2016. Stardust light noble gas studies at the University of Minnesota. Le Centre de Recherches Pétrographiques et Géochimiques, Nancy, France, October 24, 2016.

### *Publications*

**Wong, K.-W.**, Irwin, J. A., Wik, D. R., Sun, M., Sarazin, C. L., Fujita, Y., & Reiprich, T. H. 2016, Suzaku X-ray Observations of the Nearest Non-Cool Core Cluster, Antlia: Dynamically Young but with Remarkably Relaxed Outskirts, *Astrophysical Journal*, 829, 49

Fujita, Y., Akahori, T, Umetsu, K, Sarazin, C. L., & **Wong, K.-W.**, 2016, Probing WHIM around Galaxy Clusters with Fast Radio Bursts and the Sunyaev-Zel'dovich Effect, *Astrophysical Journal*, submitted



**Jessica Nelson** and Le Sueur River Watershed Network partners are attending a series of Watershed Network Leaders Workshops to share stories with others watershed leaders working in Agricultural Watersheds across the Midwest.



## *Presentations*

Anderson, C. (GBERBA) and **Musser, K.** (MSU-WRC). 2016. Conservation leverage points in rural Minnesota: learning from citizens in the Watonwan River Watershed. Minnesota Association of Soil and Water Districts Conference, December 4, 2016.

Anderson, C. (GBERBA) and **Musser, K.** (MSU-WRC). 2016. Conservation leverage points in rural Minnesota: learning from citizens in the Watonwan River Watershed. Minnesota Water Resources Conference. October 18, 2016.

**Nelson, J.** (MSU-WRC) and Klang, J. (Kaiser & Associates). 2016. Linking water storage best management practice benefits with in stream flow attenuation goals. International Drainage Symposium, Minneapolis, MN. September 6-9, 2016.

## *Grants*

Citizen's Guide for Water Quality in the Minnesota River Basin. McKnight Grant partnering with Dovetail Partners. \$15,000 (6/2016-6/2017)

Agricultural Conservation Planning Framework Mapbooks. Yellow Medicine River Watershed District Grant. \$9,000 (11/2016 -12/2016)

Watonwan Terrain Analysis. GBERBA Grant. \$ 49,885.50 (07/2016 – 12/2017)

Integrating Targeted Watershed Planning Tools with Citizen Involvement. LCCMR Grant. \$169,000. (07/2016 - 06/2019)

## **Submissions for the Next Issue of “Good News”**

Email achievements (conference presentations, grants, fellowships, publications, etc.) to Deb Spreng ([deborah.spreng@mnsu.edu](mailto:deborah.spreng@mnsu.edu)) to be included in the next issue of “Good News.”