



CEEES GRADUATE STUDENT NEWSLETTER

February 2017



Volume 4, issue 2

FROM THE EDITORS

The spring semester is in full swing, and we know warmer weather and spring colors are just around the corner. As midterms approach, we hope everyone is settling nicely into their classes and research projects for the semester. We are very proud of all the work everyone has been submitting to the newsletter in the recent months to exemplify how hard you work while also allowing everyone to celebrate those accomplishments with you. We hope you continue to find the content we deliver about the department throughout the academic year to be informative, enjoyable, and useful. The Newsletter is a student driven initiative with the goal of improving your experience as a graduate student in the CEEES Department. In conjunction with the work done by the social group and their academic social happy hour events, the newsletter editors hope these two avenues for building CEEES graduate student community and camaraderie are but two valuable assets the graduate students have been able to develop and utilize since the fall of 2015 with the support and help of our Director of Graduate Studies, Dr. Tony Simonetti, and the Department Chair, Dr. Johannes Westerink. We are most thankful for their support and hope you will continue to show your gratitude by contributing to these and other department initiatives for the sake of everyone in the department.

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ANNOUNCEMENTS

Conferences

Jize Zhang, Randal Marks, and Hanyu Ma were awarded a 2017 Patrick and Jana Eilers Graduate Student Fellowship for Energy Related Research in the amount of \$8,100 for conducting an energy-related project. Jize's project is entitled "A comprehensive computational framework for layout optimization of wave energy converters that addresses large dimensional arrays, causal control and uncertain wave environments". The major objective of that project is to develop a computationally efficient design methodology for the layout of a causal-controlled wave energy converter array, such that the expected power generation under stochastic ocean environment is maximized.

Yenan Cao was awarded a travel grant by the Seismological Society of America to attend its 2017 Annual Meeting to be held in Denver, Colorado, April 18-20, 2017. The Seismological Society of America is an international scientific society devoted to the advancement of seismology and the understanding of earthquakes for the benefit of society. Founded in 1906, the society has members throughout the world representing seismologists, geophysicists, geologists, engineers, insurers, and policy-makers. Yenan Cao will be presenting a paper entitled "Evaluation of Accidental Eccentricity in Symmetric Buildings due to Wave Passage Effects in the Near-Fault Region". Co-authors of the paper are Dr. Mavroeidis from University of Notre Dame, Dr. Meza-Fajardo from BRGM (France), and Dr. Papageorgiou from University of Patras (Greece).

Academic Social Happy Hour

The Social Planning Committee would like to thank all those who completed the survey last month. They will take all comments into consideration as they continue to plan events for 2017. Please remember to look out for the new email format for the social event advertisements, now coming through the more professional and visually appealing medium brought to you by MailChimp. Also, look out for the new branding and CEEES Graduate Student Organization (GSO) logo so you do not miss any of the events.

The January social was a great success and over 20 people attended. Everyone enjoyed a wide selection of favorites from JW Chen's and various refreshments for dinner. Instead of the usual short research presentations, a fun, active game called "train wreck" was played. The game allowed everyone to learn something about all the attendees' research through a fast-paced activity where everyone had to say something about their research over the course of multiple turns. After learning about one another's research, the board games came out in the form of Pictionary, Cards Against Humanity, and Dominion.



Please come out to the February events on **Thursday, February 23** for BYOL (bring your own lunch) research talks at **12 PM in Cushing 217** and then join the fun with bowling and snacks (paid for by department) at Chippewa Bowl. Look out for emails about RSVP and carpooling in the coming days.

Below is a tentative schedule for the rest of the semester:

February 24 - Bowling at Chippewa Bowl

March 2017 - St. Patrick's Day party.

April 2017 - Outdoor park activities and games party.

May 2017 - Potluck at a local park.

If you have any particular questions or concerns regarding the academic social events, please contact any of the organizers: **Andrew Schranck** (aschranc@nd.edu), **Theresa Aragon** (aragon.10@nd.edu), **Lara Grotz** (sisman.1@nd.edu), and **Stefanie Lewis** (Lewis.184@nd.edu). They would love to hear from you.

GRADUATE STUDENT SPOTLIGHT



Andrew Bartolini: Andrew Bartolini is a fourth-year PhD candidate in the CEEES Department working in the DYNAMO Lab under Dr. Tracy Kijewski-Correa. He is studying the behavior and motion of tall buildings, particularly the ability to monitor the movement of these structures in-situ, enabling higher fidelity models to more accurately predict their behavior. Unlike manufactured systems such as a cell phone or car, the scale, cost and complexity of tall buildings does not allow any full-scale testing of these structures to determine the accuracy of the analytical models used to estimate their behavior. Therefore, the only way to validate the performance of the analytical models is in-situ monitoring efforts.

While permeant in-situ monitoring systems of tall buildings has been studied for over a decade, Andrew is working on self-contained deployable monitoring units that can be used in a community-led monitoring campaign. This effort will eliminate the costly process of installing a permanent monitoring system within a structure while still collecting important dynamic behavioral properties of the structure. Furthermore, the deployable nature of the modules will enable the collection of the vast array of structural system typologies that are used in the design of modern tall buildings. Finally, the system can be used by non-experts in monitoring structures, allowing the end users to be part of the data collection process which will generate more community support for this campaign.

Andrew is also working on a framework to assist structural designers in the creation of the analytical models used to predict the behavior of these tall structures. The proposed framework utilizes the structural behavior of the building to select the parameters to vary in the model updating process rather than geometric or demographic properties of the building. Using scaled 3D-printed tall buildings, Andrew will determine the validity of this new model updating parameter selection framework and use the results to provide guidelines for methods to increase the fidelity of analytical models to structural designers.

Andrew has presented his research at the 2015 ASCE Structures Congress and the International Conference of the Council on Tall Buildings and Urban Habitats also in 2015. Andrew will be heading to Denver, Colorado to give two presentations on his research at the 2017 ASCE Structures Congress in April.

Outside of the lab, Andrew volunteer coaches for a local swim club and also assists the Notre Dame swim team in a volunteer capacity. Last year Andrew took part in the Ethical Leaders in STEM program run by the Graduate School, where he learned the critical skills necessary for effective leadership within an ethical framework. As a part of this program, Andrew was able to study one of his passions, which is the creation of the environment and culture necessary to facilitate high-quality work. Andrew is also part of the First Year Teaching Apprentice Program

(FYETAP). Through this program, Andrew co-instructed the first semester of a section of the freshmen engineering course and is currently instructing the second semester component of the course.

Lab Links

<https://engineering.nd.edu/profiles/abartolini>

<http://dynamo.nd.edu/>

GRADUATE STUDENT UNION UPDATE

The **SRR and ELSTEM** programs were presented at the January council meeting. Both programs are a great way to supplement your graduate student experience with potential for professional development, collaboration, and maybe even helping you improve your research.

The healthcare committee is sponsoring a **blood drive** on **February 14**. Reserve a spot here: <https://goo.gl/ueiCdp>.

All students who have passed their oral candidacy exam are encouraged to enter the **3MT competition** where you present your research in 3 minutes to a lay audience with only one static slide. This is a great opportunity to show off your research, practice delivering it to a general audience, and develop professional development skills. Even more, you could help carry on our department's winning pride, captured by last year's champion **Maria Gibbs**, and win up to \$2000 in prizes. Applications are due **February 14** and the opening round for the College of Engineering is **March 2**. Check it out here: <http://3mt.nd.edu/>

The professional development committee is in the process of planning a new way for all graduate students to share their research with the public in creative and diverse ways. The event is known as a "**research slam**" and events will likely take place in informal settings, and allow students to present their research in a way they are comfortable with (e.g., song, dance, imagery, video, slide show) Be on the lookout for more details in the coming months.

The social committee is sponsoring several events including a **brewery tour March 26**, **charity gala April 22**, and **winery tour April 30**.

The next council meeting is **Thursday, February 16** at 6:30 PM in the LaFortune Student Center Room 202. Please let **Andrew Schranck** (aschranc@nd.edu) know if you have any concerns or feedback pertaining to graduate student government.

Don't forget, all graduate students can receive conference funding once per year from the GSU based on a competitive application process. See the Conference Presentation Grants website (<http://gsu.nd.edu/about/cpg/>) for more details.

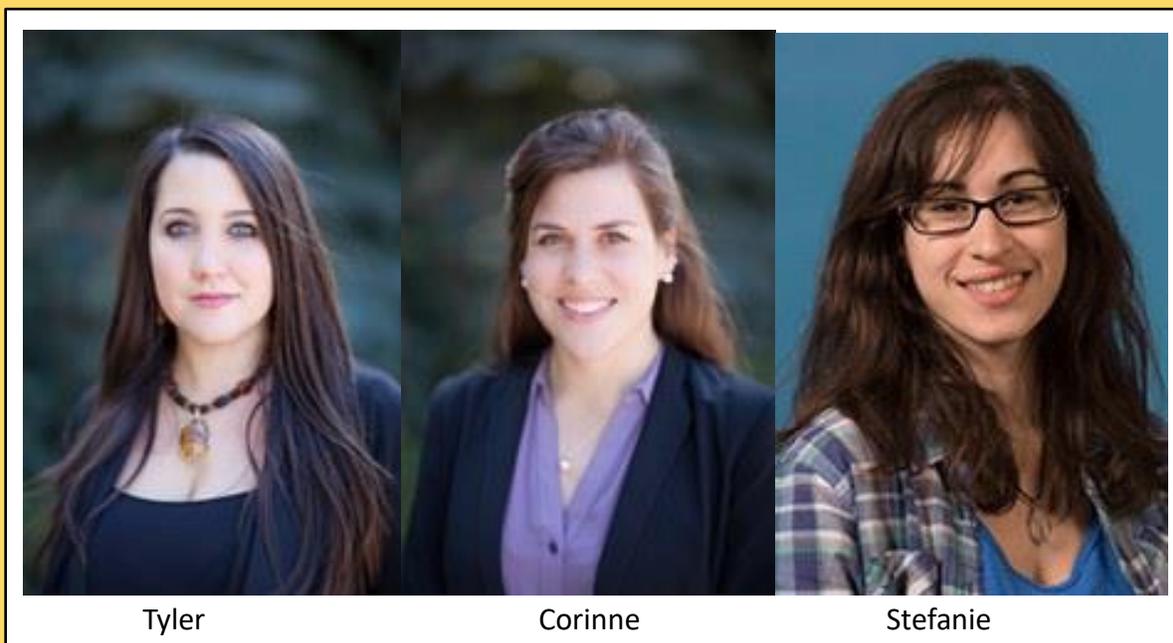
RESEARCH GROUP SPOTLIGHT

Antonio Simonetti Research Group – The Antonio Simonetti research group includes Ph.D. students **Tyler Spano** (fifth year), **Corinne Dorais** (third year), and **Stefanie Lewis** (first year), Postdoctoral Fellow Loretta Corcoran, and undergraduate students Bianca Monaco and Thomas Wheeler. One field the group is working in is nuclear forensics. The group is currently using both high spatial resolution and bulk sample techniques to determine the chemical and isotopic signatures of primary and secondary uranium minerals. The ultimate goal is to establish a global dataset to be used as a reference for source attribution purposes in nuclear forensic analysis. The group is also investigating the partitioning behavior of lanthanides in uranium ores and concentrates at various stages within the nuclear fuel cycle, and they are currently working on the development of natural standards for distribution within the US national lab network and worldwide; the standards will be used to determine and validate chemical and isotopic signatures of nuclear materials at high spatial resolution. During the past 6 years, nuclear forensics research has been supported by the National Nuclear Security Agency and Department of Homeland Security, and has involved researchers at US national laboratories, such as Pacific Northwest and Los Alamos. The research group also investigates the chemical and isotopic nature of Earth's upper mantle via chemical and isotopic investigations of alkaline rocks, in particular those for carbonatites. For example, a recent investigation reported the boron isotope signatures of carbonatite occurrences worldwide, which indicate the presence of recycled, crustal carbon located deep within Earth's mantle for billions of years.

Lab Links

<http://www3.nd.edu/~asimonet/>

<https://engineering.nd.edu/profiles/asimonetti>



THE GRADUATE SCHOOL – SCHEDULE OF DEADLINES

	Fall 2016	Spring 2017	Summer 2017
Teaching assistant list submitted to Graduate School	Aug. 15	Jan. 5	—
First class day	Aug. 23	Jan. 17	—
All course changes	Aug. 30	Jan. 24	—
Initial graduation list available in GradAdmin (Registrar)	Sept. 6	Jan. 31	June 27
Fall/Spring break begins	Oct. 15	Mar. 11	—
Course discontinuance	Oct. 28	Mar. 24	—
Preliminary theses/dissertations submitted for formatting check*	Nov. 7	Mar. 13	Jun. 19
Thanksgiving break begins (Wed. – Sun.)	Nov. 23	—	—
Easter break begins (Fri. – Mon.)	—	Apr. 14	—
Master's comprehensive examinations & PhD dissertation defenses**	Nov. 28	Apr. 7	Jul. 11
All admission to candidacy forms submitted to Graduate School	Dec. 5	Apr. 13	Jul. 17
Final theses/dissertations submitted to Graduate School	Dec. 5	Apr. 13	Jul. 17
Last class day	Dec. 8	May 3	Jul. 28
Final exams begin	Dec. 12	May 8	—
Graduation date (official degree conferral)	Jan. 8	May 20	Aug. 6

FELLOWSHIP/SCHOLARSHIP/EMPLOYMENT OPPORTUNITIES

- Graduate Student Union Conference Presentation Grants (Rolling basis)

(<http://gsu.nd.edu/about/cpg/>)

- Graduate School Professional Development Awards (Rolling basis)

(http://graduateschool.nd.edu/professional_development/professional-development-award-application---s-e/)

NEWSLETTER CONTACTS

If you wish to include or contribute news items for the next issue of the newsletter, please contact one of the editorial members below:

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