FROM THE EDITORS

Daylight savings, that time in the fall when we can roll back the clock by an hour. One hour to a graduate student can feel like either eternity, or the blink of an eye depending on what you are doing. In the case of daylight savings, this blessed hour comes to us in the middle of the night before a Sunday morning. It not only feels like an eternity, but it is an eternity of sorely needed sleep. It gives us a much needed energy boost right in the middle of the semester, and also brings the realization that the holidays are coming. As we gear up for the end of the semester, try not to get too overwhelmed by research, and just remember that very soon you will be eating and drinking far too much with family and friends. Let’s break out the winter coats, dust off our sleds, and prepare for the winter wonderland that is on the horizon.

Cheers,

Ryan Alberdi, Andrew Schranck, and Dave Burney, Newsletter editors
ANNOUNCEMENTS

Call for CEEES Newsletter Contributors

The CEEES Newsletter editors are looking for more grad students to contribute to this monthly newsletter. This is a valuable opportunity to get to know the inner workings of the department and orient yourself with the people and work that make it such a shining success. If you would like to learn more about becoming an editor of this student-led newsletter, please contact Ryan, Andrew, or David.

CEEES Graduate Student Organization (GSO)

Though the NC State fans brought wet and cold weather with them, it was no match for our Irish football players, and certainly no match for the CEEES die-hard tailgaters. The joint tailgate organized by grad students from the AME and CEEES departments at Innovation Park was a great success. If all goes well, the two groups will pair up for another joint tailgate for the NAVY game on Saturday, November 11. Be on the lookout for an email with more details. If you would like to help contribute to ideas or planning for this or any other upcoming CEEES GSO events, feel free to reach out to any of the organizers: Andrew Schranck (aschranc@nd.edu), Theresa Aragon (aragon.10@nd.edu), Lara Grotz (sisman.1@nd.edu), Stefanie Lewis (Lewis.184@nd.edu), or Keith O’Connor (Keith.F.O’Connor.211@nd.edu). They would love to hear from you.
Graduate Student Union (GSU) Update

The most recent council meeting for the GSU took place on Thursday, October 26 in the LaFortune Student Center. The meeting opened with discussion from the department representatives regarding healthcare, dental insurance, flu shots, and the proposal of a 403 b retirement plan option for graduate students. There were lots of topics that followed, which are summarized below.

Monthly guest presentations were the second item on the agenda. Two University librarians delivered an update on the renovation project currently ongoing at the Hesburgh Library. Renderings and floor plans of the completed and upcoming work were presented. Briefly, the Teaching and Collaboration Space on the second floor should be completed by Spring 2018 and the first floor should be completed by Summer 2018. Technology Row on the second floor should be completed by Fall 2019. Many of the computers currently on the first floor will be moved, but don’t worry, there will be several quick access computers still on the first floor after the project is complete. The Fishbowl room on the west side of the building will become the Grand Reading Room, a more formal reading and study space than the Fishbowl is currently. Construction on this will begin at the completion of Technology Row. The last phase of the current renovation projects will be the Special Collections and Archives area located in the southwest corner of the main concourse. You can see maps and floor plans along with other renovation updates at renovation.library.nd.edu.

Various updates from the GSU Committee Chairs came next and here is a summary of their reports. If you have any concerns about recent IT improvements such as eduroam or the Irish1 card instituted this Summer, any comments or feedback are welcome by the Academic Affairs Committee Chairs. The University Bookstore Advisory Committee is looking for a graduate student to serve an 18-month appointment (now through August 2019) with 3-4 meetings per year. Thank you to anyone who donated blood at the recent GSU Blood Drive at which 40 units of blood were collected. The PD Expo was a great success compared to last year with over the double attendees from last year. Quality of Life is planning a grad student fitness class on November 7 at 8 am. There will be 20 spots available. Look out for sign ups coming soon. A potential GSU volunteer event with Habitat for Humanity is being considered. Also, be on the lookout for the Jingle Bell Ball coming in December and maybe a brewery or winery tour coming later this semester or early in the spring semester.

Lastly, the council heard a few more general concerns from the floor to wrap up the meeting. University Village representatives came to discuss the current situation with the Village’s planned demolition after the current residents move out after Spring 2018 and what options the current residents are considering for their relocation. In an overwhelming majority, the council voted to advocate to the University for all Village residents in seeking subsidized rates at the newly renovated Fisher residences. Legal counsel specifically for international students at Notre Dame is not currently supported according to a student at the meeting and it is an ongoing concern. A vote was taken as to whether the GSU should seek for the University to consider providing for this. The council attendees voted almost unanimously on this as well. At the end of the meeting the GSU 2017-18 budget was voted on and approved by the council and the meeting was adjourned.

The next council meeting will be held on Thursday, November 30 at 6:30 pm in Rm 202 of the LaFortune Student Center. If you have questions, concerns, or comments about anything concerning the GSU, feel free to reach out to your representative Andrew Schranck at aschranc@nd.edu
**GRADUATE STUDENT SPOTLIGHT**

**Evan Gerbo** is a fourth-year graduate student pursuing his PhD. His research interests involve Structural Engineering, and specifically bolted steel connections. With guidance from Dr. Ashley Thrall, his dissertation research is focused on developing a novel approach to adjustable bolted steel connection for use in deployable and rapidly erectable structures. The connection is adjustable, meaning that it is capable of changing angle in-situ to accommodate additional angles or manufacturing and erection tolerances. More specifically, connection plates are prefabricated by cold bending (via a press brake) to specific angles forming a kit-of-parts comprised of a small number of unique components that can be used for a wide variety of structural systems. For a given structure, these plates are then further cold bent during field installation (via bolt tightening) until turn-of-nut criteria are met. The power of the connection lies in the kit-of-parts approach which can be used for a plethora of structural components. Advantages of this approach include reduced cost and construction time as prefabricated components can be used to form a wide variety of angled connections while also allowing for erection tolerances. Inspiration for this research included incorporating adjustable angled connections into existing deployable bridge systems, allowing them to achieve more efficient structural forms (e.g., truss, arch forms) than the conventional orthogonal assembly (i.e., girder arrangement). This was investigated through exhaustive parametric studies and form optimization using the heuristic search algorithm Simulated Annealing. Evan’s research is greatly enhanced by collaboration with Ted Zoli, National Bridge Chief Engineer at HNTB Corporation, who has provided critical industry feedback throughout the development of the connection concept.

To date, Evan has completed several phases of his research including 1) analytical investigations of possible forms, 2) numerical analysis of fabrication, and 3) experimental investigations of the fabrication and field installation procedures. In the fabrication phase, the objective was to determine the strains that are induced in thick steel plates during bending via press brake to specified angles. Throughout his research Evan has extensively used Digital Image Correlation (DIC) to measure surface strains on experimental specimens. This technique yields full field strain maps that allow incredible insight on the behavior of a specimen. This research produced recommendations on finite element modeling approaches for bending of thick steel plates, a valuable resource for engineers using cold bent steel, as well as a validated numerical model for the bending process. Ongoing research involves numerical analysis of the field installation stage, which will culminate in a validated numerical modeling approach for the field installation procedure.

Last year Evan was awarded the Outstanding Graduate Student Teacher Award for his exemplary work as a Teaching Assistant. He has presented his research at several conferences including the Engineering Mechanics Institute Conference (EMI, June 2015), and the Geotechnical and Structural Engineering Congress (February 2016). Earlier this year, he completed an internship with Kiewit Corporation in Omaha, NE in the Construction Engineering department, affording him the opportunity to learn about construction processes, industry practices and client relations. Evan has published three peer-reviewed journal publications, has one paper that has been accepted and is currently in-press, and has several manuscripts in progress that will soon be submitted for review – so if you see him in the hallway or office, ask him how they are going!
GROUP SPOTLIGHT

The Computational Hydraulics Lab (CHL), led by Dr. Joannes Westerink and Dr. Damrongsak Wirasaet has six graduate students and two post docs. The graduate students include Brian Joyce (fifth year), Keith Roberts (third year), Andika Suhardjo (third year), Jaynise Pérez Valentín (second year), Joaquin Moris Barra (first year), and Maria Contreras-Vargas (first year). The group also includes post doc researchers William Pringle and Steven Brus, lab coordinator Diane Westerink, and lab assistant Caitlyn Jarvis. Brian is currently developing an accurate and robust computational model of Alaskan coastal hydrodynamics capable of simulating tides, storm surge and wind waves. Particular attention has been paid to how the presence of sea ice affects these processes and its effect on total water levels. The storm surge model uses the unstructured grid, finite element, ocean circulation code ADCIRC (ADvanced CIRCulation). The goal of this project is to provide guidance to people in coastal Alaska as a changing climate and sea ice environment impacts their risks from coastal storms. Keith’s research concerns producing objective, efficient, and reproducible unstructured meshes semi-automatically in an open-source environment. Additionally, he is developing a library for a popular finite element solver to support r-adaptivity. This adaptivity is accomplished by manipulating the way data is decomposed across computing cores to take into account the position of moving boundaries in the solution. Both the automated mesh generation and the r-adaptivity are combined in simulations of coastal inundation where the moving boundary is well-defined. Andika is working on Unstructured mesh design and development. Jaynise is currently quantifying the impact of improving wind fields and grid resolution for tides, currents, storm surge and waves using ADCIRC+SWAN (Simulating Waves Nearshore) for Hurricane Maria and Irma on Puerto Rico. She also wants to assess the coastal impacts and erosional processes from this event. While Joaquin and Maria are first years working hard on their first semester of coursework, they are both getting into their research already. Joaquin is working on Surf zone wave modelling and validation. Maria has a background in modeling of hydrodynamic flows with high sediment concentrations. During her masters, she implemented a two-dimensional model to solve Non Linear Shallow Water Equations in finite volume, which she used to assess effects of sediment concentration on the propagation of floods in the Andes mountains. For her doctorate, she is interested in understanding the hydrodynamics of coastal zones and their interaction with hydrological and fluvial processes.

Lab Link: https://coast.nd.edu/index.html
# THE GRADUATE SCHOOL – SCHEDULE OF DEADLINES

<table>
<thead>
<tr>
<th>Event</th>
<th>Fall 2017</th>
<th>Spring 2018</th>
<th>Summer 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teaching assistant list submitted to Graduate School</td>
<td>Aug. 20</td>
<td>Jan. 4</td>
<td>—</td>
</tr>
<tr>
<td>First class day</td>
<td>Aug. 22</td>
<td>Jan. 16</td>
<td>Jun. 18</td>
</tr>
<tr>
<td>All course changes</td>
<td>Aug. 29</td>
<td>Jan. 23</td>
<td>—</td>
</tr>
<tr>
<td>Initial graduation list available in GradAdmin (Registrar)</td>
<td>Sept. 5</td>
<td>Jan. 30</td>
<td>Jun. 26</td>
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<tr>
<td>Fall/Spring break begins</td>
<td>Oct. 14</td>
<td>Mar. 10</td>
<td>—</td>
</tr>
<tr>
<td>Course discontinuance</td>
<td>Oct. 27</td>
<td>Mar. 23</td>
<td>—</td>
</tr>
<tr>
<td>Preliminary theses/dissertations submitted for formatting check*</td>
<td>Nov. 6</td>
<td>Mar. 5</td>
<td>Jun. 11</td>
</tr>
<tr>
<td>Thanksgiving break begins (Wed. – Sun.)</td>
<td>Nov. 22</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Easter break begins (Fri. – Mon.)</td>
<td>—</td>
<td>Mar. 30</td>
<td>—</td>
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<tr>
<td>Master’s comprehensive examinations &amp; PhD dissertation defenses**</td>
<td>Nov. 20</td>
<td>Apr. 3</td>
<td>Jul. 2</td>
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<tr>
<td>Final theses/dissertations submitted to Graduate School</td>
<td>Nov. 27</td>
<td>Apr. 9</td>
<td>Jul. 9</td>
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<tr>
<td>All admission to candidacy forms submitted to Graduate School</td>
<td>Dec. 4</td>
<td>Apr. 12</td>
<td>Jul. 16</td>
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<tr>
<td>Last class day</td>
<td>Dec. 7</td>
<td>May 2</td>
<td>Jul. 27</td>
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<tr>
<td>Final exams begin</td>
<td>Dec. 11</td>
<td>May 7</td>
<td>—</td>
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<tr>
<td>Graduation date (official degree conferral)</td>
<td>Jan. 7</td>
<td>May 19</td>
<td>Aug. 5</td>
</tr>
</tbody>
</table>

*Formatting checks should be submitted to the Graduate School when the document is given to readers, at least two to four weeks prior to the defense.

**Reader’s reports must be submitted to the Graduate School at least two days before the defense takes place.
FELLOWSHIP/SCHOLARSHIP/EMPLOYMENT OPPORTUNITIES

- Graduate Student Union Conference Presentation Grants (Rolling basis)  
  (http://graduateschool.nd.edu/professional_development/professional-development-award-application/)

- Graduate School Professional Development Awards (Rolling basis)  
  (http://graduateschool.nd.edu/professional_development/professional-development-award-application---s-e/)

- National Defense Science and Engineering Fellowship (NDSEG)  
  (https://ndseg.asee.org/about_ndseg/eligibility)

- NASA Space Technology Research Fellowship (NSTRF) (Deadline: November)  
  (https://www.nasa.gov/directorates/spacetech/strg/archives_nstrf.html)

- Harriet Evelyn Wallace Scholarship  
  (https://www.americangeosciences.org/workforce/harriet-evelyn-wallace-scholarship)

- The Smithsonian Institution Fellowship Program (Deadline: December 1)  
  (https://www.smithsonianofi.com/fellowship-opportunities/smithsonian-institution-fellowship-program/)

For more funding opportunities or help crafting a winning application see the flyer on the next page from the Office of Grants and Fellowships. They are a very valuable resource for you whether you are preparing an abstract, a research statement, or a complete proposal.

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:

Ryan Alberdi, PhD student, Ryan.A.Alberdi.1@nd.edu
David Burney, PhD student, David.C.Burney.2@nd.edu
Andrew Schranck, PhD student, Andrew.F.Schranck.1@nd.edu
Mollie Dash, Department Administrator, dash.1@nd.edu