FROM THE EDITORS

As the academic semester is now in full swing, football season is underway and looking promising, and Fall weather is creeping in (get your pumpkin everything), you are all undoubtedly busy as ever. Midterms are already approaching. TA grading is piling up. Conferences are abounding. So many things are vying for your attention. Remember to eat, sleep, and breathe every once in a while. Hopefully all the new students have felt very welcome while getting comfortable in your new setting this last month. You are certainly “one of us now”.

Though time passes and seasons may change, one thing will not, and that is the continued sense of community and support we aim to provide one another here in the CEEES department. We hope you will continue to look for opportunities to show your CEEES pride, get to know one another, and make the most of your remaining time here. Amidst times of uncertainty and ever-changing landscapes (figuratively and literally) outside these hallowed walls, we hope that all of you can feel safe, productive, and valued here in the department as we strive to make the world a better place thanks to the education, research, and goodwill you promote as part of the Notre Dame family.

Cheers,

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

Congratulations

Zach Hanson and his wife Katherine recently announced the birth of their second beautiful little girl, Miriam Rose Hanson (pictured right). She was born Friday, September 8. Zach reported that big sister Abigail is loving the new addition and enjoying helping out with all the responsibilities of taking care of her new baby sister.

CEEES Picnic

The CEEES Department picnic on Wednesday September 20 at St. Patrick’s Park was well attended by students, faculty, and their families. The graduate students were glad to relax a little more this year thanks to the event being catered. The food from Javier’s Bistro was very delicious, and hopefully you will consider visiting their establishment in the future to continue to support this fantastic local business. Thank you to all the graduate students who signed up to help make the picnic a success by facilitating setup and cleanup of the event. No good deed goes unnoticed. A big thanks to Mollie Dash and Julie Hennion for helping organize the event, to the department heads for their support of this event, and to the Notre Dame Linked Experimental Ecosystem Facility (LEEF) for providing tours of their research facility.

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)

A great time was had by all at the most recent tailgate before the Georgia game on Saturday, September 9. We had lots of good food off the grill, snacks, and cold beverages. The beautiful weather brought many CEEES students and their friends (including dogs) out to the tailgate. Despite some competitive games of Cornhole and KanJam, and Mike Torcivia’s Georgia pride, we all went off to watch the game in good spirits. If only those Irish could have pulled out a win.
The CEEES GSO is partnering with the AME department to host a joint tailgate for the NC State football game on Saturday, October 28 next to Innovation Park. More details coming soon.

Be on the lookout in your email and this Newsletter for other upcoming events. You are also encouraged to join the CEEES Grad Student Organization (GSO) Facebook page to learn about upcoming events. If you are interested in planning an upcoming event or feel you need to be added to the email list, please 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 Office of Grants and Fellowships is hosting a Fall Break Boot Camp from October 16-20 every day from 8:30 AM to 5:00 PM in Coleman-Morse in the 1st Floor Student Lounge.

Make sure to attend the GSU professional development event on October 10 from Noon to 4 PM in the LaFortune Ballroom (Second Floor). There will be lunch as well as opportunities to get professional headshots and feedback on your résumé and LinkedIn profile.

The next monthly council meeting of the 2017-18 academic year will be on Thursday, October 26 at 6:30 pm in the LaFortune Student Center. Check out the GSU website (https://gsu.nd.edu/) for more information about the GSU, and feel free to contact your CEEES representative Andrew Schranck (aschranc@nd.edu) for more information about CEEES representation.
GRADUATE STUDENT SPOTLIGHT

Robert (Rob) Devine is a third-year graduate student pursuing his PhD. His research interests are in Structural Engineering specifically in novel reinforced concrete design. Under the guidance from Dr. Kurama and Dr. Thrall, his current research is investigating the use of high-strength steel and concrete for applications in earthquake resistant shear walls in nuclear concrete structures. His research is part of a Department of Energy Nuclear Energy University Program project, *Prefabricated High-Strength Rebar Systems with High-Performance Concrete for Accelerated Construction of Nuclear Concrete Structures*. The overarching project involves innovative research that offers the promise of dramatically reduced field construction times and fabrication costs for reinforced concrete (RC) nuclear structures through: 1) high-strength steel deformed reinforcing bars (rebar); 2) prefabricated rebar assemblies with headed anchors; and 3) high-performance concrete (https://phsrc-nuclearwalls.nd.edu/)

To date, Rob has completed an experimental evaluation on reinforced concrete deep beams with high strength materials and a comprehensive study on the application of prefabricated rebar assemblies for nuclear shear walls. In the deep beam study, the objective was to test and monitor the effect of the isolated and combined effects of high-strength concrete and high-strength steel. The specimen utilizing both high-strength steel and high-strength concrete resulted in the greatest lateral strength and deformation capacity, demonstrating the benefits of high-strength concrete when using high-strength steel in nuclear structures. The prefabricated rebar assembly research included an industry survey that was distributed to rebar manufacturers, engineers, and contractors. Rob developed this survey with the help of ND alum Dennis Murphy, who has experience on projects in the heavy civil construction industry. The results demonstrated that the use of prefabricated rebar assemblies in concrete construction provides meaningful economic and scheduling benefits when compared to in-place rebar assembly. The survey also indicated that the greatest benefits for wall construction could be achieved when rebar mats or cages are preassembled horizontally at grade and then lifted (tripped) to a vertical position. Based on these survey results, the tripping process of full-scale prefabricated rebar mats and cages was experimentally evaluated with varying rebar tie wire locations/layouts, wall thicknesses, rebar layers, and diagonal bracing. Relative movement between the bars was measured and compared to code-required tolerances for rebar placement. Overall, the largest movements were measured in the bars directly involved in the lifting/tripping procedures. Both studies have been submitted to publication in peer-reviewed journals. Upcoming in his research, Rob will be testing reduced scale shear wall specimens under reverse-cyclic loading to simulate earthquake loading scenarios.
Rob has also been awarded multiple fellowships and scholarships that have allowed him to travel to Japan (NSF/JSPS East Asia and Pacific Summer Institutes for US Graduate Students Fellowship), travel to conferences (2016 and 2017 American Concrete Institute Fellowship Finalist and Stewart C. Watson Memorial Scholarship), and will provide him the opportunity to intern at a national lab (Department of Energy Integrated University Program). He is an active associate member of the American Concrete Institute committee on Concrete Nuclear Structures. If you see him in the hall, feel free to ask about how his experiments are going this fall or any Notre Dame questions, as he is both a graduate student and former undergraduate alum!

Prefabricated High-Strength Rebar Systems with High-Performance Concrete for Accelerated Construction of Nuclear Concrete Structures website: https://phsrf-nuclearwalls.nd.edu/
GROUP SPOTLIGHT

Wei Group

The research group of Dr. Na Wei is made up of five outstanding graduate students: **Yingying Chen** (fifth year), **Baotong Zhu** (second year), **Ying Wu** (second year), **Brooke Stemple** (second year), and **Siti Raisah** (first year). **Yingying’s** research focuses on the interface of environmental engineering and metabolic engineering, with the goal of manipulating and engineering yeast to enhance renewable biofuel production from lignocellulosic residues and to treat contaminants of emerging concerns for water reuse/reclamation. **Baotong’s** research is primarily focused on engineering yeast cells at the genetic level to equip them with functional proteins and active enzymes on their surface, which will enable them to recover metal ions and remove organic pollutants from water. **Ying’s** research is focused on characterizing the kinetics of cell surface display laccase (SDL). The Wei lab previously engineered a fungal laccase on the cell wall of a yeast known as S. cerevisiae, which is a new type of biocatalyst. To enlarge its application and tailor outstanding biocatalysts, Ying’s research is exploring the catalytic velocity of SDL towards emerging contaminants in environmental conditions. **Brooke’s** research utilizes systems and synthetic biology together with metabolic engineering and microbial physiology for advancing lignocellulosic biofuels. One facet of this work is to engineer microorganisms for enhanced solvent tolerance for more efficient biomass pretreatment aimed at the advancement of biofuel production. As an environmental molecular microbiologist, she also focuses on waste-to-value biotransformation and renewable biocatalyst formation for the degradation of emerging contaminants and viable resource recovery and reuse. **Siti** is currently taking classes and developing her laboratory techniques alongside her lab mates as she prepares to dive deeper into a more specific project of her own. She is excited to work on biofuels related research topics in line with the projects being undertaken by the other members of her group.

Lab Link: [https://www3.nd.edu/~nwei/](https://www3.nd.edu/~nwei/)
### 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>
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<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>
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<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>
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<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>
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<tr>
<td>Thanksgiving break begins (&lt;W&lt;/W&gt;ed. – Sun.)</td>
<td>Nov. 22</td>
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<td>—</td>
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<tr>
<td>Easter break begins (&lt;F&lt;/W&gt;ri. – &lt;M&lt;/W&gt;on.)</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>
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*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)

- National Science Foundation (NSF) Graduate Research Fellowship (GRF) (Deadline: October)  
  (https://www.nsfgrfp.org/)

- 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/)

- O.H. Ammann Research Fellowship (Deadline: November 1)  
  (http://ektronstaging.asce.org/structural-engineering/ammann-research-fellowship/?_ga=1.54203821.467554197.1471637048)

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