



Emergent Mechanisms in Biology of
Robustness, Integration & Organization

Emergence: A biweekly newsletter of discovery, education, and outreach from the EMBRIO Institute

Issue 23: October 4, 2023

DIRECTORS' NOTE

Thanks to Dr. Linlin Li and Dr. Adrian Buganza Tepole for leading hands-on mini workshops during our recent all-hands Weekly sessions. These sessions have helped provide insights into solving ODEs and PDEs and using artificial neural networks to approximate different functions that arise in ODE and PDE solutions. The session recordings are available on our shared Box drive in the [Weekly Updates sub folder](#).

A reminder that there will be no Weekly meeting Monday, October 10th due to Fall break at Purdue. We are planning to have an all-hands meeting during the Weekly for October 16th with open discussion and breakout rooms per thrust area. The October 23rd Weekly will be dedicated to a mini workshop on mentoring led by our ABIDES program. Everyone, please plan to join the Weekly sessions.

Thank you also to Dr. Priyanka Baloni who has organized a bi-weekly series on using R for anyone in the Institute to learn and improve their use of this powerful data analysis tool. The next session is tomorrow afternoon at 4pm (details below).

The graduate students in biology education research at Purdue have organized a seminar series this fall and have a great slate of speakers lined up. The first speaker is Friday, October 13th at 11:30am ET in Zoom. Dr. Justin Shaffer will be joining us virtually and his seminar is entitled: ***The impact of high structure course design across courses, disciplines, and universities.*** Please see the attached flyer.

We've heard from NSF regarding the next BII Annual Conference - January 22nd - Hold the Date. Details on the agenda will be shared when available. NSF is planning a hybrid one day meeting. We are anticipating that most of us will connect virtually, with a few of us possibly in person at NSF headquarters.

We want to hear about your news and announcements. Send them to Brent (laddb@purdue.edu) by October 13th for inclusion in the next issue of *Emergence*.

David, Chris, Stephanie, Anjali, Janice, Jeremy, and Brent

Notable Quote

"It's only when you risk failure that you discover things. When you play it safe, you're not expressing the utmost of your human experience." — Lupita Nyong'o, Academy Award winning Mexican-Kenyan actress.

QUICK LINKS

[Summer workshop materials](#)

[Annual Retreat slides and posters](#)

[Weekly Update Meeting Recordings](#)

[Student Leadership Council Slides and Documents](#)

JOURNAL CLUBS

Journal Club on Calcium Imaging Techniques meets Monday's 11am ET

Due to the need within our EMBRIO community to process and analyze Ca²⁺ Images, Dr. Norma Perez Rosas (nperezro@purdue.edu) is helping lead this club in discussing papers regarding methods and tools for analyzing calcium imaging. **The goal, beyond integrating these techniques, is to write a review paper.** The Club is meeting weekly on Mondays at 11am. Please contact Norma about participating.

Journal Club on Multimodal Functions of Calcium in Tuning and Regulating Cytoskeleton Networks

Please contact Dr. Linlin Li (li2212@purdue.edu) for information. The club is in the writing stage for organizing and publishing a review paper on the topic. It isn't too late to join. Here is the link to the current working documents:

https://docs.google.com/document/d/1Cpg77yjtioWiluRmiDMCcAiAd4jNNX_J7s64RQk8xOU/edit?usp=sharing

R CAFÉ SERIES – FALL SEMESTER

Dr. Priyanka Baloni & Dr. Anke Tukker are hosting a bi-weekly session for those in EMBRIO interested in learning R and solving their research related questions. Participants only need to bring their laptop with [R and R studio installed](#). We will have an interactive session where we try to solve coding related questions and learn new things related to data analysis and visualization using R. We invite everyone to work on their own R projects, ask questions and learn from each other.

The first session was held Sept. 6th. Those interested in learning or brushing up on using R for data analysis, sessions of R Café will be on Thursdays. The next session will be Thursday, October 5th at 4pm ET. In person in DLR 323. These are the remaining dates: 10/5, 10/19, 11/2, 11/16, 11/30, and possibly 12/14. Virtual link for any that can join in person: <https://purdue-edu.zoom.us/j/3998037199> (please note this day and time change compared to previous announcements).

EMBRIO ABIDES (Access, Belonging, Inclusion, Diversity, Equity, Support)

Dr. Anjali Iyer-Pascuzzi, EMBRIO ABIDES Director and Professor at Purdue, leads activities for Institute members. A series of mentoring topics have been presented at the beginning of Weekly meetings, and a continuation of the Mentoring Panel topics from the annual retreat will be presented in-person October 23rd during the EMBRIO Weekly in DLR 221. A zoom link will be provided for those unable to be in person.

STUDENT LEADERSHIP COUNCIL CORNER

The SLC is recruiting new officers to represent your university and your perspective for EMBRIO. Reach out to David Gazzo (dgazzo@nd.edu), Feyisayo Akande (fakande@purdue.edu), and Jazzmin Owens (jazzmin.owens@morehouse.edu) for more information, and [log your ideas for future topics or events](#) that the SLC could organize. [Access SLC slides and documents](#), and consider [signing up to give or receive mentoring](#) for/from EMBRIO trainees in helping support and orient to the EMBRIO mission and interdisciplinary framework.

EMBRIO SUMMER WORKSHOP RESOURCES

EMBRIO Institute's 2nd Annual Summer Training Workshop took place July 10-12. [Workshop Schedule of Sessions](#). Hosted by Dr. Jeremiah Zartman at the University of Notre Dame with a theme of *Image Acquisition, Processing, and Analysis*, tutorials and hands-on sessions were specifically aimed at benefiting trainees from both computational and experimental domains. Slides, handouts, and video recordings from this workshop are available on our shared Box account: <https://app.box.com/s/mzo5ihlqiq4tfeig2psx2l6rmmdxto0c>

EMBRIO ALL-HANDS ANNUAL RETREAT MATERIALS

EMBRIO Institute's Annual Retreat was hosted in the Weldon School of Biomedical Engineering on the Purdue University West Lafayette Campus, July 13-14, 2023. The annual retreat brought together the large majority of EMBRIO members in one physical place, with more than 60 of us engaging in research talks, poster presentations, programmatic discussions, and informal gatherings. Slide decks and posters from the annual retreat can be accessed here: <https://app.box.com/s/rmsiuvydlsccezhugyjp2b5v72xl9l>

UPCOMING DEADLINES, IMPORTANT DATES, & INFO

EMBRIO Weekly Meeting, Monday's 3-4pm ET. [Zoom link](#).

Aug	14	Benchling Workshop - SLC (Feyisayo)
Aug	21	Student Leadership Council - Grads and Postdocs Only Session
Aug	28	Faculty Investigators Only
Sept	4	Labor Day no meeting
Sept	11	Dr. Linlin Li: Part I: Solving mathematical modeling with ODE or PDE in MatLab or Python (Google Colab)
Sept	18	Dr. Linlin Li: Part II: Solving mathematical modeling with ODE or PDE in MatLab or Python (Google Colab)
Sept	25	Dr. Adrian Buganza Tepole: Part I: Physics informed machine learning
Oct	2	Dr. Adrian Buganza Tepole: Part II: Physics informed machine learning
Oct	9	Fall Break - no meeting
Oct	16	Open Discussion and Thrust Project Breakout Rooms
Oct	23	ABIDES: Mentoring Workshop (in person, DLR 221) followed by EMBRIO Image Analysis Workstation Open House DLR 203
Oct	30	Open Discussion and Thrust Project Breakout Rooms (extra credit for Halloween outfits)

The EMBRIO Weekly will adapt to a new format the second half of the semester. The intention is to focus more time for research thrust projects to meet with cross talk between the thrusts, while dedicating one week a month to a trainee topic, and periodic research talks. Twice a month, the ABIDES program will feature a “10-minute mentoring snack” at the beginning of the Weekly.

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October 11-14, 2023. The 2023 BMES Annual Meeting will be held in Seattle, WA. Thousands of biomedical engineers will attend this year’s meeting to learn, collaborate, and network.
<https://www.bmes.org/annualmeeting>

October 13, 2023. **Biology Education Research Seminar Series.** The graduate students in biology education research at Purdue have organized a seminar series this fall and have a great slate of speakers lined up. The first speaker is Friday, October 13th at 11:30am ET in Zoom. Dr. Justin Shaffer will be joining us virtually and his seminar is entitled: *The impact of high structure course design across courses, disciplines, and universities.* Zoom: <https://purdue-edu.zoom.us/j/91764754503>

October 27 – [2024 Hertz Fellowship](#) Application deadline for doctoral students.

January 2 – 6, 2024. BMES – CMBE Conference. San Juan, Puerto Rico. Accepting abstracts – deadline September 12. Conference details: <https://www.bmes.org/cmbe2024>

BII Annual Conference - January 22nd - Hold the Date. Details on the agenda will be shared when available. NSF is planning a hybrid one day meeting. Expecting most will be virtual, with a few of us possibly in person at NSF headquarters.

Hot Off the Press: New EMBRIO Journal Papers

Let us know about new papers you want to highlight for the EMBRIO community!

REMINDER: EMBRIO Acknowledgement for Scholarly Papers and Posters.

For EMBRIO related research publications, NSF requires acknowledgement of EMBRIO NSF funding for our Institute to claim the work in our reporting back to NSF. Please include the following acknowledgement in your journal and conference papers and posters: **“This work is based upon efforts supported by EMBRIO Institute, contract #2120200, a National Science Foundation (NSF) Biology Integration Institute.”**

Awards

Congrats to Dr. Krishna Jayant being awarded by DoD for his project grant entitled “A Traveling Wave Basis for Coding Touch: Unraveling recurrent and translaminar circuit contributions to sensory-evoked traveling waves”

Open Positions

New Lab Members?

Did you recently have new students or staff members join your EMBRIO projects? We want to add them to the listserv, Box account, demographics survey, and Personnel List for ensuring their inclusion in communications and participation. If they are not already on our Personnel spreadsheet (<https://app.box.com/s/frd9275xc069gmgmtbe3y1osoz1j7ssk7>), or they have graduated, let Brent know their names and email contacts (laddb@purdue.edu)

Submit your items for the next newsletter by **Oct. 13th** to Brent (laddb@purdue.edu)