



Emergent Mechanisms in Biology of
Robustness, Integration & Organization

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

Issue 30: February 1, 2024

DIRECTORS' NOTE

The EMBRIO Community has a LOT happening, and upcoming ([read this Directors' Note so you are not left out](#)). We have dates for our Summer Training Workshop on July 8th – 10th, followed by our All-Hands Annual Meeting, July 11th-12th, hosted in-person at Purdue. Please complete this [RSVP](#) asap. A calendar invite was emailed to all members. Additional details will be shared soon.

We learned important information and engaged in insightful scientific exchanges during the recent NSF BII Meeting in D.C., and will be sharing those insights, along with a call during our PIs Retreat next week with our NSF Program Officer, Wilson Francisco. We also welcome [Nilay Kumar](#), whose first day with EMBRIO is today, as a Sr. Research Scientist. Nilay received his Ph.D. with the Zartman lab at Notre Dame and will be working closely with the Pienaar and Buganza Tepole labs, as well as helping to coordinate efforts with the other Research Scientists in EMBRIO.

A reminder that all EMBRIO members should [read](#) and [sign](#) the recently ratified Data Sharing Policy (*deadline was yesterday, however only half of our members have signed the policy. Future EMBRIO funding is tied to the policy. Pls make sure your lab members working on EMBRIO projects read and sign the policy.*)

Check out the Journal Papers section at the end of this issue for recent publications from the Magana and Pienaar labs, and the Iyer-Pascuzzi and Staiger labs, along with a new book by Alejandra Magana on Teaching and Learning in STEM with Computation, Modeling, and Simulation Practices.

Our next All-hands seminar will be February 12th (in-person for Purdue people) where the leadership team will provide a summary of the PIs Retreat outcomes, as well as covering an [orientation to the big picture of EMBRIO](#), plus a brief overview of the Student Leadership Council opportunities. Our [previous seminar](#), organized by our ABIDES program and led by Javier Muñoz, focused on how mentees can take a leadership role in their mentorship, and an effective method to project management for researchers. Please take advantage of the several outside professional development opportunities shared in this issue, include a terrific series on [open science and research data management](#), mentorship workshop for faculty, and a [future mentors program for graduate students](#).

As mentioned above, thrust and site leaders and key investigators are planning to be together in-person for a two-day collaborative science retreat taking place on Feb. 6-7th in Indianapolis. Outcomes of the retreat will be shared institute wide. This retreat is focused on in-depth exchanges to foster what is working well, address what isn't working, share key results and outcomes to date, identify gaps, and plan for higher levels of integration as we enter the second half of year 3 of our NSF funding and begin strategizing for funding renewal.

Today kicks off [Black History Month](#) “celebrating the achievements and paying tribute to the generations of African Americans that have struggled against systemic adversity to achieve full citizenship in American society”. Today is also known as [Imbolc](#) a Celtic calendar cross-quarter day half-way between the winter solstice and the spring equinox, also called St. Brigid’s Day in Ireland (the 1500th anniversary of her death this year).

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

Notable Quote

“Being in a band is always a compromise. Provided that the balance is good, what you lose in compromise, you gain by collaboration.” Michael John Cloete Crawford Rutherford: English guitarist, bassist, songwriter and singer, best known as co-founder of the rock band Genesis.

QUICK LINKS

[RSVP: EMBRIO Summer Workshop & Annual Meeting](#)

[All-Hands Meetings Recordings](#)

[Orientation to EMBRIO](#)

[ABIDES Culture and Mentoring resources](#)

[Sign the Data Sharing Policy Agreement](#)

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), incoming president, 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 ABIDES (Access, Belonging, Inclusion, Diversity, Equity, Support)

Dr. Anjali Iyer-Pascuzzi, EMBRIO ABIDES Director and Professor at Purdue, leads activities for Institute members. A [session on mentorship and project management](#) was presented January 29th. A series of mentoring topics were presented at the beginning of Weekly meetings this past Fall, and a continuation of the Mentoring Panel topics from the annual retreat was presented October 23rd during the EMBRIO Weekly with a deeper dive into how culture impacts our mentoring and team thinking.

BTW, if you missed “The role of culture and communication in mentoring” mini-workshop – [view it here](#), or the previous “mentoring snacks” check out the slides and resources in the ABIDES > [Mentoring folder](#), and listen to “[The Secret of Great Teams](#)” episode of The Hidden Brain podcast.

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/1Cpg77ytioWiluRmiDMCcAiAd4jNNX_J7s64RQk8xOU/edit?usp=sharing

EMBRIO SUMMER WORKSHOP RESOURCES

EMBRIO Institute’s 2nd Annual Summer Training Workshop took place July 10-12, 2023. [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/mzo5ihlqiq4tfeig2psx2l6rmdxto0c>

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 All-hands Meeting Schedule, Monday’s 3-4pm ET. [Zoom](#). [All Hands Zoom Meeting Recordings](#)

Jan	8	Thrust 4 Seminar
	15	No Meeting: MLK Day
	22	BII Conference - NSF Headquarters and Zoom
	29	ABIDES topic: Project Management

Feb	5	break
	12	Orientation to EMBRIO/State of the Institute and open discussion (debrief PI's Retreat)
	19	break
	26	Guest Speaker TBD
March	4	break
	11	No Meeting: Spring Break
	18	Thrust 2 Seminar
	25	break
April	1	Guest Speaker TBD
	8	break
	15	Thrust 1 Seminar
	22	break
	29	Trainee topic or Speaker TBD
May	6	Thrust 3 Seminar
	13	break
	20	Guest Speaker TBD
	27	No Meeting: Memorial Day

February 6-7, 2024. EMBRIO Thrust & Site Leads Retreat. Thrust and site leads, and key investigators, will engage in two days of thrust and project working sessions in person (and yes, actual retreat social activity, as well). Logistics have been shared with all involved.

March 6-10, 2024. The Allied Genetics Conference (TAGC24). Washington D.C. (Genetics Society of America). <https://genetics-gsa.org/tagc-2024/> EMBRIO is organizing an in-person workshop at this conference.

July 8-12, 2024. Summer Training Workshop & Annual Meeting. Hosted at Purdue, Workshop will be July 8th – 10th, followed by our All-Hands Annual Meeting, July 11th-12th. Please complete this [RSVP](#) asap.

Spring Semester Series on Empowering Research: A Trio of Open Science Workshops to Ignite Innovation. (in person only) [Website](#)

Workshop #1: Maximizing Research Reproducibility with Chao Cai, Ph.D.
 “Promoting Reproducible Science: How to manage and share your research data”

Date: February 12, 2024
Time: 2:00 to 3:30 PM
Location: WALC 2088

Reproducibility of research is a key scientific practice gaining attention from funding agencies. Join Dr. Chao Cai, an Assistant Professor and Plant Sciences Information Specialist, on February 12th, as he provides hands-on experience and knowledge for managing quantitative data to maximize research reproducibility. Learn about the principles of FAIR data and effective practices for sharing research data through a data repository.

Workshop #2: Unleashing Open Research Potential with Reid Boehm, Ph.D.
“Introduction to the Open Science Framework: A platform to facilitate open research”

Date: March 1, 2024
Time: 10:00 to 11:15 AM
Location: WALC 2051

On March 1st, explore the Open Science Framework (OSF) with Dr. Reid Boehm, Research Data Systems Manager. The OSF is a free platform that supports researchers in managing, sharing, and collaborating on projects. Gain insights into its features, functions, and flexible utilities that cater to diverse aspects of the open research process. This workshop is your gateway to harnessing the benefits of OSF as a Purdue University affiliate.

Workshop #3: Navigating Open Access Publishing with Nina Collins, M.L.I.S.
“Open Access Publishing: Opportunities and pathways for wider dissemination of your scholarship”

Date: April 1, 2024
Time: 10:00 to 11:15 AM
Location: WALC 2051

Join Nina Collins, an advocate for Open Access, to navigate the world of Open Access publishing. This workshop will delve into the challenges researchers face and uncover the multitude of pathways available for Purdue authors. Learn how Open Access Publishing Partnerships can remove financial barriers, providing opportunities for broader dissemination, use, and impact of your scholarly work. Don't miss this chance to explore ethical publishing practices and increase your scholarly impact.

Embark on this comprehensive exploration of Open Science and equip yourself with the tools and knowledge to drive your research forward. We invite you to attend these workshops, engage with experts, and contribute to the vibrant culture of openness and collaboration in our academic community.

Course – HONR 59901 Future Mentors Program Research Mentorship Training for Graduate Students (at Purdue, in person only). [More info and to apply.](#)

Purpose of the Program

Effective mentorship requires specific skillsets and approaches. Implementation of these strategies can lead to mutually beneficial experiences for both mentors and mentees. The Future Mentors program offers research mentorship training for graduate students who are or would like to begin mentoring undergraduates in STEM research. This program is ideal for doctoral students who plan to pursue a career in academia or leadership roles in industry.

Faculty Session (Purdue, in person): My Voice, My Story: Understanding the Untold Lived Experiences of Graduate and Professional Students: 2/6 | 10:00 AM - 12:00 PM | YONG 175 | Lunch Provided

My Voice, My Story pairs video monologues - constructed from the experiences of real graduate students - with facilitated discussion. The primary objective is to utilize the power of narrative to achieve a greater understanding of the depth and breadth of the lived experiences of graduate and professional students. Through stories and discussion, participants explore a more inclusive and supporting research and mentoring environments. [RSVP to Alli Loy at Loy2@purdue.edu](mailto:Alli.Loy2@purdue.edu)

Listening to and discussing the stories of the characters portrayed in the *My Voice, My Story* monologues provides participants with opportunities for learning through:

- Listening for understanding, especially when we think we are different from one another.
- Understanding intent versus impact and the possible implications when the two don't align.
- Developing awareness and understanding of experiences of exclusion and inclusion in research and mentoring environments.
- Establishing respect for our mutual similarities and differences.
- Experiencing empathy for and identification with all of the characters portrayed in the video monologues.
- Recognizing instances of implicit bias.
- Learning and sharing strategies on how one can contribute to improving the climate of research and mentoring environments.

Hot Off the Press: New EMBRIO Journal Papers

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

J ARIGYE, JA LYON, AJ MAGANA, E PIENAAR. 2024. The Reflective Modeling Practitioner: Promoting Self-regulation and Self-confidence in Computational Modeling and Simulation Practices. International Journal of Engineering Education 40 (1), 179-195.

Magana, A.J. 2024. Teaching and Learning in STEM with Computation, Modeling, and Simulation Practices: A Guide for Practitioners and Researchers. Purdue University Press.

Hiles, Rachel; **Rogers, Abigail**; Jaiswal, Namrata; Zhang, Weiwei; Butchacas, Jules; Merfa, Marcus; Klass, Taylor; Kaser, Erica; Jacobs, Jonathan M; **Staiger, Christopher J**; Matthew J Helm, **Iyer-Pascuzzi, Anjali S**. A *Ralstonia solanacearum* type III effector alters the actin and microtubule cytoskeleton to promote bacterial virulence in plants, bioRxiv, <https://www.biorxiv.org/content/10.1101/2023.11.01.565113v1>, 2023, Cold Spring Harbor Laboratory.

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

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/frd9275xc069gmtbe3y1osoz1j7ssk7>), or they have graduated, let Brent know their names and email contacts (laddb@purdue.edu)

Submit your items for the next newsletter by **Feb. 9** to Brent (laddb@purdue.edu)