



Emergent Mechanisms in Biology of
Robustness, Integration & Organization

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

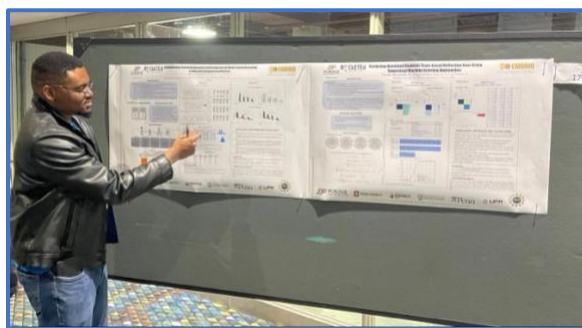
Issue 33: March 27, 2024

DIRECTORS' NOTE

We are in the thick of March Madness (likely in more ways than one!). Any of you participating in (either/both [Men's](#), [Women's](#)) – How's your bracket doing (In the Hoosier State, Purdue's Men's has a chance, Indiana Women's, and Notre Dame's Women's teams as well). March is [Women's History Month](#). The website curates historical contributions of women across many fields and diverse aspects of society through story, video, and other media.

Remember that our next all-hands seminar will be next Monday, April 1st featuring Dr. Chao Cai, Assistant Professor and Plant Sciences Information Specialist at Purdue. He will walk us through **"Promoting Reproducible Science: How to manage and share your research data"**. This will be a helpful session for all involved in collecting and collaborating on EMBRIO research data. Looking ahead, our April seminars will feature Thrust 1 research with Dr. Tami Kinzer-Ursem and Dr. Janice Evans, with May seminars featuring Thrust 3 research with Dr. Mary Mullins and Dr. Qing Deng. If you missed Dr. Zartman's research seminar on Thrust 2B from last week, you can access the recording in the All-Hands Meeting Recordings > 2024 folder. direct link: <https://app.box.com/s/2lextu4jngh2drsvgzqex72veu51lz4x>.

Congratulations to EMBRIO graduate student [Abasiafak \(Aby\) Ndifreke \(Magana Lab\)](#) on his First Place Research Poster Prize awarded this week during the [National Society of Black Engineers' 50th Annual Convention](#)!!! The title of his poster: *"Characterizing Teamwork Interactions and Interdisciplinary Learning in the Context of Computational Modeling and Simulation Projects."*



Aby Ndifreke presenting his first-place poster at the 50th Annual Convention of the National Society of Black Engineers.

Congrats to the Magana and Pienaar Labs, Zartman Lab, and Staiger Lab for recently published journal papers in 2024 (citations and links available toward end of the newsletter).

Reminder: EMBRIO Annual Evaluation Survey - [Deadline Extended to April 1st.](#)

The Gardner lab is conducting the third annual evaluation survey supporting both Thrust 4 research into the interdisciplinary nature of the Institute, as well as supporting continual improvement and feedback for the structure and functioning of EMBRIO. If you have not yet responded, please look for the **individual reminder email delivered to each active member's inbox via the Qualtrics Survey System. Please commit to 20 min. to complete this mandatory survey by April 1st at the latest!** Contact Soumi Mukherjee for questions about the survey (mukher42@purdue.edu).

If you have not yet done so, please complete this brief [RSVP](#) asap for our **EMBRIO Summer School and Annual Meeting, July 8-12, 2024**. Hosted at Purdue. Summer School will be July 8th – 10th, followed by our All-Hands Annual Meeting, July 11th-12th.

The Glazier lab will be offering the 19th Annual Multicell Virtual-Tissue Modeling Online Summer School and Hackathon July 28th – Aug. 4th. Applications open soon. <https://compucell3d.org/Workshop24>

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

Notable Quote

"Science makes people reach selflessly for truth and objectivity; it teaches people to accept reality, with wonder and admiration, not to mention the deep awe and joy that the natural order of things brings to the true scientist." - Dr. Lisa Meitner, Austrian-Swedish Physicist who worked on radioactivity and nuclear physics.

QUICK LINKS

[Sign the Data Sharing Policy Agreement](#)

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

[All-Hands Meetings Recordings](#)

[RCN interdisciplinary mentorship survey](#)

[Orientation to EMBRIO](#)

[ABIDES Culture and Mentoring resources](#)

EMBRIO SUMMER SCHOOL

July 8-10, 2024. Summer School (followed by the Annual Meeting, July 11-12th). Hosted at Purdue, Please complete this [RSVP](#) asap. All Institute members are encouraged to participate. There may be room for graduate TA's at Purdue outside of EMBRIO to also participate.

EMBRIO INSTITUTE'S 3rd ANNUAL SUMMER SCHOOL: Communicating your research with novice audiences through computational media.

Participants will identify a topic of their research (or teaching) that they want to make accessible to novice audiences. Following best practices of learning design or mentoring, participants will create a product (e.g., a

computational Colab notebook, a digital poster, a Prezi presentation, or similar) to teach or communicate their selected topic to broader audiences. The products will be broadly disseminated through the Institute.

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/mzo5ihlqiq4tfeig2psx2l6rmmdxto0c>

EMBRIO ALL-HANDS ANNUAL RETREAT

EMBRIO INSTITUTE'S 3rd ANNUAL ALL-HANDS MEETING: July 11-12, 2024, at Purdue University. Please complete this [RSVP](#) asap. Last year the annual meeting brought more than sixty EMBRIO members engaging in research talks, poster presentations, programmatic discussions, and informal gatherings. A call for posters and talks will be forthcoming.

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, 2023 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

UPCOMING DEADLINES, IMPORTANT DATES, & INFO

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

April	1	"Promoting Reproducible Science: How to manage and share your research data" by Dr. Chao Cai, Assistant Professor and Plant Sciences Information Specialist
	8	break
	15	Thrust 1A Seminar, Dr. Tamara Kinzer-Ursem
	22	break
	29	Thrust 1B Seminar, Dr. Janice Evans
May	6	Thrust 3A Seminar, Dr. Mary Mullins
	13	break
	20	Thrust 3B Seminar, Dr. Qing Deng
	27	No Meeting: Memorial Day

May 30, 2024. NSF Annual Report Due to Program Officer.

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

July 28th – August 4th, 2024. CompuCell 3D. The 19th Annual Multicell Virtual-Tissue Modeling Online Summer School and Hackathon! Applications open soon. <https://compucell3d.org/Workshop24>

This year's summer workshop will focus on the basics of building virtual tissue models modeling using CompuCell3D, as well as advanced features and capabilities of the CompuCell3D software. A two-day model-building Hackathon will be hosted the weekend after the workshop, from Friday August 9th to Sunday August 11th. Workshop attendees will work in teams to build a functioning model of their problem of interest with instructor support. Workshop attendance is required for admission to the hackathon. Attendees of previous workshops may apply to attend only the hackathon. If you are already a proficient [CompuCell](#) user and would like to lead a project or assist with the hackathon, please contact us directly to discuss.

Summer school attendance guarantees admission to the Model-Building Hackathon. The Hackathon organizers will help group attendees by topic of interest. Experienced modelers will be embedded within each group. Workshop instructors will be available to assist Hackathon participants throughout the two-day session. Everyone will leave with a functioning core model that they can further customize.

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

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.

Hot Off the Press: New EMBRIO Journal Papers

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

[Check out our Google Scholar Page](#)

Arigye, J., Lyon, J.A., Magana, A.J., and Pienaar, E. (2024). The reflective modeling practitioner: Promoting reflective practices through computational modeling assignments. *International Journal of Engineering Education*. https://www.ijee.ie/latestissues/Vol40-1/19_ijee4423.pdf?ga=2.188786731.1601991067.1711542212-373311154.1711542212

Kumar N, Rangel Ambriz J, Tsai K, Mim MS, Flores-Flores M, Chen W, Zartman JJ, Alber M. (2024) Balancing competing effects of tissue growth and cytoskeletal regulation during *Drosophila* wing disc development. *Nat Commun*. 2024 Mar 20;15(1):2477. doi: [10.1038/s41467-024-46698-7](https://doi.org/10.1038/s41467-024-46698-7). PMID: 38509115; PMCID: PMC10954670.

Xu, L., L. Cao, J. Li, and C.J. Staiger. 2024. Cooperative actin filament nucleation by the Arp2/3 complex and formins maintains the homeostatic cortical array in Arabidopsis epidermal cells. Plant Cell 36: 764-789 <https://doi.org/10.1093/plcell/koad301>

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

Let us know about your grants and other awards!

EMBRIO graduate student [Abasiafak \(Aby\) Ndifreke \(Magana Lab\)](#) received First Place Research Poster Prize awarded during the [National Society of Black Engineers’ 50th Annual Convention](#). The title of his poster: *“Characterizing Teamwork Interactions and Interdisciplinary Learning in the Context of Computational Modeling and Simulation Projects.”*

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

Submit your items for the next newsletter by **April 5th** to Brent (laddb@purdue.edu)