



Emergent Mechanisms in Biology of
Robustness, Integration & Organization

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

Issue 16: April 5, 2023

DIRECTORS' NOTE

Thanks to each investigator lab in getting your progress reports submitted. We'll be using these to populate our NSF report that is due early this year (we'll reach out for additional figures and any new significant results in mid-May). Directors will be providing feedback on the lab progress reports later this month.

Please note that the Weekly Updates this month on the 17th and 24th will be dedicated to breakout rooms supporting discussions on the integrated and enabling project proposals due May 1. The RFP and associated resources are available on our Box account in the "EMBRIO RFP" folder:
<https://app.box.com/s/3fb0bo9inlh1p52k8oxiqbozfo99sh4>

Thanks to the Staiger Lab and Dr. Weiwei Zhang for leading a very successful workshop today on Spinning Disk Confocal Microscopy and Photomanipulation. The full day workshop engaged trainees and faculty representing Purdue, Notre Dame, Texas A&M, and U of Puerto Rico at Maygüez. The attendees gained knowledge and hands-on skills in the techniques and tools central to the experimental research efforts of the Institute. Thanks to all who participated!

Along these lines, there will be additional opportunity for training during the Institute's summer workshop hosted at Notre Dame July 10 – 12, followed by our All-Hands Annual Meeting at Purdue July 13-14. Stay tuned for more about these events in the coming months. Later this summer July 31 – August 13, the Glazier Lab and Biocomplexity Institute at Indiana University has organized a two-week online **school and hackathon in Multicell Virtual-Tissue Modeling** (details are below in this issue).

April is [Mathematics and Statistics Awareness Month](#) and [Celebrate Diversity Month](#). In the notable quote below we remember a diverse genius in mathematics and computing, Alan Turing, whose LGBTQ+ identity was criminalized leading to his early death.

We want to hear about your news and announcements. Send them to Brent (laddb@purdue.edu) by April 14th for inclusion in the next issue of *Emergence*.

David, Chris, Stephanie, Anjali, and Brent

Notable Quote

"Sometimes it is the people no one imagines anything of who do the things that no one can imagine." -- Alan Turing (1912 - 1954), British mathematician, code breaker who helped win WWII, artificial intelligence visionary, and progenitor of modern computing yet was persecuted as a criminal for his identity and sexual orientation. Read about his work and life in this [NYT article](#). Check out the film about his role as a code breaker that turned the tide in WWII: "[The Imitation Game](#)".

QUICK LINKS

[EMBRIO Integrated & Enabling Projects RFP – Due May 1](#)

[Journal Club – Calcium Imaging Techniques: Monday’s 11am Zoom, papers to be discussed](#)

[Compucell3D School and Hackathon July 31 – August 13](#)

[ABIDES Open Office Mondays 2:30 - 3 pm Zoom link](#)

[Schedule Your One-on-One Interview with Soumi](#)

[Weekly Update Meeting Recordings](#)

JOURNAL CLUBS

NEW CLUB: CALCIUM IMAGING TECHNIQUES Meets Monday’s 11am ET [via Zoom](#)

Due to the need within our EMBRIO community to process and analyze Ca²⁺ Images, Director Umulis has proposed to discuss papers regarding methods and tools for analyzing calcium imaging as part of a new journal club. **The goal, beyond integrating these techniques, is to write a review paper.**

Norma Perez (nperezro@purdue.edu), EMBRIO Postdoc with the Buganza-Tepole and Umulis Labs, is leading the effort to organize this journal club, please contact her about joining the club.

The club is currently discussing the following papers:

https://docs.google.com/document/d/1uESi45Zv_kGL369NW8sPW60GByOAXme7-vr1XKBM18U/edit?usp=sharing

ONGOING CLUB: Multimodal Functions of Calcium in Tuning and Regulating Cytoskeleton Networks

Please contact Dr. Linlin Li (li2212@purdue.edu) for information. The club is currently entering 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

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

DEI in EMBRIO has transitioned to ABIDES (Access, Belonging, Inclusion, Diversity, Equity, Support). Dr. Anjali Iyer-Pascuzzi, EMBRIO ABIDES Director and Associate Professor at Purdue, is leading activities for

Institute members. Planned ABIDES activities for this semester (Zoom links are also shared in the [ABIDES folder in the EMBRIO BOX](#) account):

- Weekly open office 'hour' 2:30 – 3 pm (Eastern) **Resumes April 3**, Monday before research update, Zoom link: <https://purdue-edu.zoom.us/j/91942543564>
- Trainee lunch hour meeting date **TBD for April, 12 – 1 pm** (Eastern) in DLR 228c and by Zoom: <https://purdue-edu.zoom.us/j/95281263014>

2023 Multicell Virtual-Tissue Modeling School & Hackathon

The Glazier Lab is pleased to announce the **2023 Multicell Virtual-Tissue Modeling Online Summer School and Hackathon** at Indiana University, Bloomington, July 31 to August 13, 2023. Learn to model your biological system of interest with one-on-one help. Week 1 will cover CC3D basics. Week 2 will cover advanced topics in CC3D, followed by a 2-day model-building hackathon. Physicists, biologists, computer scientists, and modelers team up to build research-grade models of biological systems. All experience levels are welcome. For more information, email compucell3d.iu@gmail.com or visit www.compucell3d.org/Workshop23. Register at: www.tinyurl.com/CC3D2023.

UPCOMING DEADLINES, IMPORTANT DATES, & INFO

Weekly Research & Education Zoom Meetings Spring Semester, Monday's 3 – 4 pm.

Recordings: EMBRIO Box account > Weekly Update Meeting. [Direct URL](#).

Spring Semester [Zoom link](#):

- January 9 – Krishna Jayant, Asst. Prof., BME, Purdue
- January 16 – Martin Luther King, Jr. Day – No Meeting, please volunteer locally
- January 23 – Trainee Professional Development, Grants Series Session #2
- January 30 – Anjali Iyer-Pascuzzi, Assoc. Prof., BPP, Purdue, DEI Director, EMBRIO
- February 6 – Thrust & Site Leads Update Meeting
- February 13 – Priyanka Baloni, Asst. Prof, HHS, Purdue
- February 20 – Trainee Professional Development, Grants Series Session #3
- February 27 – Bakary Samasa, Mary Mullins Lab
- March 6 – Thrust & Site Leads Update Meeting – NSF site visit debrief, next steps
- March 13 – Spring break, no meeting
- March 20 – NSF site visit debrief and trainee orientation to the Institute
- March 27 – Nilay Kumar, Ph.D. Candidate, Zartman Lab, Notre Dame
- April 3 – Thrust & Site Leads Update Meeting
- April 10 – TBD
- April 17 – Project Discussions
- April 24 – Project Discussions
- May 1 – Integrated and Enabling Project Proposals Due
- May 8 – Javier Munoz, Brubaker Lab

- May 15 – TBD
- May 22 – TBD
- May 29 – No meeting, Memorial Day

April 7, 2023. 10:30 am ET. BME PhD Preliminary Exam Announcement for Peter J. Brumm (T. Kinzer-Ursem, advisor), 10:30 a.m., DLR 131. **Research Title:** Computational Models determine how Ca^{2+} signal decoding controls subcellular actin organization by quantifying neuronal dendritic spine regulation.

May 1, 2023. DUE: Integrated and Enabling Project Proposals. RFP and associated resources are available on our Box account in the “EMBRIO RFP” folder:
<https://app.box.com/s/3fb0bo9inh1lp52k8oxiqbozfo99sh4>

July 10-12, 2023. EMBRIO Trainees Workshop, Notre Dame University. Details forthcoming.

July 13-14, 2023. EMBRIO All-Hands Annual Meeting, Purdue University. More information forthcoming.

INSTITUTE EVALUATION: SIGN UP FOR YOUR ONE-ON-ONE INTERVIEW (hint: it’s mandatory)

If you are a member of the EMBRIO institute currently doing a research project, we would like to invite you for participating in this study. Participation in the evaluation process is **MANDATORY** for all the members of the institute.

As a part of the evaluation process, you will take part in an online session (via Zoom), which includes an interview and a brief survey, and the entire process should be completed in less than an hour. Interviews will be conducted annually for the total duration of your participation in the institute and the session would not exceed an hour and would be completed in a day.

Please fill in all the times you may be available for our interviews using the link below with either your name or email address. This information is requested so that we may contact you to set up an online session, but we will use a randomly generated 4-digit code in place of your name to identify all your information for the data collection and analysis.

<https://www.when2meet.com/?18327719-shNWM>

Your participation will not affect any aspect of your association with the EMBRIO institute. If you have any doubts regarding the evaluation process, please reach out to Soumi at mukher42@purdue.edu.”

With Regards
Soumi

Hot Off the Press: New EMBRIO Journal and Conference Papers

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

REMINDER: EMBRIO Acknowledgement for Scholarly Papers.

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.”**

Conference Presentations:

Let us know about your conference presentations.

Awards

Three EMBRIO investigators have received Early Career Awards! Congratulations to Deva Chan (BioEng), Elsje Pienaar (BioEng), and Joy Wang (ECE) on these tremendous achievements.

- Deva Chan, Assistant Professor of Biomedical Engineering, Young Faculty Award, Defense Advanced Research Projects Agency
- Elsje Pienaar, Assistant Professor of Biomedical Engineering, NSF Career Ward
- Xiaoqian Joy Wang, Assistant Professor of Electrical and Computer Engineering, NSF Career Award

[News story](#) celebrating early career award winners (Purdue).

Open Positions

Two Open-Rank Professor Positions in Technology and Research Related to Next-Generation Biomedical Digital Twins

The Department of Intelligent Systems Engineering at Indiana University is pleased to announce a search to fill Two Open-Rank Professor Positions in Technology and Research Related to Next-Generation Biomedical Digital Twins. Appointments can be at Full, Associate or Assistant Professor level and two-person cluster hires are possible. Appointments can begin as early as August 1, 2023. This search is part of a broad collaborative initiative to create key hardware and software components of next-generation digital twins for research, bioengineering and clinical application.

To learn more about Luddy School, ISE, and to apply online, please visit <https://indiana.peopleadmin.com/postings/16811>

For more details see attached full announcement.

Questions, nominations, and confidential inquiries may be sent to Prof. James A. Glazier (jaglazier@gmail.com)

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 April 14th to Brent (laddb@purdue.edu)