THE UNIVERSITY OF MAINE

immersed

vol 2 issue 2 • spring 2023

imrc / im·merse / i'mərs / [verb] :
to involve oneself deeply in a particular activity or interest

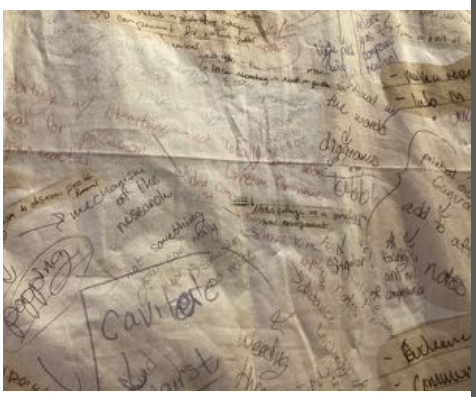
a publication of UMaine's
IMRC CENTER

supporting research and innovation

April 2023 brought **Maine Impact Week** back to the Innovative Media Research and Commercialization (IMRC) Center, celebrating research and creative activity from all corners of campus. IMRC Center staff offered tours of the facility to about 65 guests, including members of the **Institute of Electrical and Electronics Engineers (IEEE)**.

Co-Translation, an exhibition in the Fernald Adaptive Presentation / Performance Environment featuring the work of partnerships between Intermedia and Environmental Engineering students and faculty, illustrated how interdisciplinary collaborations enrich and expand on existing ideas.

Intermedia students Shahab Andarva, Augusta Sparks Farnum, Walter Greenleaf, Luke McKinney, and Alex Rose, with oversight from Intermedia Associate Professor of Research Susan Smith, were awarded the **top prize in the Arts category** for nanocellulose innovation at the **UMaine Student Symposium** on Friday, April 14th.



Left: IMFA student Alex Rose prints collaboration notes as a textile for *Co-Translation* *Right*: A detail view of the piece

spotlight

"A Lighthouse Reflection"
Phoenix Sanchez, '25

from the album ***On A Mediterranean Tugboat***
Recorded at the IMRC Center

Phoenix tells us: "When I found out that there were multiple professional recording studios that were free for student use, I couldn't believe it, but I also couldn't believe how this fact passes over so many of my peers. I love music and the studio labs provided a most comfortable and professional space for me to create. The labs let me create something that I'll always be able to listen to as I grow older, and be able to remember my college experience through, so I'm super thankful for that."

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CORE MAINE
Coordinated Operating Research Entities

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cross-campus collaborations

The **Electron Microscopy Lab**, in conjunction with the IMRC Center, both members of the University of Maine's **Coordinated Operating Research Entities (CORE)**, invited undergraduate and graduate students to use photomicrography to capture images at high levels of magnification that would help to communicate new understandings about their research. The **"Micro-Imaging Your Research"** contest culminated in a gallery reception at the IMRC Center on the evening of April 24th. Each image was printed in large format courtesy of the IMRC Center's prototyping lab to further emphasize magnified details.

The top three contestants were announced at the event: in 3rd place, **Emma Thomasetti**, School of Marine Sciences, advised by Paul Rawson, with images of the *Polydora websteri* polychaete worm; in 2nd place, **Val Watson**, School of Biology and Ecology, advised by Hamish Grieg, with images of the *Isonychia* mayfly nymph and *Leptoceridae* caddisfly larva; and in 1st place, **Sadia Crosby** [*above*], School of Biology and Ecology, advised by Angela Mech, with images of *Euproctis chrysorrhoea* browntail moth.

Below: **A student from the course EET115, which meets at the IMRC Center, shows off a computer-aided design for a laser-cut lampshade**

AY 22-23 by the numbers:

Lab use: **+32%**
Multifunction space use: **+26%**
User base: **+35%**
Number of new undergraduate employees: **2**
Caleb Thurston '26 and **Brenna Martens** '24. Welcome!

The IMRC Center hosted its **largest number of events in a single semester since before 2020** this spring, including: the continuing **Intermedia Speaker Series**, featuring artists Maria Villanueva, Chelsea Knight, and Letitia Huckaby; the IMRC Center's own **Influential Art Film Series** [*above*], a total of eight films shown weekly through the support of a Cultural Affairs and Distinguished Lecture Series grant and the UMaine Student Entertainment Committee; the launch of the newest issue of UMaine's **The Open Field** literary magazine by the English department; a **"St. Baldrick's Day" charity event** complete with live music hosted by the campus branch of Kiwanis, Circle K International; and a full slate of thesis exhibitions from Intermedia and New Media students.

A **hearing-assist system** was integrated into the APPE Space as of February 2023 and **drop-ceilings and other acoustic treatment** are being added to classrooms in time for the 23-24 academic year; these improvements will make experiences at the IMRC Center more accessible, professional, and impactful in the coming months.

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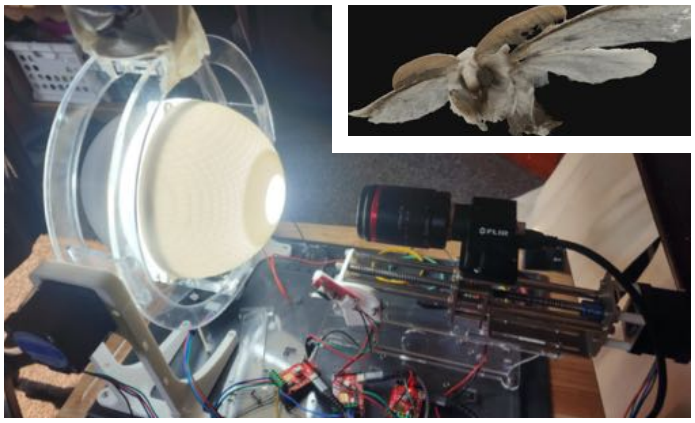
a bug's eye view

Devin Rowe, PhD student in Ecology and Environmental Sciences, shared the results of his recent **insect photogrammetry** project, for which he built an insect scanning structure [*far right*] at the IMRC Center.



"My brother-in-law gifted me a 3D printer. Being an entomologist, I started browsing for insect-related 3D prints and I found the scAnt 3D Insect Scanner created by UK researchers Fabian Plum and David Labonte (Evolutionary Biomechanics Lab, Imperial College London). ScAnt takes thousands of images of an insect. Those images then get processed and run through a 3D reconstruction program that takes those processed 2D images and turns them into a 3D object.

You can take that 3D object and process it further for animation, 3D printing, or to make it look nicer (like texturing a fuzzy bee, or fixing insect wings, as 3D reconstruction has issues with thin surfaces).

Entomology is a big piece of my life, and photogrammetry, the art and science of turning 2D images to 3D, is a fascinating field. Digitizing insects is a new way to document them, and it can help the general public–from having a full view of insects that cause us trouble (like browntail moth [*inset*]), or to just admire what an insect looks like.

When I was figuring out the schematics, I realized that the project needed laser cut acrylic sheets [to make the base and gimbal arc of the support structure]. I did the 3D printing at home, but I don't have the budget or space to get a dedicated cutter-that is a crucial job for the IMRC. Also, I like to walk around campus, and the IMRC halls have a great vibe where art and science merge. The IMRC does that well."

(don't) break the ice

IMRC Center fabrication technician Sean Taylor worked with School of Earth and Climate Sciences PhD candidate **Hanna Brooks** to create a solution to an ongoing problem for those that study ice core samples.

Each core contains microscopic layers that tell researchers about the chronology of the ice and its geological surroundings from thousands of years ago, and thin slices are studied to analyze the appearance of trace elements, sediment, and other indicators. Brooks is studying a sample of the oldest portion of an approximately 200 meter ice core from Denali, Alaska, but needed to move it without damaging it during imaging, or losing time to modifying existing sample holders (with materials like duct tape not intended for use at -20 C).

Taylor worked with Brooks to create a new type of adjustable sample holder (the **"Ice Vice"**) [*left and above*] using 3D printing that would stand up to extreme cold and easily accommodate irregular sizes.

submit your project or event to be featured in *immersed*: imrc@maine.edu

Thomas Rod Company of Brewer, Maine, approached the IMRC Center with a request to use contemporary technology to support traditional techniques going back well over a century. The company creates hand-hewn Tonkin cane **bamboo fishing rods**, using practices not far removed from those used by F. E. Thomas when he founded the company in the late 1890s. Thomas fly-fishing rods are renowned for their exacting detail, and IMRC Center fabrication technician Sean Taylor **cut Delrin jigs** to assist in production: "These jigs have super specific measurements," Taylor states. "We were able to help them continue this ancient craft." View process videos on our website and socials.

Thomas Rod Co., 1935

thank you!

New Media alum **Jeff Rampe** '16 donated a Formlabs Form2 Resin 3D Printer and accessories for use in the prototyping lab. We appreciate you thinking of us, Jeff!

Looking for ways to support the mission of the IMRC Center? Consider a donation via the UMaine Foundation website. Select "Other Fund" when placing your gift, and write "IMRC Center" in the designation box.

Congratulations to **Lia Davido**, graduating with her MFA in Intermedia this spring. Lia has been an outstanding student employee of the IMRC Center, with a significant depth of knowledge about much of our lab equipment. Lia's patient training of dozens of lab users has made an unmistakable positive impact. We wish Lia good luck on her next adventures, including her accessory and apparel shop featuring her original designs, **EarthandDecay**.

Phoenix Sanchez and band recording *On a Mediterranean Tugboat*