B
PC
Bulletin

Biomedical Photographic Communications + Spring 2013

letter from the editors

a tribute to the graduating seniors

From the renovation of hangout space Tech Alley, combination of the clubs for Biomedical Photographic Communications and Imaging and Photographic Technology, and the switch to an online only release of this magazine, the 2012-13 school year was a year of changes. Even more changes are coming up for the Photographic Sciences program. The two majors are combining to one, quarters will become semesters, and over twenty students will be graduating from the programs and entering the "real world".

In the fall, we introduced videos to the BPC Bulletin for the first time ever. In the winter, we embedded three dimensional models into the Bulletin, which used a little-known feature of the PDF file format. In this issue, we expand on what we have done and pay tribute to the hard work done by students in the photograph sciences at RIT, especially to the graduating seniors who will soon be moving on to bigger and better experiences.

This issue we focus on software– Lightroom 4 and Photoshop, in addition to mobile apps. Josh Shagam provides a valuable tutorial for creating and using layer masks, a topic often not covered in depth enough when teaching the basics of Photoshop. Apps for mobile devices provide an assortment of options for creative and innovative ways of imaging.
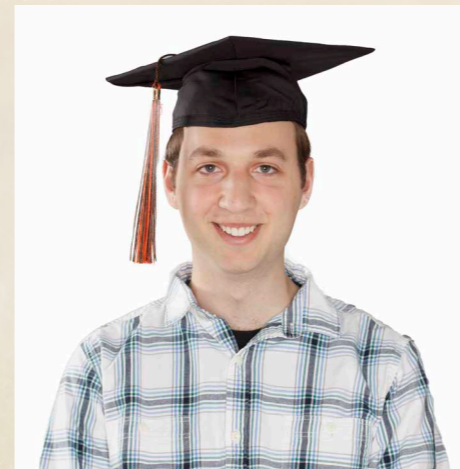
Nathan Pallace gives us a look inside the life of a medical photographer working at the Mayo Clinic Hospital in Phoenix, Arizona. The fast-paced life of a medical photographer working in operating rooms is described in detail by an alumnus of the Biomedical Photographic Communications program.
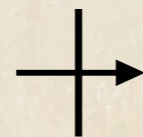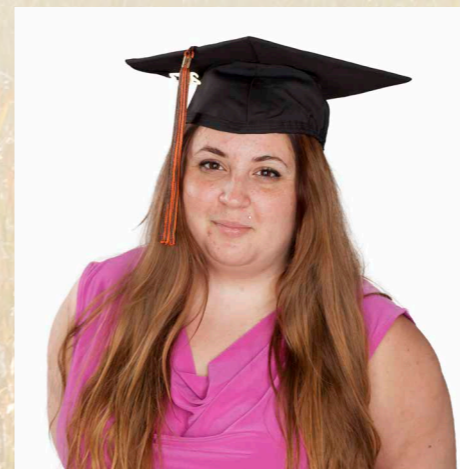
We chose the above logo for this issue to signify not just the combination of the two programs, but also to represent the program evolving and moving forward, as well graduates moving on as they find jobs and new career paths.

We would like to congratulate this year's graduating class for all of the hard work they have put in throughout the past four years. All of their submissions were a pleasure to sort through, and it was quite an experience to see how everyone's work evolved and improved over the years.

As this is the last issue that we have created, we look forward to what the new editors do next year with the exciting medium of digital publication. We offer farewell and wish good luck to the other graduating seniors!

Ryan
Ryan Harriman

Kylie
Kylie Madigan

Sarah
Sarah Oros

table of contents

how to: using layer masks in Photoshop

a tutorial by Josh Shagam, Visiting Lecturer for Biomedical Photographic Communications

Layer masking is one of those fundamental tools of Photoshop that the average user can easily overlook. You can certainly get by without it, but once you learn how to use them it will completely alter how you edit images. Read on to learn how to work with layer masks for making local adjustments and composites.

The Basics of Layer Masking

Everybody spends time using selections tools like the Magic Wand and the Lasso. The problem with these tools though, is that they create temporary selections. They create what are often referred to as "marching ants" - the black and white dashed lines that blink around a selected area. This type of selection is fleeting because Photoshop will not remember it after you continue along in your editing. Ten steps down the road, if you find you want to select the same area again, you're likely to have to reselect from scratch. This can be both time-consuming and messy if you fail to grab the exact same area the second, third or fourth time around. Layer masks are permanent, saved selections in the sense that Photoshop does not forget the areas you designate and it is always possible to modify or revise a selection. This in turn means that you have non-destructive, infinitely tweakable local adjustments within a working edit of an image. The masks serve as guides for the software to know which pixels to make active or inactive as they relate to the adjustment at hand. Or more simply, they tell Photoshop what pixels should be on or off and therefore visible in the final product.

Step 1

Bring two images into a Photoshop file as layers. By creating a layer mask coupled with the topmost layer, you can control how much of the layer below it is visible. With the top layer active, click the layer mask button at the bottom of the Layers panel. The resulting layer mask appears as a white thumbnail next to the layer thumbnail.
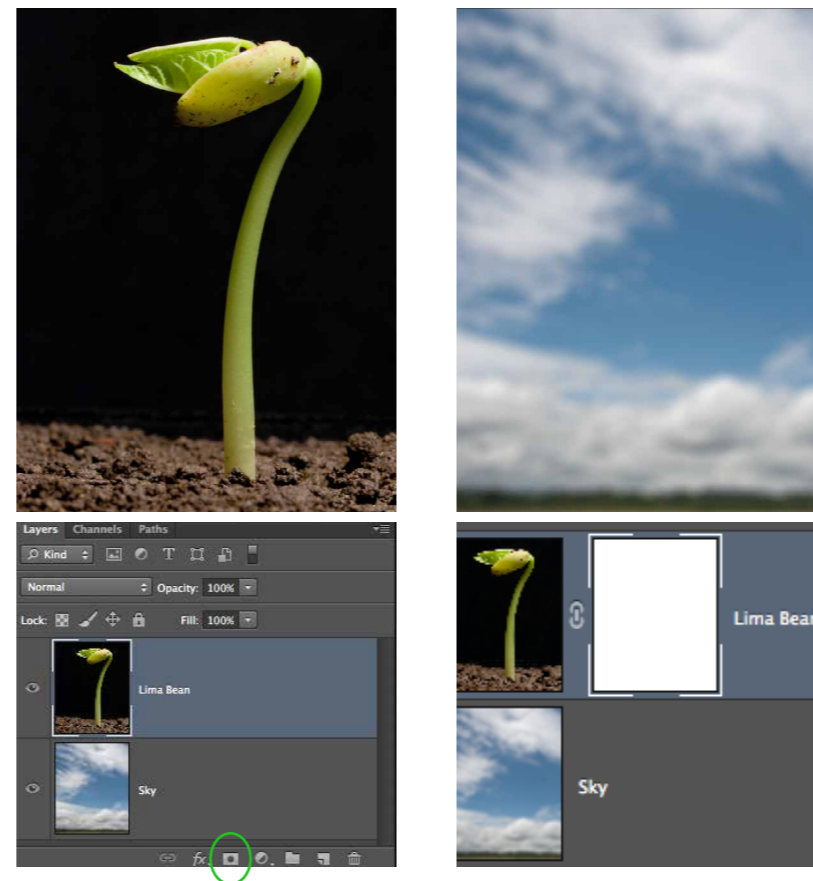
Step 2

Select the Brush tool and set the active color to black. Click on the layer mask thumbnail so that the next action will affect the mask rather than the image data. Brackets appear around the thumbnail to indicate which of the two layer elements is active. Paint black areas with the brush tool and those areas will become invisible on the top layer, revealing the image content of the layer below. Think of the layer and it's mask as a window, and any area painted with black will be transparent.

Photo credit: Jordan Briscoe

how to: using layer masks in Photoshop

a tutorial by Josh Shagam, Visiting Lecturer for Biomedical Photographic Communications
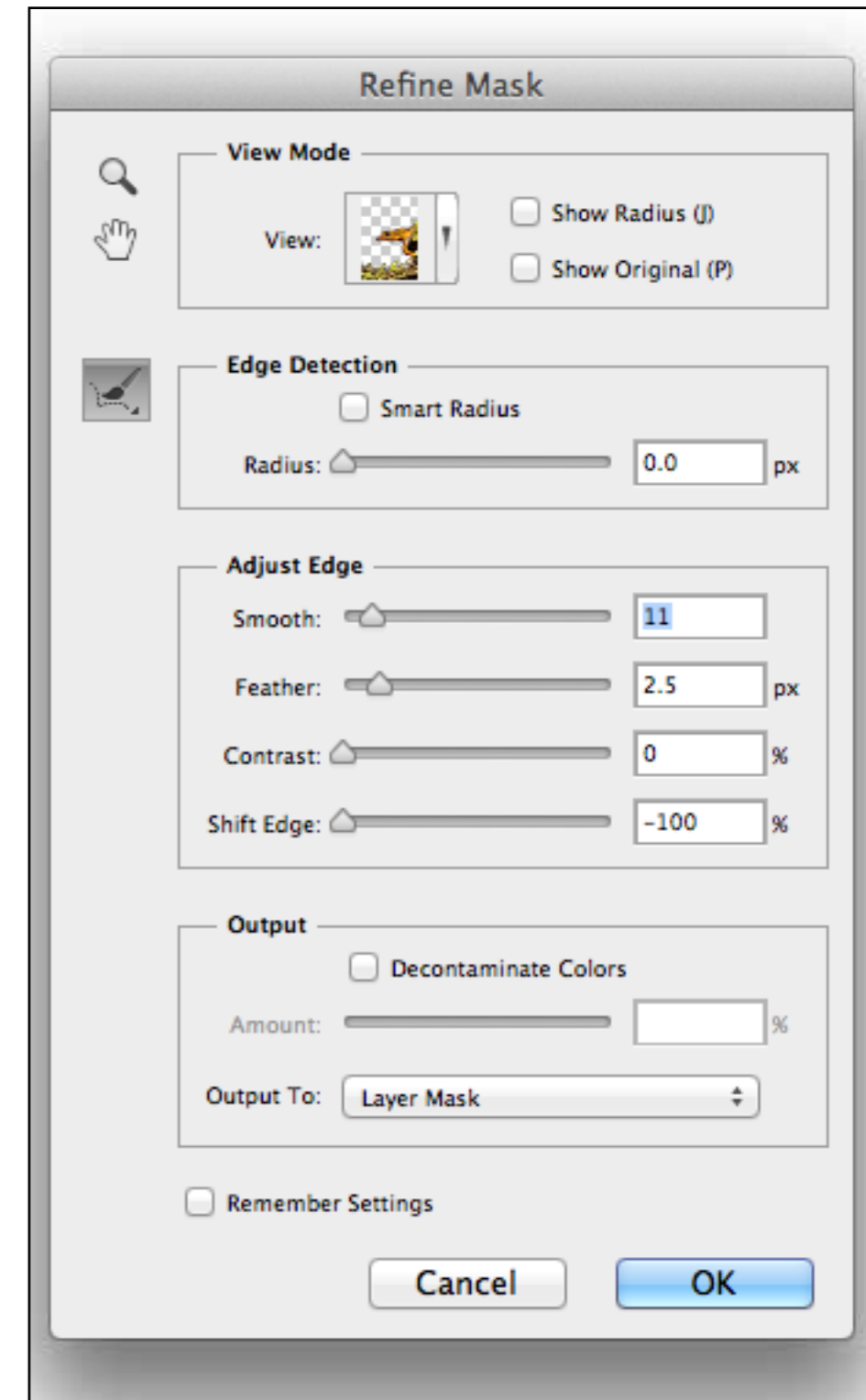
Step 3

The key concept when implementing a layer mask such as this is that white areas of a mask reveal the layer's image data and black areas hide it. A hidden piece of a layer means that the layer below will be visible. You are not limited to just black or white, though, and so using shades of gray on a layer mask will create different degrees of transparency. If you mask out an area poorly or change your mind, simply change the brush color to white to paint it back in.
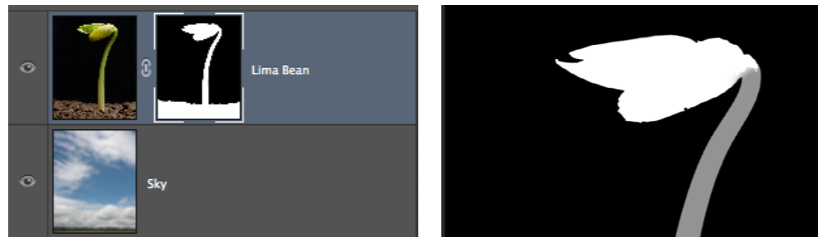
Step 4

Alternatively, use the familiar selections tools like the Magic Wand, Lasso and Color Range to make temporary selections. From here, use the Edit > Fill function to add a black, white or gray versions of the selection to a layer mask that has been established already. Remember, layer masks can be revised or changed at any time without throwing away any important image data from the layer. You can always go back and refine a layer mask selection. Once a decent mask is established, use the Mask Edge dialog found under the mask's Properties panel. Here you can smooth the edges, feather them and generally tweak the edge of the mask for more believeable blending. This is the one adjustment to a layer mask that is destructive, unfortunately, so it is best to employ it towards the end of your masking efforts.


Refine Mask

View Mode

View: ☐ Show Radius (J) ☐ Show Original (P)

Edge Detection

☐ Smart Radius

Radius: 0.0 px

Adjust Edge

Smooth: 11

Feather: 2.5 px

Contrast: 0 %

Shift Edge: –100 %

Output

☐ Decontaminate Colors

Amount: %

Output To: Layer Mask

☐ Remember Settings

Cancel   OK

how to: using layer masks in Photoshop

a tutorial by Josh Shagam, Visiting Lecturer for Biomedical Photographic Communications

Other Applications

The previous steps illustrate how to use a layer mask to cut out one image layer and have another show through behind it. Another way to use layer masks effectively is in conjunction with Adjustment layers. This is what allows us to add false colorization to Scanning Electron Microscopy (SEM) images: by using Color Fill and other adjustments coupled with layer masks, it is possible to hand-color areas of an image without having to worry about coloring outside the lines. It is always easy to correct a roughly color area when it is defined by a mask. Adjustment layers by default have layer masks, but they are completely white - meaning that their default influence is global. By inverting the initial mask to be completely black and then filling back in select areas with white, you can work quickly to color areas of interest without having to be a skilled illustrator.
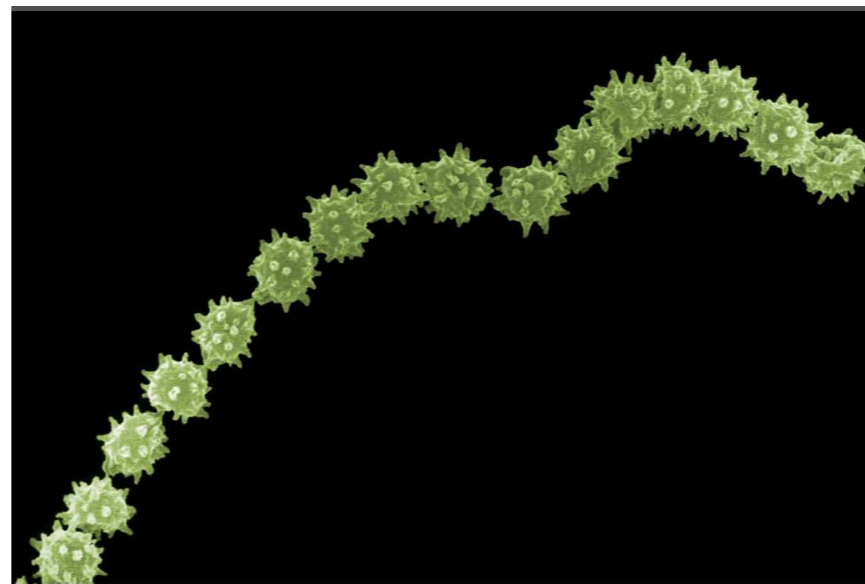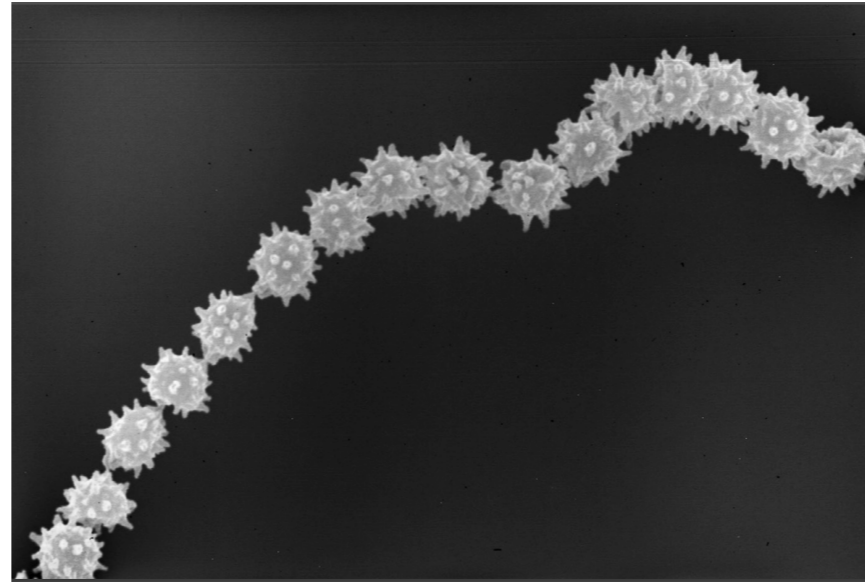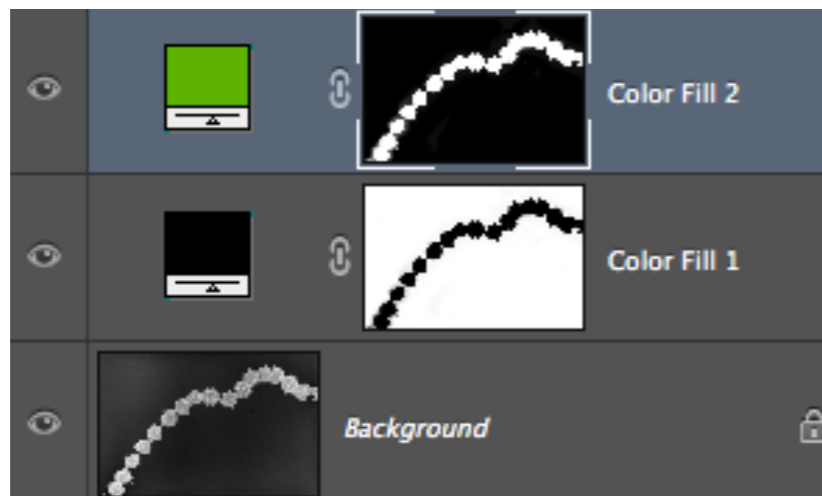
Keyboard Shortcuts Worth Knowing:
• \ toggles color overlay of layer mask
• Alt + clicking the layer mask toggles a black and white overlay
• Q toggles Quick Mask
• Command + Shift + I inverts an active selection
• X toggles the foreground and background swatches (active brush color)
• [,] adjusts brush size smaller and larger
• Caps Lock switches the tool cursor to a more precise crosshair

Applications of Layer Masks:
• Scanning Electron Microscopy False Colorization
• Compositing snowflake images
• "Floating" cut-outs of images for use with layout and design
• Any local adjustment that is too complex to select in Lightroom

how Lightroom can make your life easier

five reasons you should be using Lightroom to organize and edit your photos

1. Organize with keywords and metadata

Organizing your photos is easier with the sync keywords and metadata functions! Organization is no longer a chore that takes hours, as group keywording only takes a few minutes.
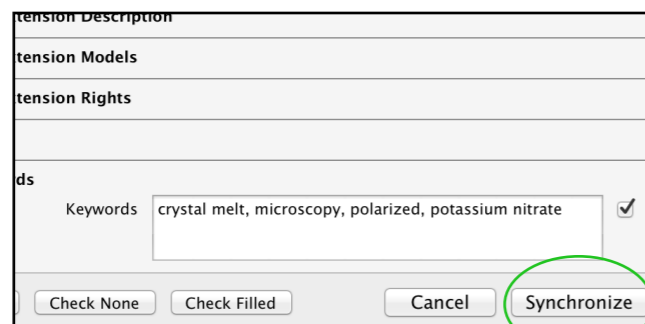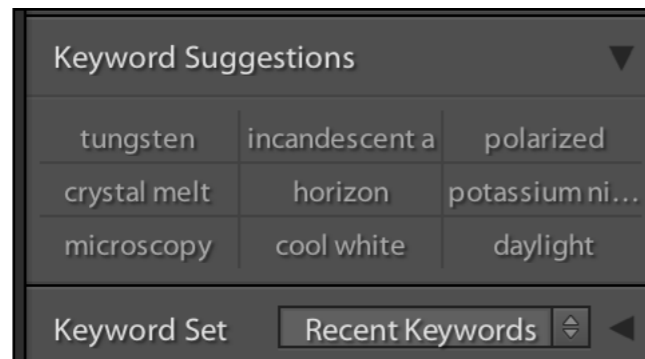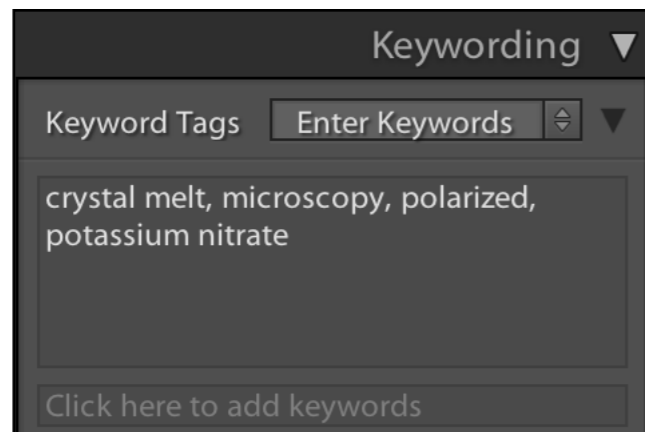

2. Synchronizing edits for many photos

Lightroom provides the opportunity to sync certain types of edits, such as color temperature, crop, lens corrections, and practically every type of editing adjustment. If there is dust on your sensor and you clone it out in one picture, you can sync the adjustment to other photos in the same shoot.
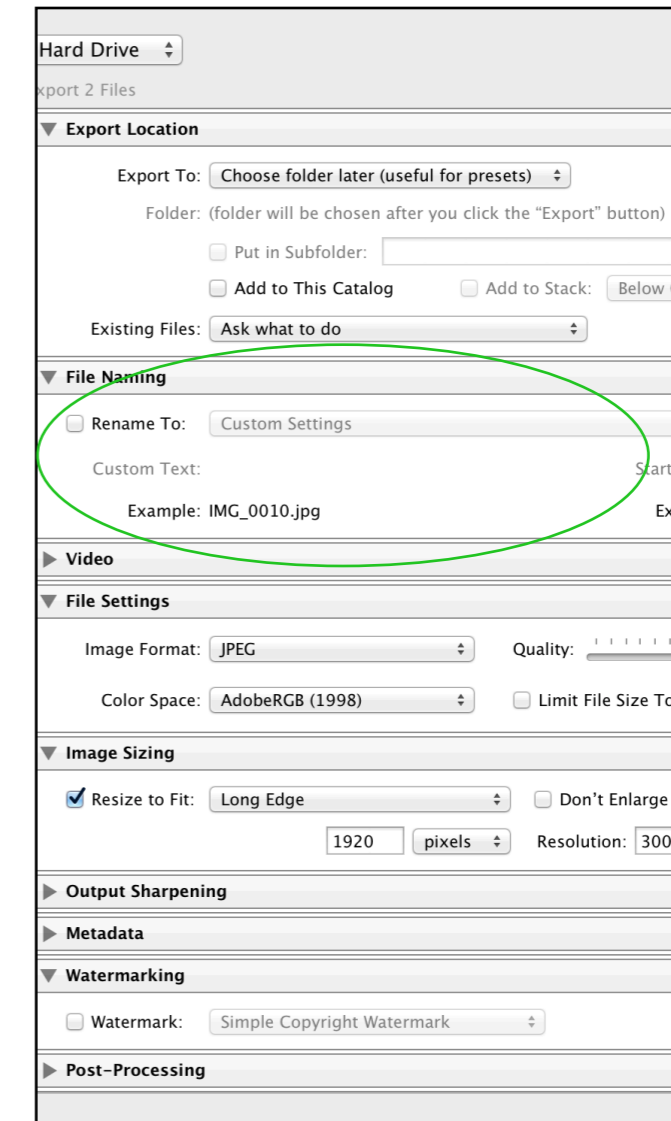

Edited   Not edited   Synchronized
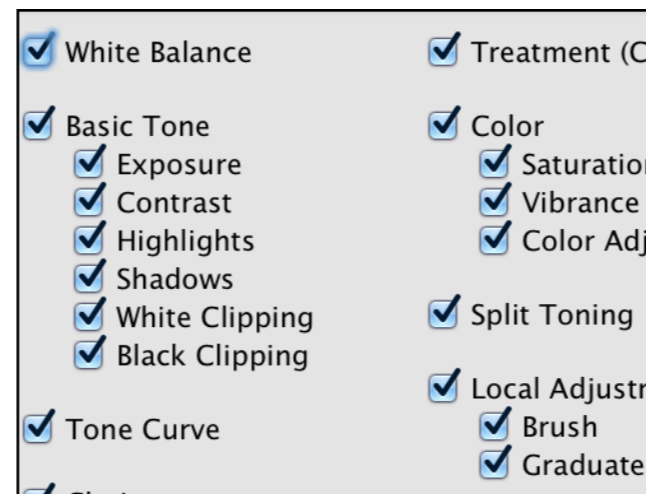
3. Customize file exporting and batch file renaming

You can limit file size, export to specific file dimensions and file types, watermark your pictures, and rename your files with presets such as basic numbering and keywords marked with your file.

how Lightroom can make your life easier

## five reasons you should be using Lightroom to organize and edit your photos

4. HSL sliders, target adjustment tool

Adjust and fine tune the hue, saturation, and luminance of specific colors in your photos non-destructively. You can use the target adjustment tool to select colors directly from your photographs. By moving the tool up or down, this allows for the selected color and similar colors to change.
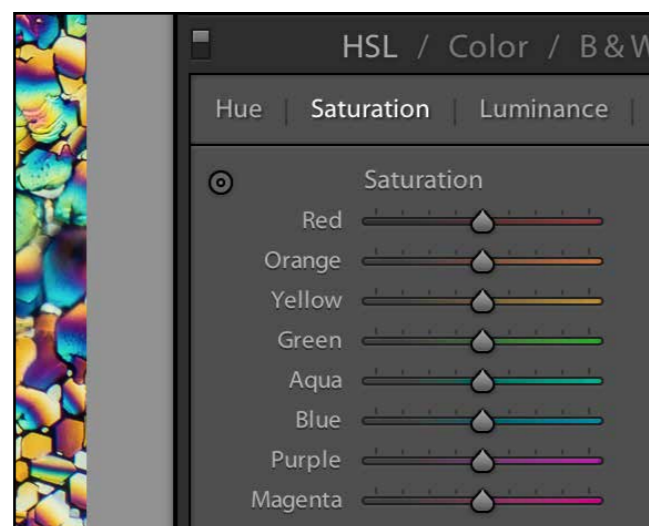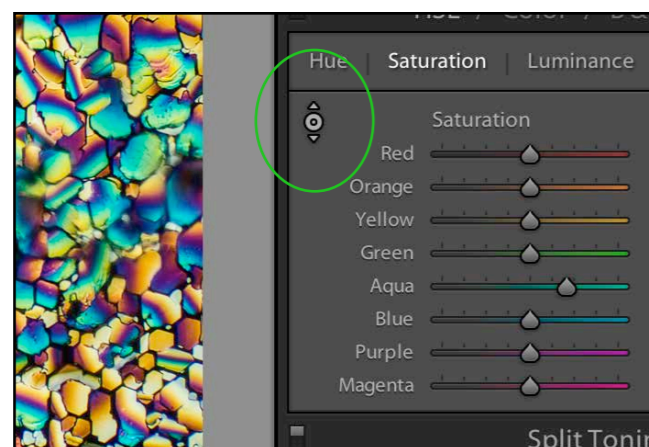
5. Blacks and Whites Sliders

Bring back the most information as possible from your photos with these sliders. These sliders exceed the capabilities previously found in Lightroom 3. Information is brought back easily with the blacks and whites sliders. Using the highlights and shadows sliders in conjunction with the sliders can be the key to a great image.
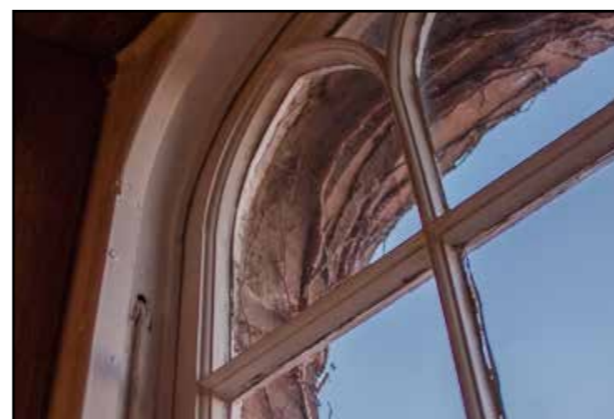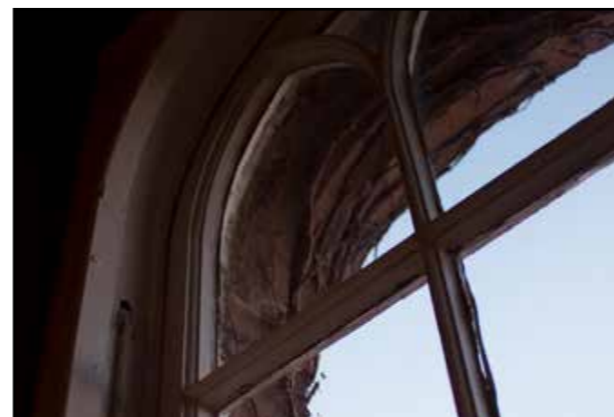
- **Additional Tips and Tricks:**
- Using the Graduated Filter tool is an easy fix for uneven lighting.
- If your camera allows for GPS tagging, the Map module can display all of the locations of your photos.
- The White Balance Selector tool gives a quick and easy white balance off of neutrals. This adjustment can be synchronized with other photos.
- Smart Collections are a useful way to organize photos even if they are in different locations. Just drag and drop photos into a new collection to sort out the best photos.
- Pressing the 'E' key takes you to the Library, and pressing the 'D' key toggles you into the Develop module.

apps for scientific & medical photographers

push your smartphone's capabilities to the limits with these iOS apps related to the photographic sciences

123D Catch
By Autodesk Inc.
iOS Universal

Free

Interested three-dimensional photography? This app allows you to take photographs of an object from all different perspectives, and then uploads those images to Autodesk's servers for analysis. Within minutes, a 3D interactive model gets sent back to your smartphone.

Cardiio
By Cardiio, Inc.
iOS Universal

$2.99

Using color amplification software, this app allows for non-contact heart rate measurement using the camera built into your smartphone. Simply point the camera at someone's face, and within seconds, the app will tell you that person's heart rate by analyzing near-invisible color changes in the face.

360 Panorama
By Occipital
iOS Universal

$0.99

Shooting large panoramas with a DSLR can be a lengthy and cumbersome process. 360 Panorama aims to be a quick way to photograph a scene in 360 degrees. Just rotate your smartphone and this app will automatically assemble a high resolution interactive panorama in real-time.

DoFMaster
By Viewpoint Photo
iOS Universal

$1.99

Knowing the hyperfocal distance of lenses can be extremely useful, particularly for landscape photographers. This app lets photographers calculate exactly how much depth of field their lenses have in regards to what f-stop and focal length they are using, which can also be very useful for photomacrography.
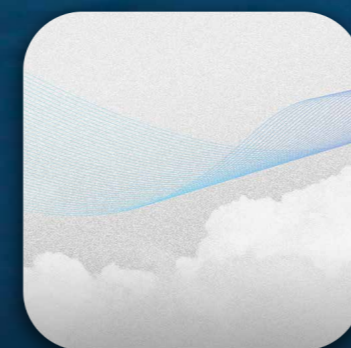
Camera+
By Tap Tap Tap
iOS Universal

$0.99

Tired of the lack of features in the camera app that came with your smartphone? Camera+ aims to replace the native camera app and gives users much more control over settings. Most notably, it allows users to selectively control focus and exposure independently by tapping on different areas of a scene.

EyeDecide
By OCRA MD
iOS Universal

Free

This is a patient education app that has a 3D interactive model of the human eye (both internal and external) that makes it much easier to explain eye anatomy and pathology to others. Also, this app lets you preview what it is like to have various ocular diseases with your smartphone's camera.

CamRanger
By Global Delight Tech
iOS Universal

Free

Compatible with Canon and Nikon DSLRs, CamRanger sells a $299 attachment that allows for wireless control over your camera. When you plug in the attachment to your DSLR and install the free app, you have control over all camera features, as well as can view a Live View feed on your phone.

iLapse
By MEA Mobile
iOS Universal

$1.99

Shooting time lapses using a DSLR almost always requires an intervelometer, sturdy tripod, and hours of processing time. iLapse, similar to 360 Panorama, expedites and simplifies the process. Simply set a time interval and ILapse will automate the process of shooting and rendering a timelapse video.

a day in the life: Harvard Vanguard Medical Associates

by Kate Palitsch, Biomedical Photographic Communications '10

Just two weeks after graduating from RIT, I headed back to Boston to begin my full time position as an ophthalmic photographer at Harvard Vanguard Medical Associates. I was lucky enough to have a wonderful co-op experience during school that lead to a great job after graduation. I'm coming up on my third year as an employee of the Department of Visual Services at Harvard Vanguard's Kenmore office, and I'm looking forward to many more to come!

A little bit about Harvard Vanguard itself: Harvard Vanguard Medical Associates is a non-profit, multi-specialty medical group practice providing care to more than 510,000 adult and pediatric patients at more than 20 offices across eastern Massachusetts. Harvard Vanguard practices are among the highest rated in the state for clinical quality. I work at the largest of the Harvard Vanguard visual departments for several optometrists and ophthalmologists of various sub-specialties. I'm the only dedicated ophthalmic photographer, but have a few imaging-experienced ophthalmic technicians who back me up when things get busy.

A typical day for me begins like so: After grabbing my essential cup of Dunkin Donuts coffee, I head in to the office around 7:30 AM and help to open up the department. I boot up the OCT machines and fundus camera, set out the handheld camera for external photos, and stock supplies in each of the three rooms devoted to imaging. Once this is done, I check my email and our electronic medical records system for any important updates or outside imaging release requests from patients or doctors. By the time I'm done with this, there is usually a patient routing slip waiting for me in the imaging door slot. Most of the time, it's for an optic disc or macula OCT, which is indicated on the slip. Optic nerve, seven standard field, and nevus photos are frequently requested as well. After greeting the patient and bringing them to the exam room, I explain the test or remind returning patients of the procedure and why we are performing it.

Most of our patients are regulars, though, and are familiar with both myself and the process. With these patients, our discussion usually turns to the crazy New England weather or the greatest baseball team ever (the Boston Red Sox) as I get the machine cleaned off and ready. If necessary, I check the patient's vision, intraocular pressure, and administer dilation drops before imaging. After performing the photos or OCT scans, I'll show them to the patient and explain what it is that we are looking at. Oftentimes, patients will have questions about their images. This is perhaps my favorite part of the job; explaining the back of the eye to patients and answering their questions about the tests. I defer any questions regarding diagnoses to the doctor, though, and assure our patients that they're in good hands.

I then bring the patient and their routing slip to the next stop, be it to the waiting room, to a technician, or to the ophthalmologist or optometrist. I ensure that all of the files have been uploaded to the imaging system properly and are ready for the doctor. Afterwards, I open the patient's chart in the medical record system and place and result

Kate Palitsch

a day in the life: Harvard Vanguard Medical Associates

by Kate Palitsch, Biomedical Photographic Communications '10

> **"In between the middle and late angiogram phases, I often show the patient the files we've captured so far, as they're usually quite curious."**

orders, detailing what test I did, what eye(s) I looked at, and any other comments regarding the test that the doctor might be interested in.

Harvard Vanguard is involved with several research networks, so research patients come through the department frequently. I work closely with our clinical research coordinator to develop an imaging workflow for research patients and ensure that all photos are completed and uploaded properly per study protocols. Typically, research patients require an OCT, fundus photos, and/or fluorescein angiogram that must be done under specific study guidelines.

When a fluorescein angiogram is sent my way, I prepare the injection for the doctor and consent the patient before beginning the procedure. I explain to the patient that the information from the test will help the doctor with his or her diagnosis and to decide upon any treatment, if necessary. I

also go over possible adverse reactions from the dye and answer any questions the patient might have.

Next, I take preliminary shots of the back of both eyes before the dye is injected. I always begin with the fellow eye and then move over to the transit eye, as indicated on the routing sheet, so that the camera is all set and ready to go when the doctor comes in. Lastly, I drop in my filters, set my exposure and the timer, and then call in the doctor to begin the injection.

After the dye is injected, the doctor leaves until the test is completed. I take a photo about every 1-2 seconds until a minute after the injection has passed. I make sure that the patient feels okay and is not having any reaction to the dye before proceeding to the middle phase of the angiogram. In between the middle and late angiogram phases, I often show the patient the files we've captured so far, as they're usually quite curious. When the test is done, I call in the doctor to review the test with the patient.

OCTs, angiograms, fundus photos, and the occasional

> **"I also go over possible adverse reactions from the dye and answer any questions the patient might have."**

slit lamp photo keep me pretty busy most of the time, but there are also periods where it is slower in imaging. When this happens, I'll do what I can to help out in clinic. I also do A-Scans, pachymetry, visual fields, and clean and autoclave instruments. I help the technicians keep the clinic moving along by rooming patients, getting medications for doctors, and keeping the department clean and stocked. The department is also trying to get more technicians trained to perform OCTs, so I'll often spend time helping to familiarize them with the machines.

At the end of the day, I wipe down all of the imaging equipment and archive the day's files. I finish up entering any information I need to into patient's medical records and burn an occasional CD or two of files for doctors or patients. Sometimes, older ophthalmic slides are sent to me from medical records. I always scan them in to our system at the end of the day, when the pace in the clinic is slower. Finally, I turn off and cover all of our machines, file any paperwork, and switch off the lights. I then head home to rest up for another busy day that will likely follow, tomorrow!

a day in the life: Mayo Clinic Hospital

by Nathan Pallace, Biomedical Photographic Communications '10

When I tell people that I'm a medical photographer I usually get a wide-eyed look of surprise followed by a series of questions that ultimately add up to: "what does that even mean?" The best answer that I have been able to come up with is that I am responsible for imaging a number of medical conditions, both inside and outside of the human body, for documentation, education, and insurance related purposes.

When I'm in a more humorous mood I simply tell people that I take close-up photographs of some of the grossest things that you never want to happen.

A few important things to know about Mayo Clinic Arizona are that there are two main campuses within the system which are located about 14 miles away from one another. The first is the actual Mayo Clinic Building, located in Scottsdale, Arizona. The second is the Mayo Clinic Hospital, which is located in North Phoenix. This is where the OR, the ER, and the OR specialty building are located and is also where I work the majority of the time.

Four of us primarily work in the medical specialty areas that our department serves. The others do the majority of the editorial work, which includes portraits, special event photography, and internal/external PR. Our medical coverage areas include surgery, plastics/ ENT, clinical dermatology, and surgical dermatology. Each of our medical photographers has a focus in one of these four medical specialties and mine is surgical photography. On most days I am also the primary photographer for the entire Mayo Clinic Hospital. This does not mean that I never work in any of the other medical specialty areas though. Our photography team has to be relatively flexible due to our staff size. Therefore, any of the six of us can find ourselves working in any area, at any time, and sometimes multiple areas at the same time.

The regular OR shift normally runs from 7:30 AM until about 5 PM (Monday through Friday), but everything that happens between those two times is hard to predict. My average day in the OR usually begins at home when I roll out of bed at roughly 5:45 AM. When I arrive there, I have to change into scrubs and get myself and my equipment organized by no later than 7:30 AM. That's when the OR basically opens for business. There are 21 operating suites at Mayo Clinic Hospital and on most days every one of them is booked for a 7:30 AM start. Once the OR gets moving, the work requests I receive from these 21 rooms come in on an "as needed" basis through a pager I wear on my waist band. I receive a tone page (or a beep) and then a number appears on the screen of the pager.

The actual picture taking part is my favorite because it allows me to put my technical skills and training to use and to also use my critical eye and mind.

When I enter an OR suite containing an ongoing surgery I never quite know exactly what to expect, so I've found it best to use all of my senses and become extremely alert the second that I pass through the door. The first thing that I try to do is gather the patient's general information while simultaneously trying to assess the overall situation happening in the room. The patient's information is needed to identify and label the photos later on during image processing. The general mood in the room can tell me a lot about how the operation is going and how easy or difficult it may be to capture what is being requested of me. I then try to get a look at what is happening on the operating table before actually stepping up to it, if I have a chance to do so. This is usually the first glimpse that I get of what I will be photographing. This can also provide an idea as to which lenses I might want to use and what angel I should be trying to be shoot from. I carry a small bag full of photo tools that includes both 60mm and 100mm macro lenses and a 28 – 105mm zoom lens. I use these three for all of my patient photographs, but I also have an 18 -55mm for room shots. My camera body is a Canon 60D and I use a macro ring flash for illumination whenever I am capturing patient images.

When the moment comes for me to approach the table, I have to be extremely careful not to touch anything in the sterile operating field with either my body or the camera. Anything that has been sterilized is normally draped in, or placed on, something that is blue in color. This includes the doctors and the instruments being used. Touching them is bad and will ultimately ruin the rest of my day! Sometimes the people who are working inside of the sterile field

Mayo Clinic Hospital

a day in the life: Mayo Clinic Hospital

by Nathan Pallace, Biomedical Photographic Communications '10

"My best advice to anyone who is thinking about trying to follow a similar path to the one that I have is to gain as much professional work experience as a photographer that you can right now."

will stop the operation and clear out of the area to give me more room to work in, and other times I have to shoot above, below, or even from behind the surgeons as they work. This always ends up being a kind-of an anti-contamination dance when maneuvering around the edges of the field, but I've learned to be extremely limber with the more experience that I receive. When I get the chance to actually take a shot, I usually try to pop off as many as I can. These OR calls can fill up an entire day, and are very rarely ever the same. Each call can also provide a unique challenge on both the photographic and customer service spectrums. So, I basically always have to be thinking on my feet. A regular challenge is when I'm called to assist in other areas of the hospital during a busy day in the OR. There are 7 floors and over 250 beds in the building and I am responsible

for all of their patient related photographic needs. If I receive a call to document a dermatology condition found on a patient on the 7th floor, I have to manage my time accordingly in order keep up with my regular business in the OR (which is on the 2nd floor). On a busy day, or in an emergency situation, this can be a real juggling act with a good amount of stress.

I'm also indirectly responsible for the files captured on a number of medical imaging machines found within the OR. Most of these devices are different types of endoscopes used for photographing inside of the body. The doctors and OR staff manually operate these scopes during surgery and use me to transport the images that are created with external media (usually a thumb drive) from their built in storage devices. I then have to process the files individually and add a standardized naming convention that is unique to Mayo. This convention is also applied to any other image file that passes through my hands during a given day. The final products are then delivered to both the doctor's personal image folders, which are located on a secure internal server, and to our central image archive, where additional metadata is added for future reference.

I also frequently receive a number of calls for random imagining projects from both the doctors and the medical support staff that work inside the hospital. These calls can include taking pictures of

defective equipment, inquiries for scanning images provided by incoming patients, photos of 3D anatomy models, staff birthday and retirement celebrations, short video clips, environmental portraits, and pretty much anything else that can be thought of in relation to photography and general hospital operations.

My best advice to anyone who is thinking about trying to follow a similar path to the one that I have is to gain as much professional work experience as a photographer that you can right now. This can include shooting anything from weddings to delicate brain surgeries. Obviously, the more that this practical work experience can be related to anything in the medical imaging arena, the better of an impact it is going to have on an individual's resume. Even further, the stronger your resume is the easier it is going to be for you to find a job. Most medical photography employers are currently looking for anywhere from 1 to 5 years of professional photography experience on their job applications, so it is safe to say that the harder you work now, the easier you will have it later on! I've learned through my own personal experiences focusing a camera above a patient while being sandwiched inside of a sterile field that the more capable an individual is at solving technical issues and managing difficult situations in the moment, the more equipped he or she will also be as a medical photographer. Being able to prove that you possess

skills like these on a resume or during a job interview will help you greatly when trying to land a medical photography position. That's just a bit of food for thought though! Best of luck to you all!
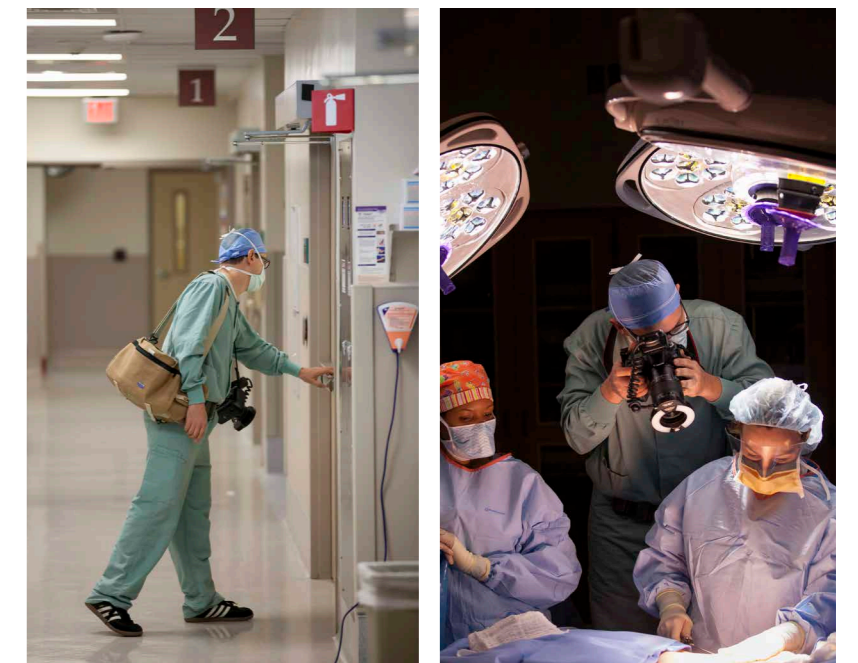
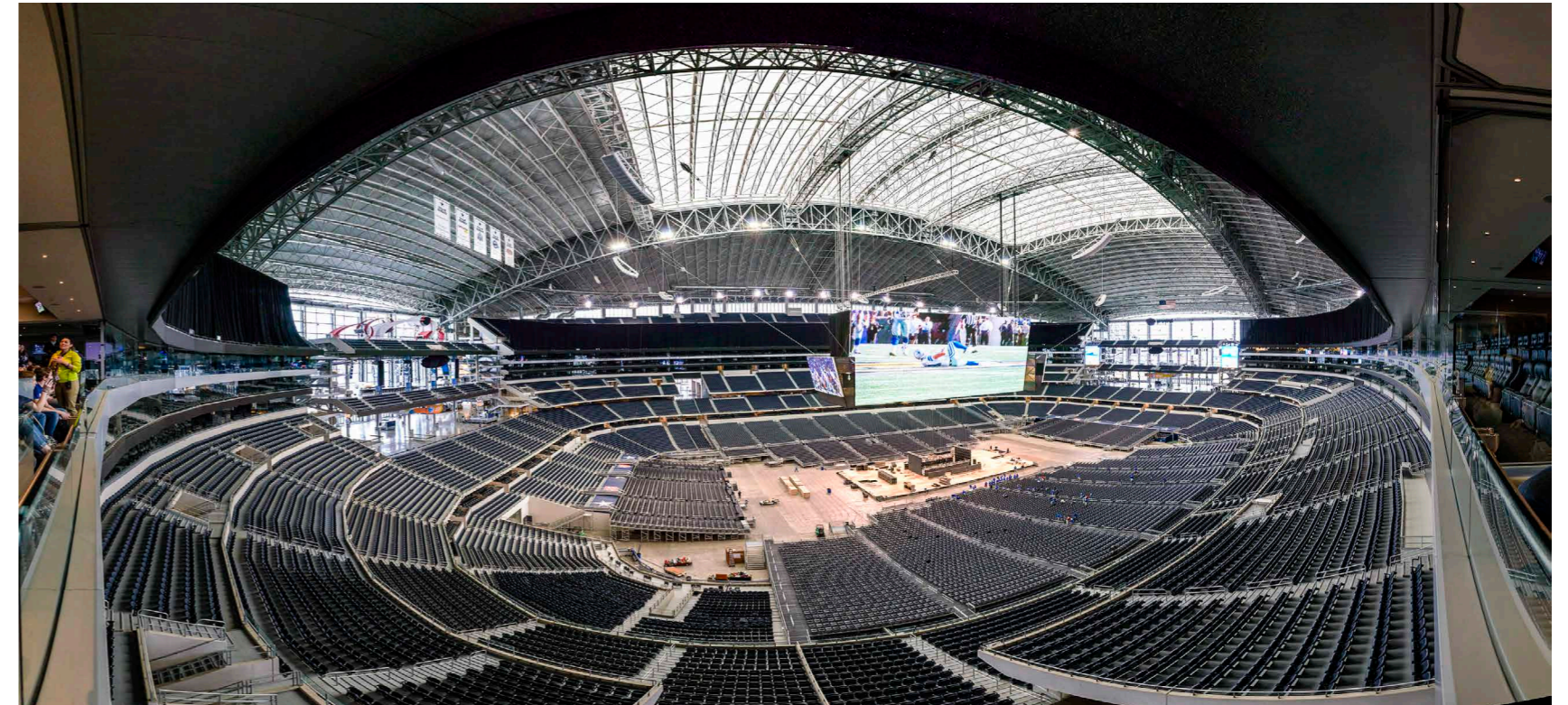# Big Shot no. 28 at Cowboys Stadium

from Rochester to Arlington, over thirty RIT students travelled to Texas for a weekend to attend this record breaking event
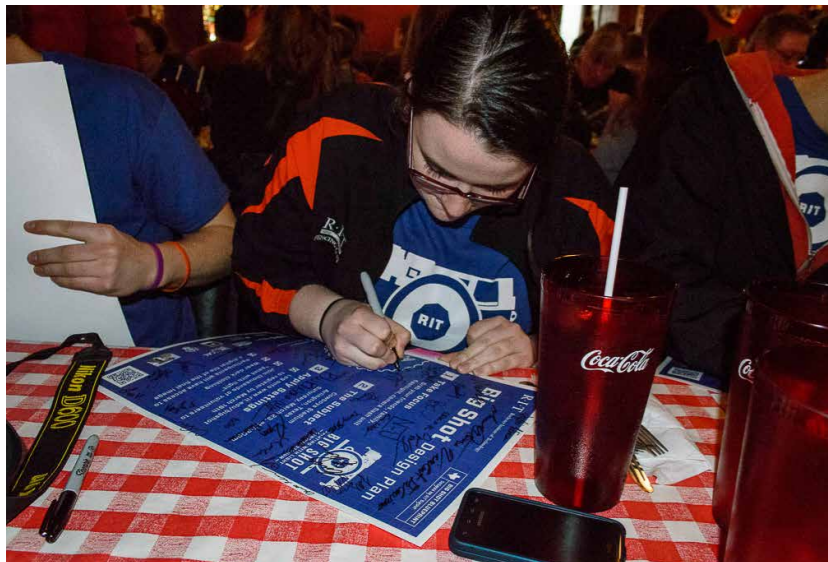

Twenty-eight students arrive at the Rochester airport by 5:00am on a Friday to depart for Dallas, TX

During an official tour of Cowboys Stadium, photo students celebrate in a freight elevator

Panorama of the beautiful and unbelievably large interior of Cowboys Stadium

At an alumni dinner, students signed over 100 posters each as gifts for those that participated

In the media room inside the Stadium, Big Shot organizers prepare the photograph to post online

Live Google Hangout video of the event commentated by IPT student Ben Lubin

Mini-documentary, including interviews and live video of this event, made by RIT University News

Big Shot no. 28 at Cowboys Stadium

over 2,400 participants painted with light to make this image possible

Milena LaFranca + Sad Eggs
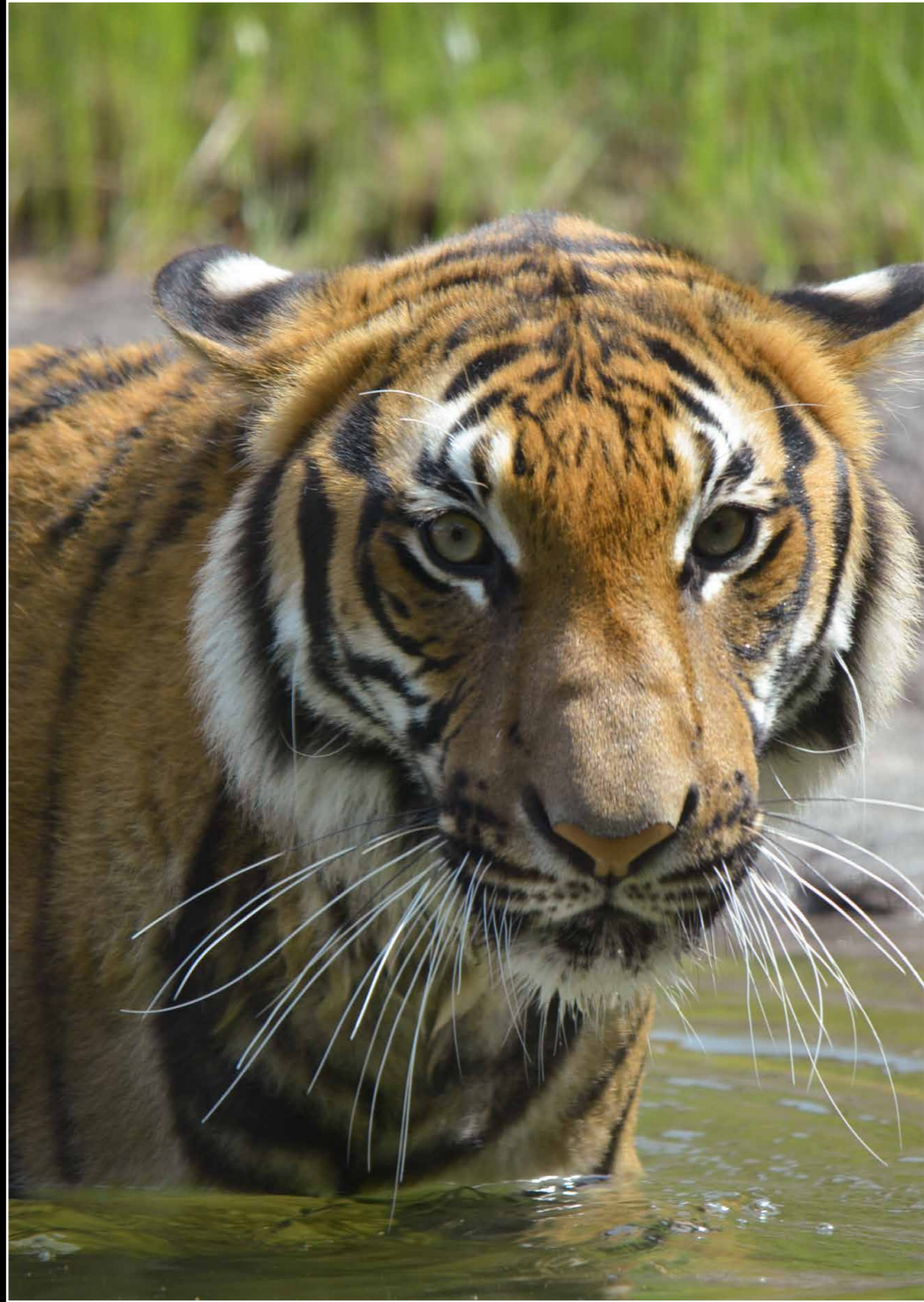
Brittany Bateman + Tiger

Marissa Masek + Old Quarter

Sam Chalut + Spiky Plant

Evan Darling + Chick Embryo
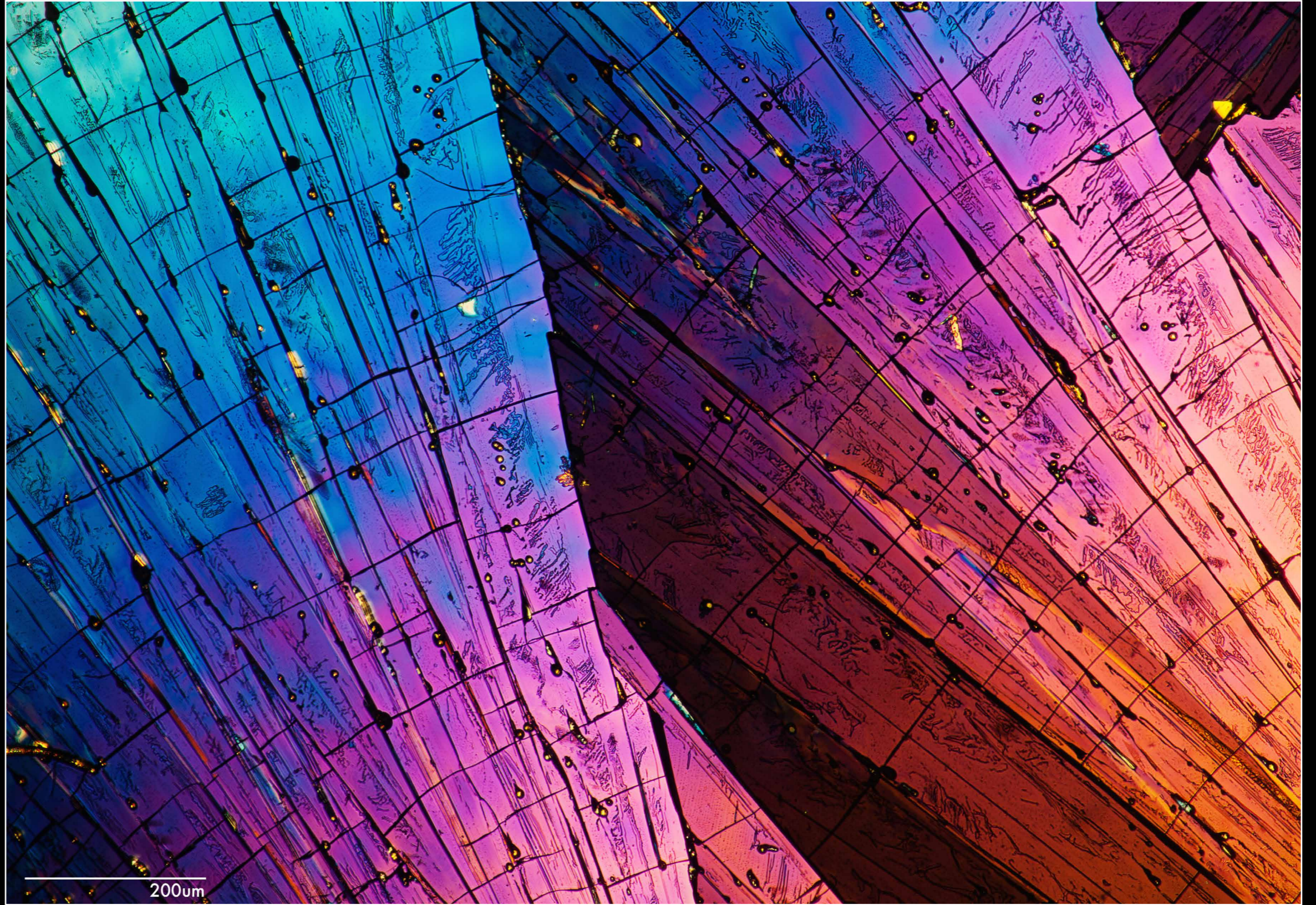
Marissa Masek + Benzil

200um

Erich Fiederer ✛ Chimney Bluffs

Brittany Bateman ✛ Jellyfish

Jamie Kraus + Church

Evan Darling + Landscape
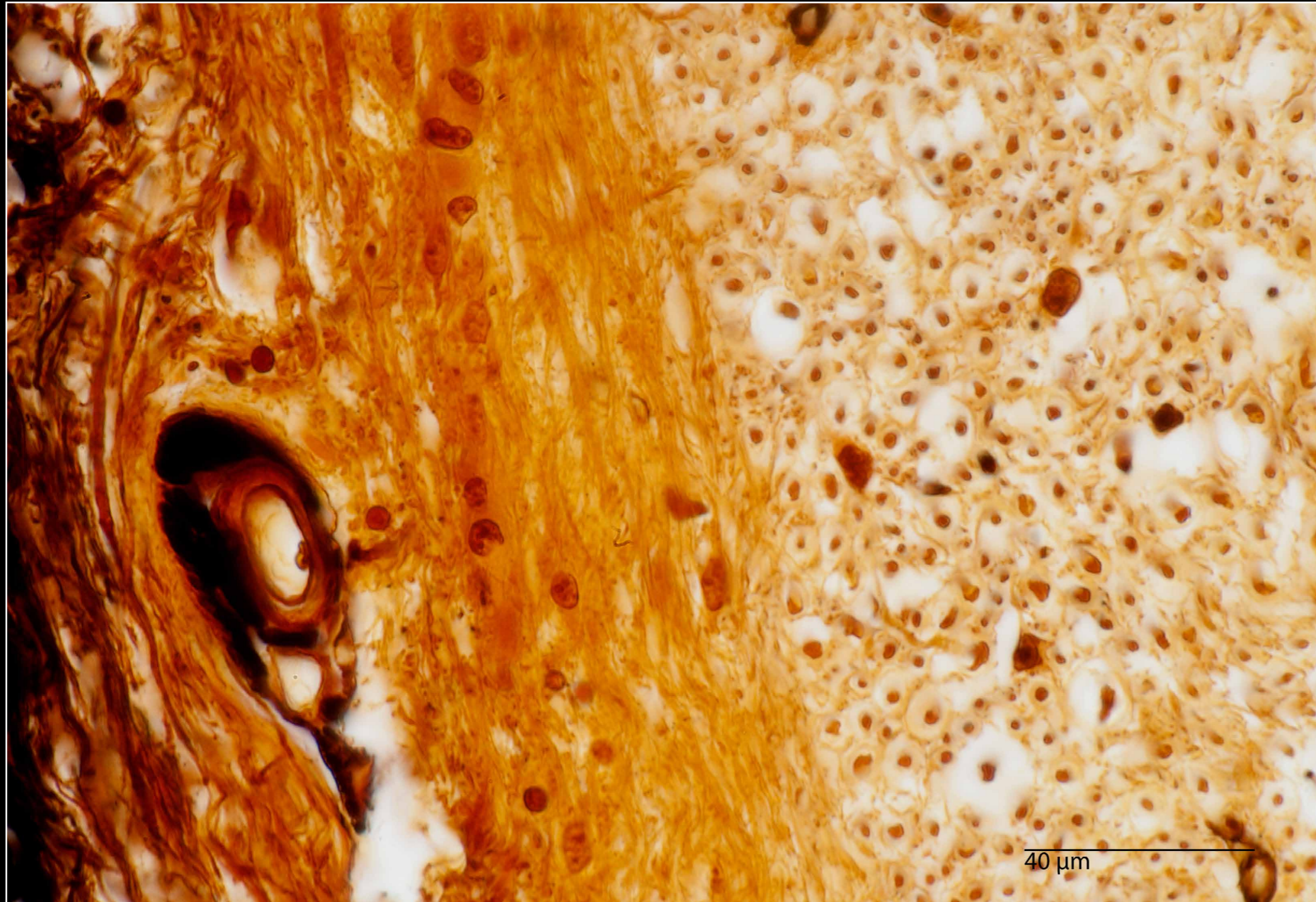
Abby Jaske ✛ Spinal Cord

40 µm

Abby Jaske ✛ Surgical Reflection
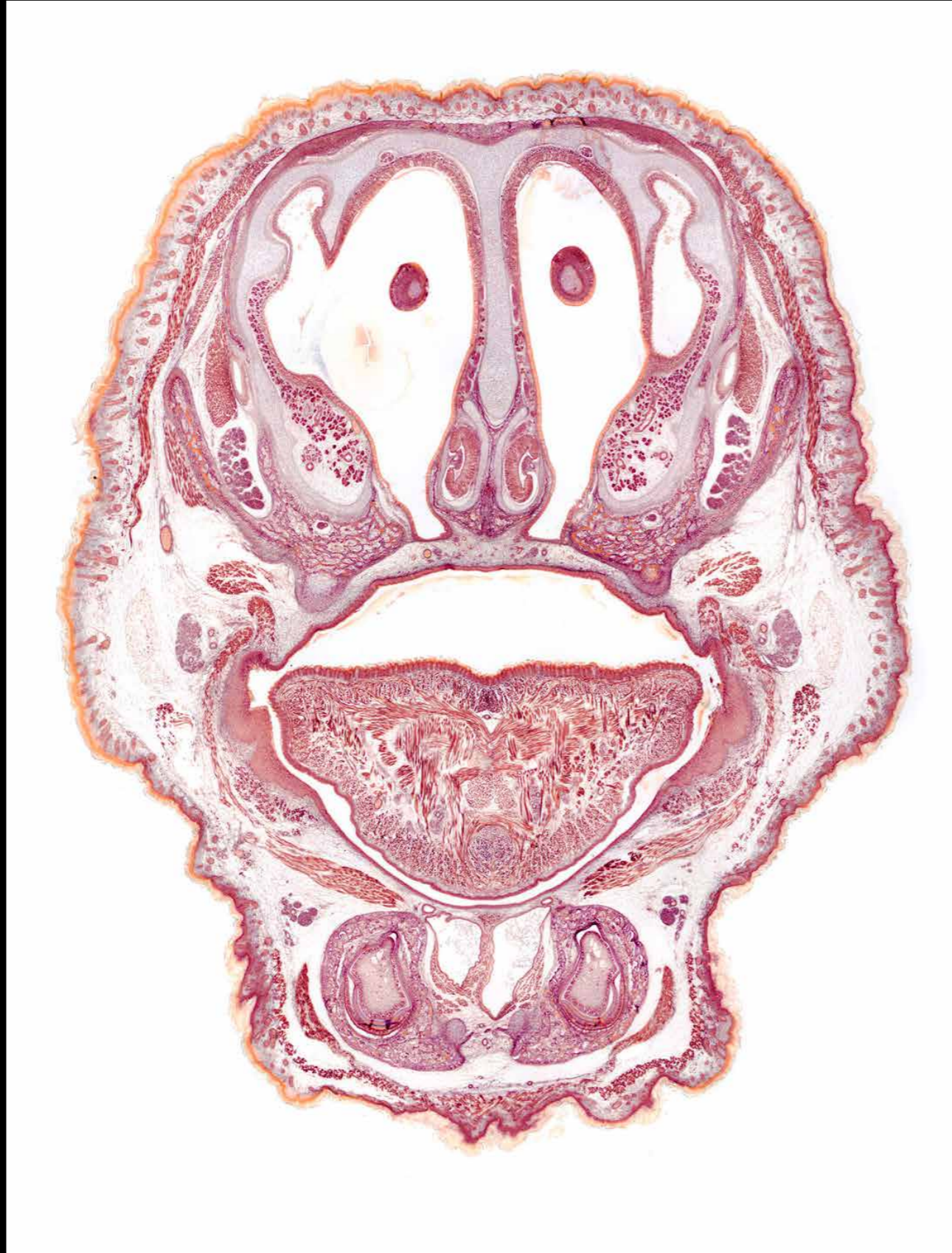
Alex Hannan ✛ Fetal Rat Skull, Coronal Section

Jace Artichoker ✛ *Obelia longissima*, Water Polyp
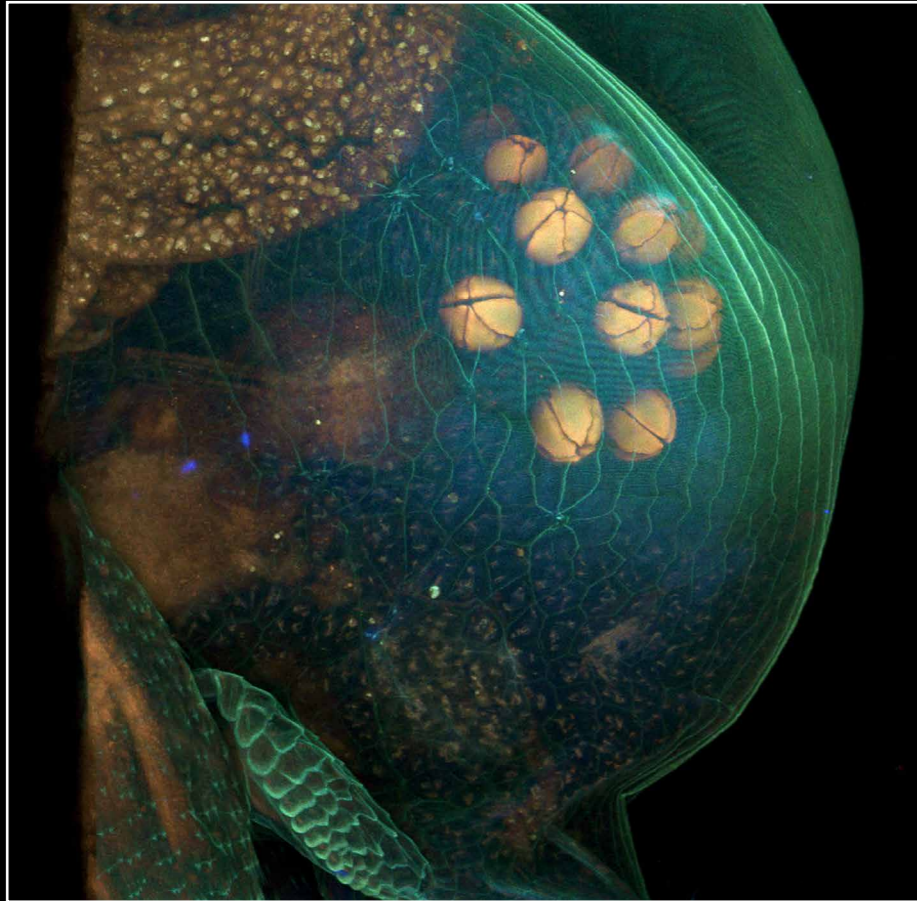
Steven Wilbert ✛ Daphnia

Milena LaFranca ✛ Honeybee Venom Sac and Stinger
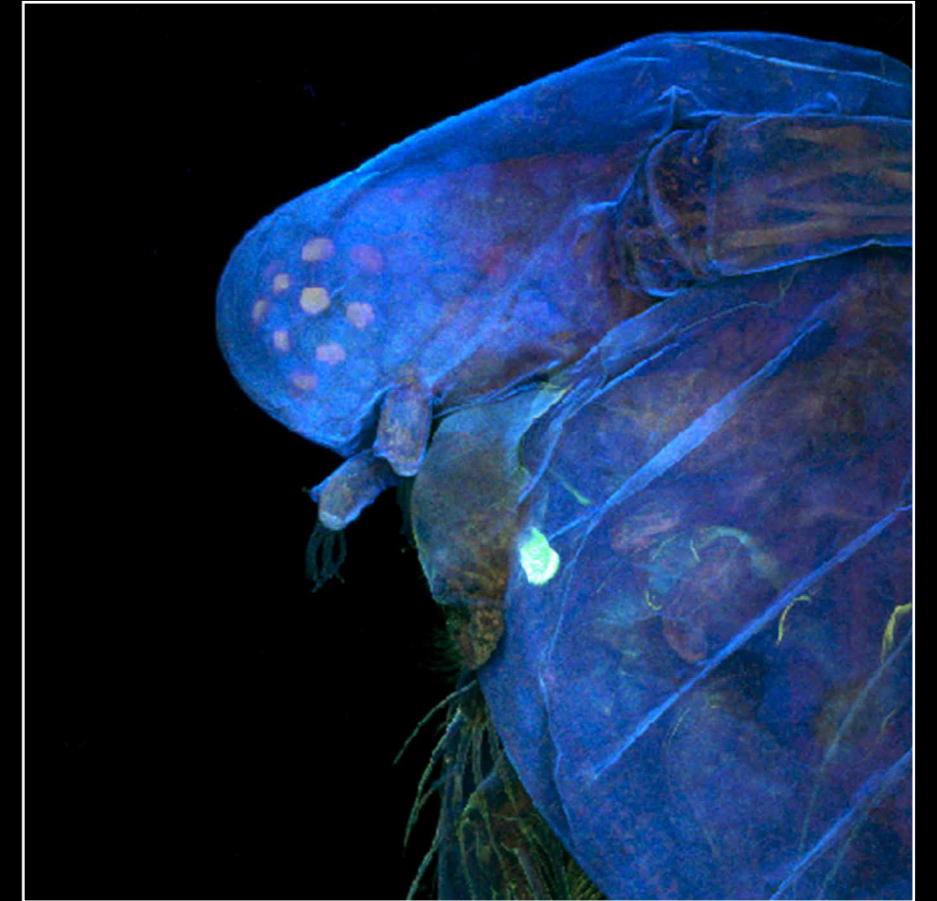
Steven Wilbert ✛ Daphnia

Marissa Masek + Five Dollar Bill
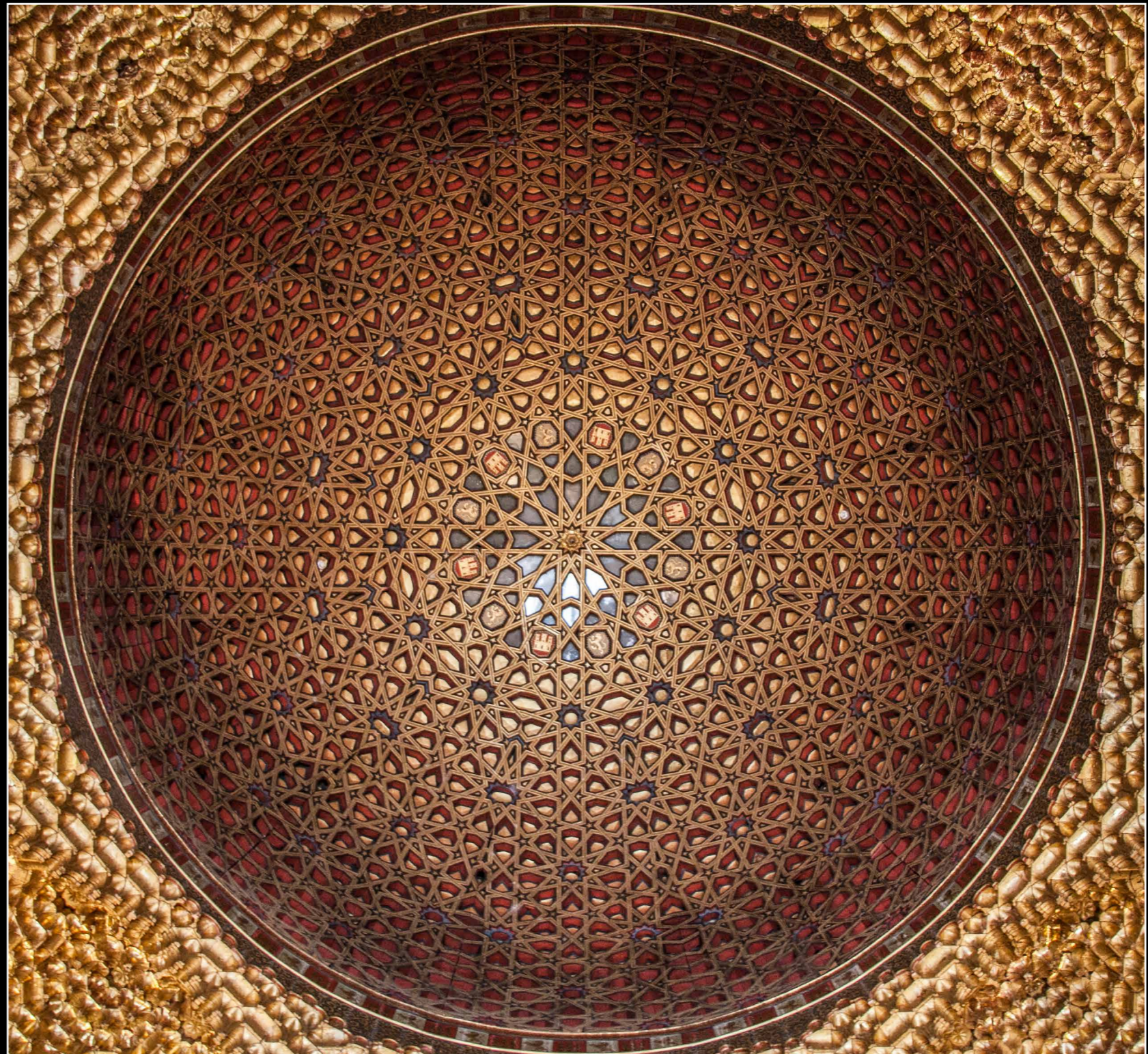
Jamie Kraus + Ceiling

Brittany Bateman + Insect
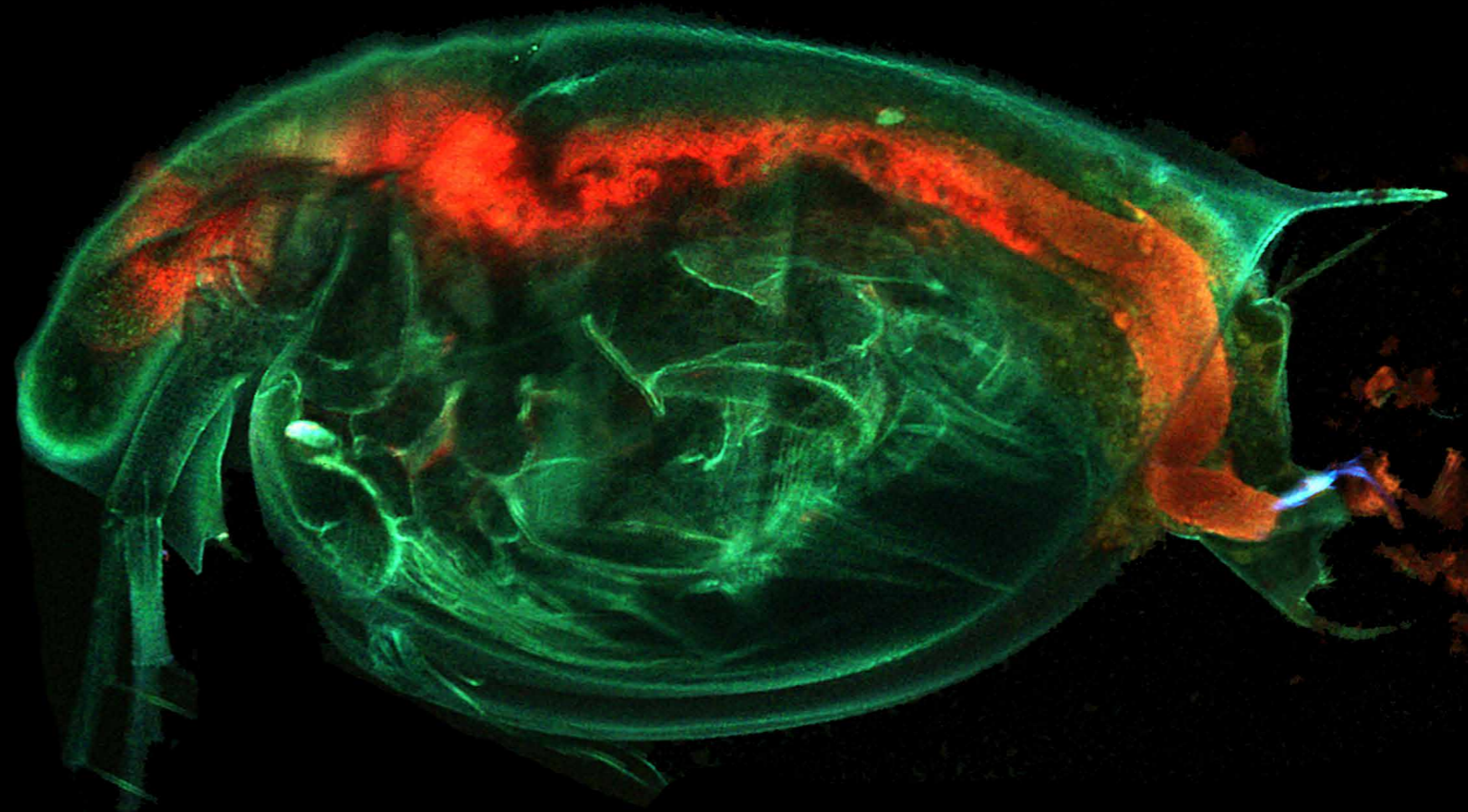
Steven Wilbert + Daphnia

senior gallery

Lynne Adams

from: Interlaken, NY

lynne.adams@rochestergeneral.org

career interest: healthcare
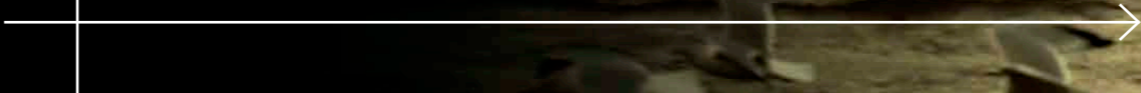
Lynne Adams

co-ops: Rochester General Health System, Rochester, NY, and the University Hospital of Wales

favorite class: AV Production

Yulong Bao

from: Rochester, NY

bao_yulong@hotmail.com

career interest: microscopy

no portrait available
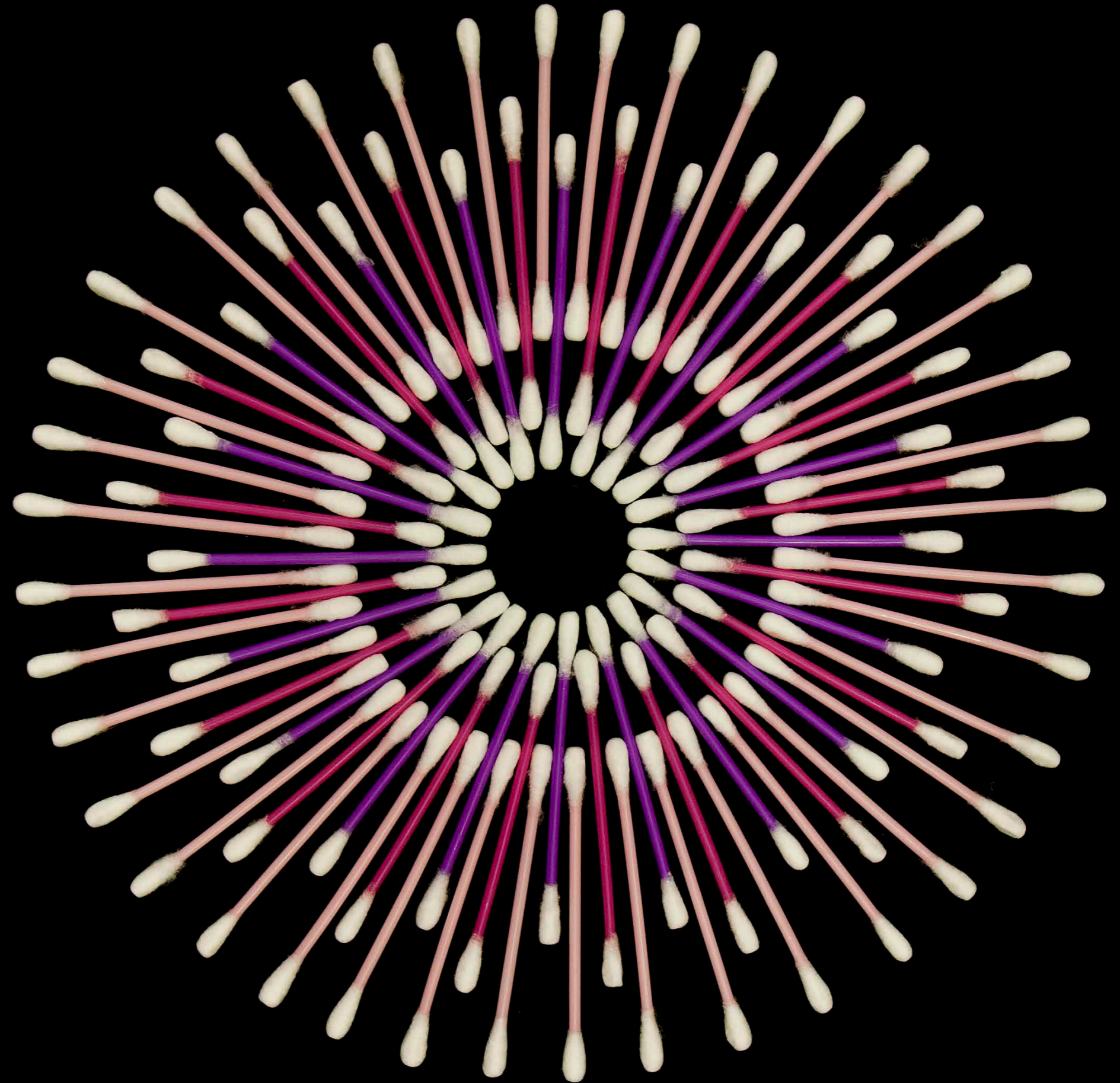
Yulong Bao

co-op: Nikon Instruments Inc.

favorite class: Photo and the Microscope

0.5 mm
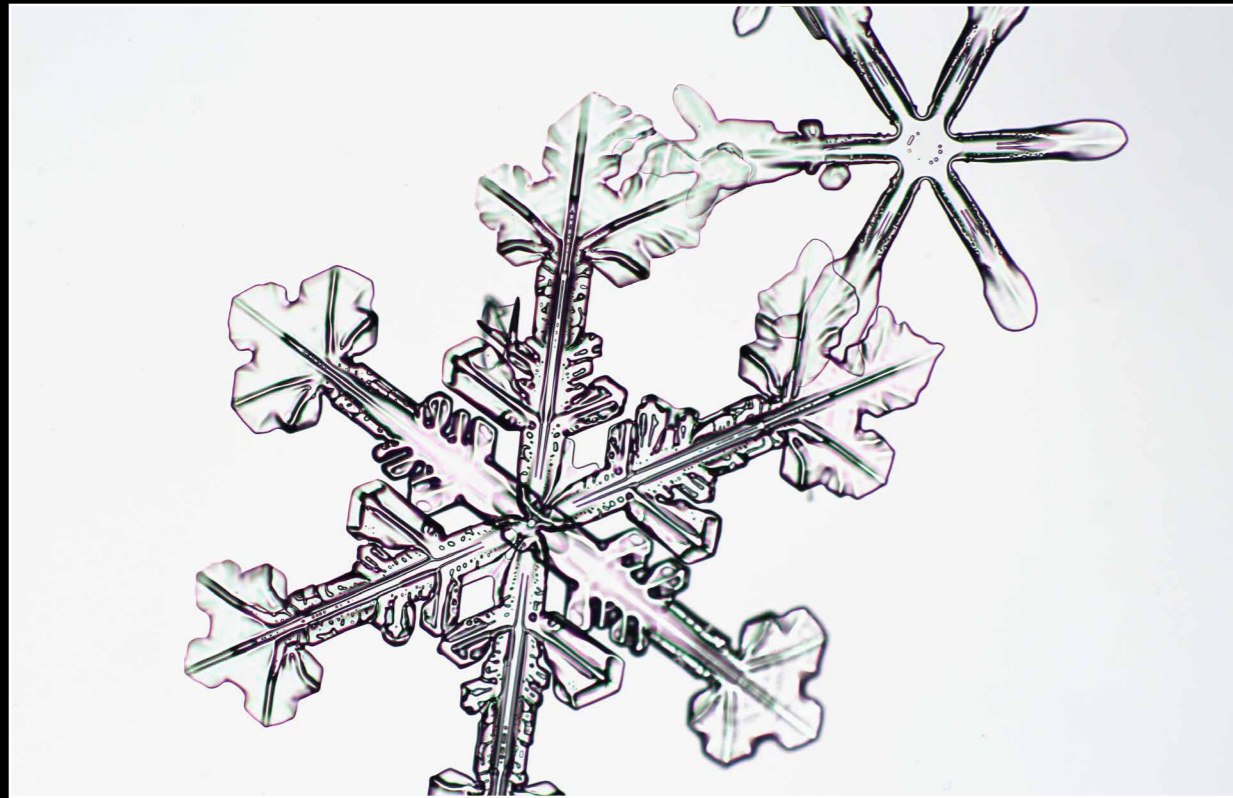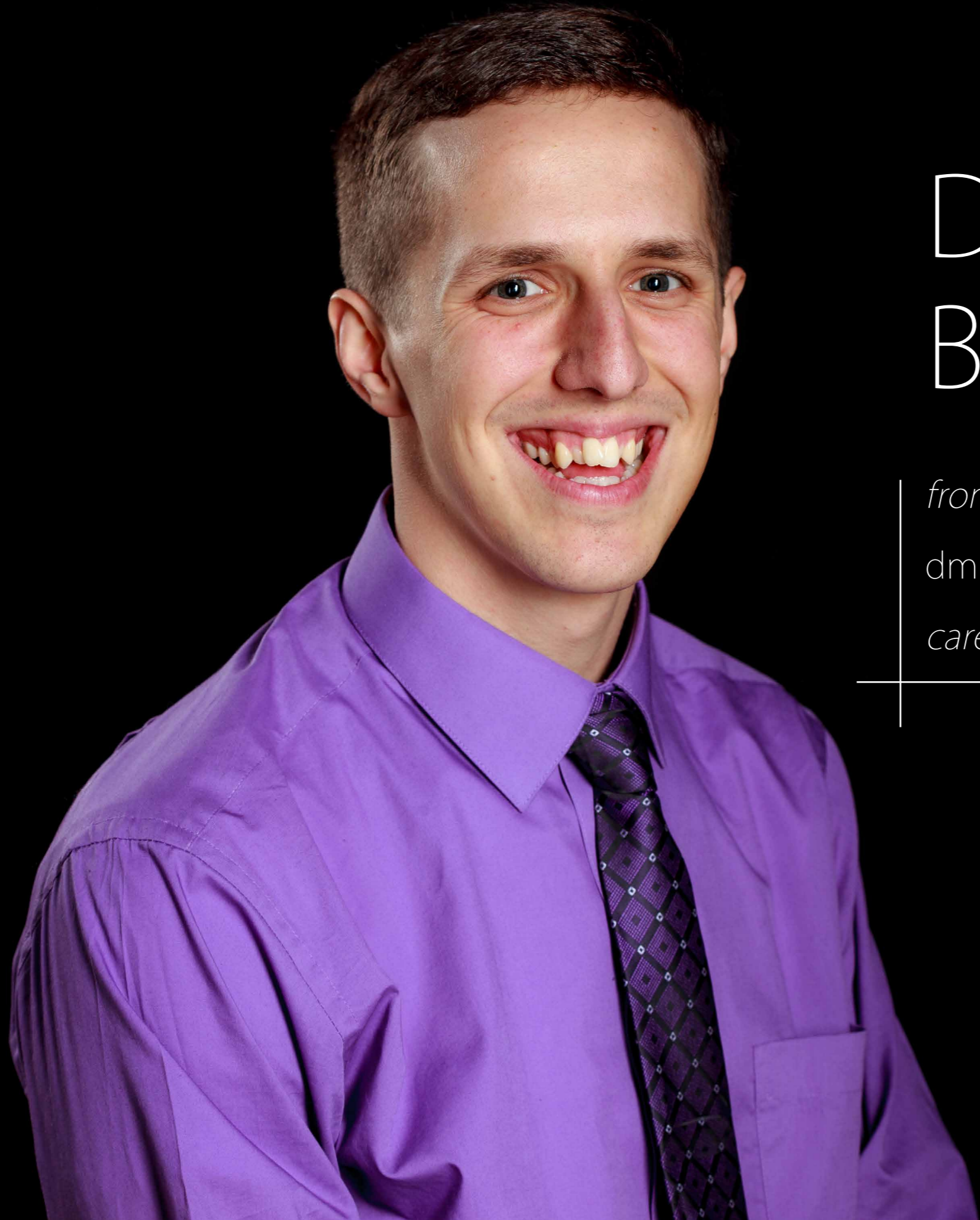
David M. Beyerlein

from: Rochester, NY

dmb9829@gmail.com

career interest: photo technician

David M. Beyerlein

co-op: Missoula Technology and Development Center (MTDC), Missoula, MT

favorite class: Non-conventional Imaging Systems
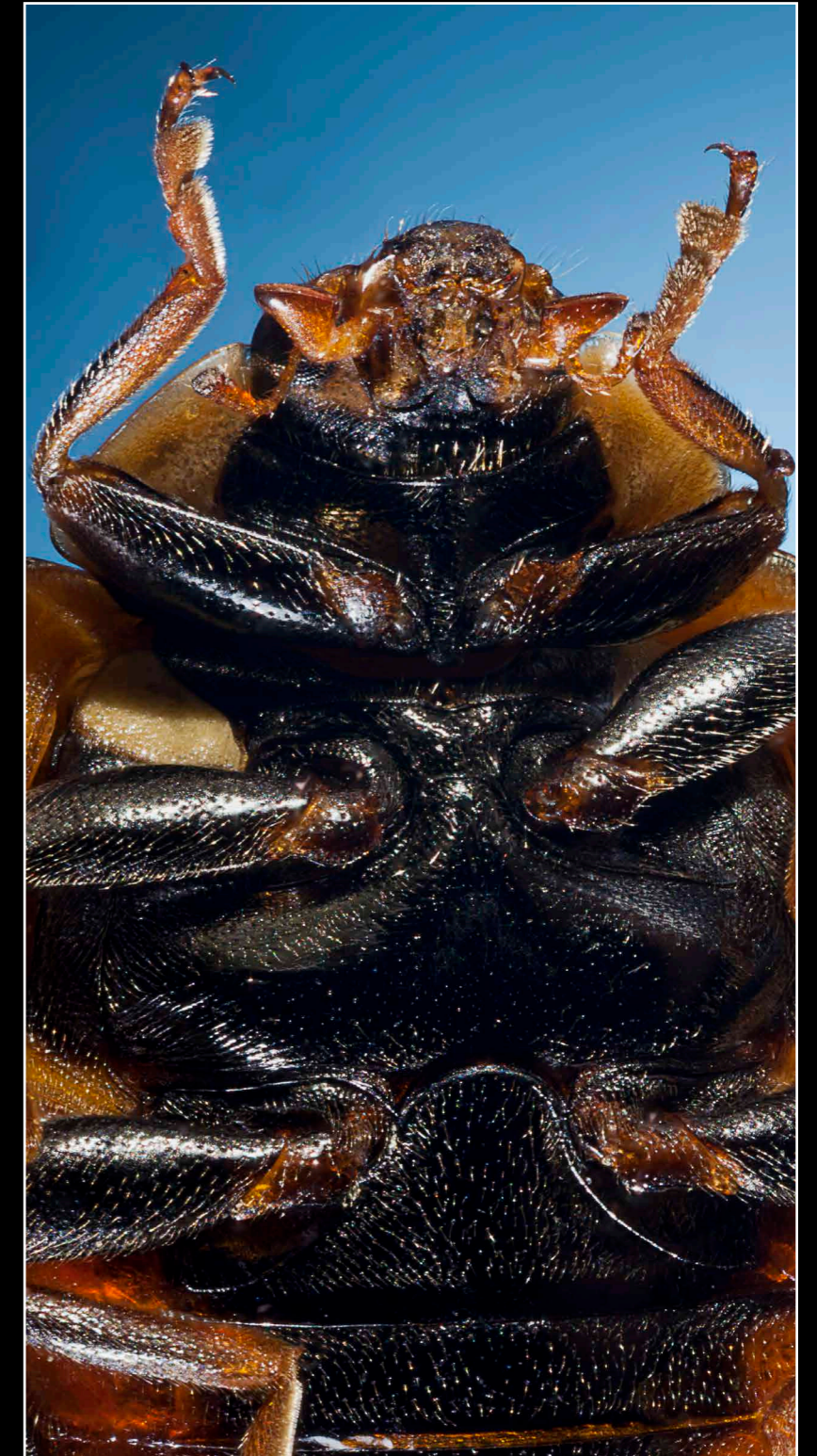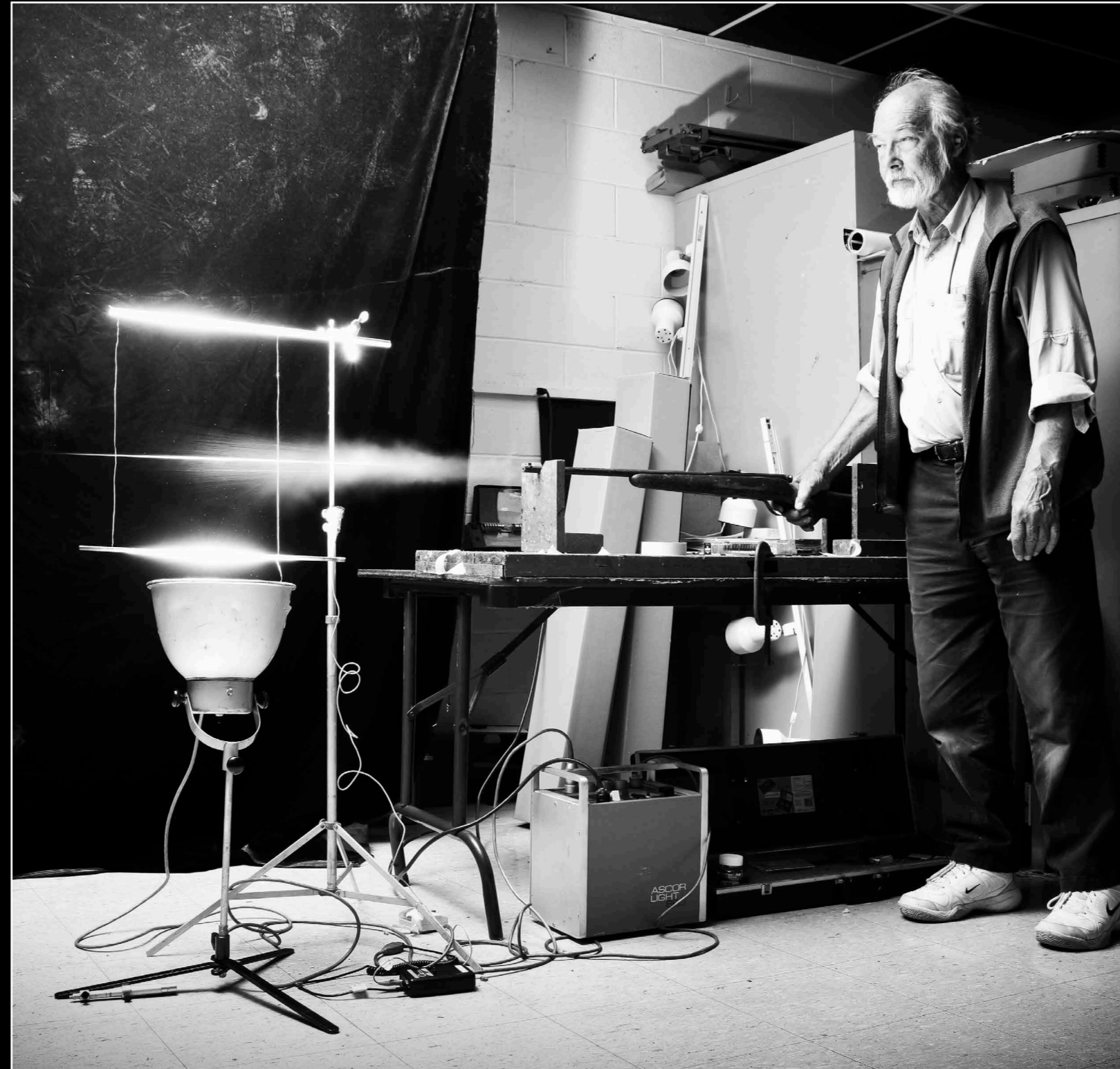
Danielle Breslin

from: Virginia Beach, VA

drbreslin@verizon.net

career interest: defense
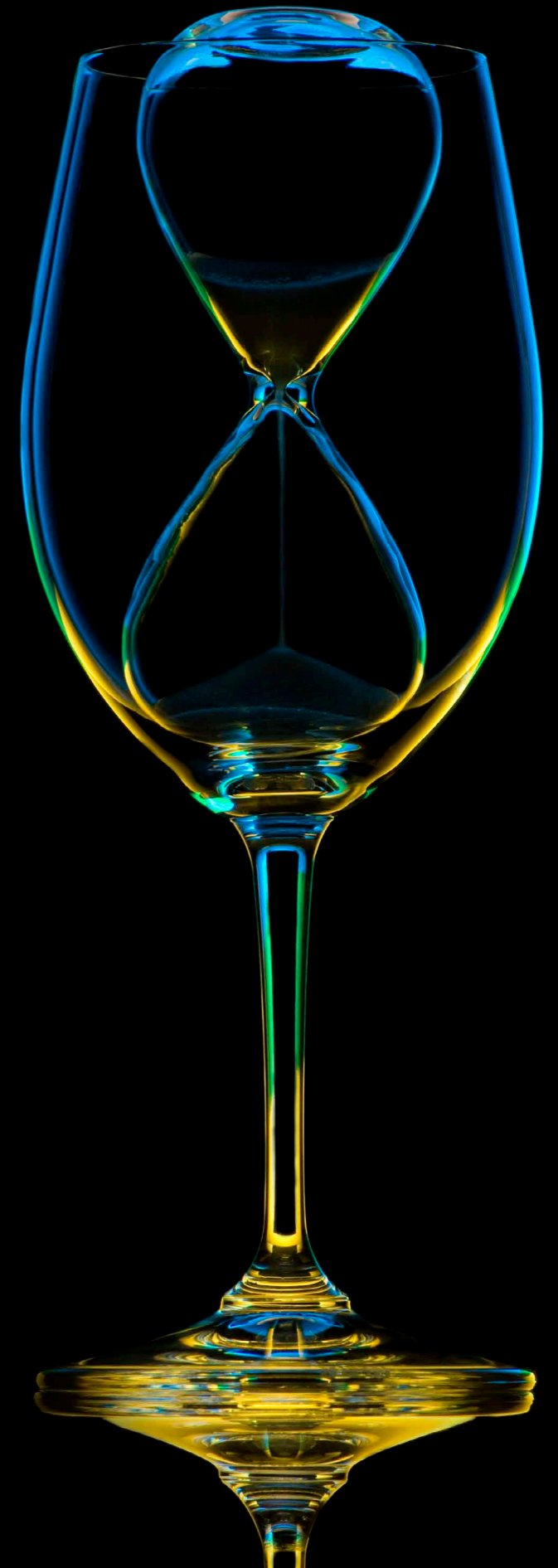
Danielle Breslin

co-op: National Geospatial-Intelligence Agency, Springfield, VA

favorite class: Ophthalmic Photography
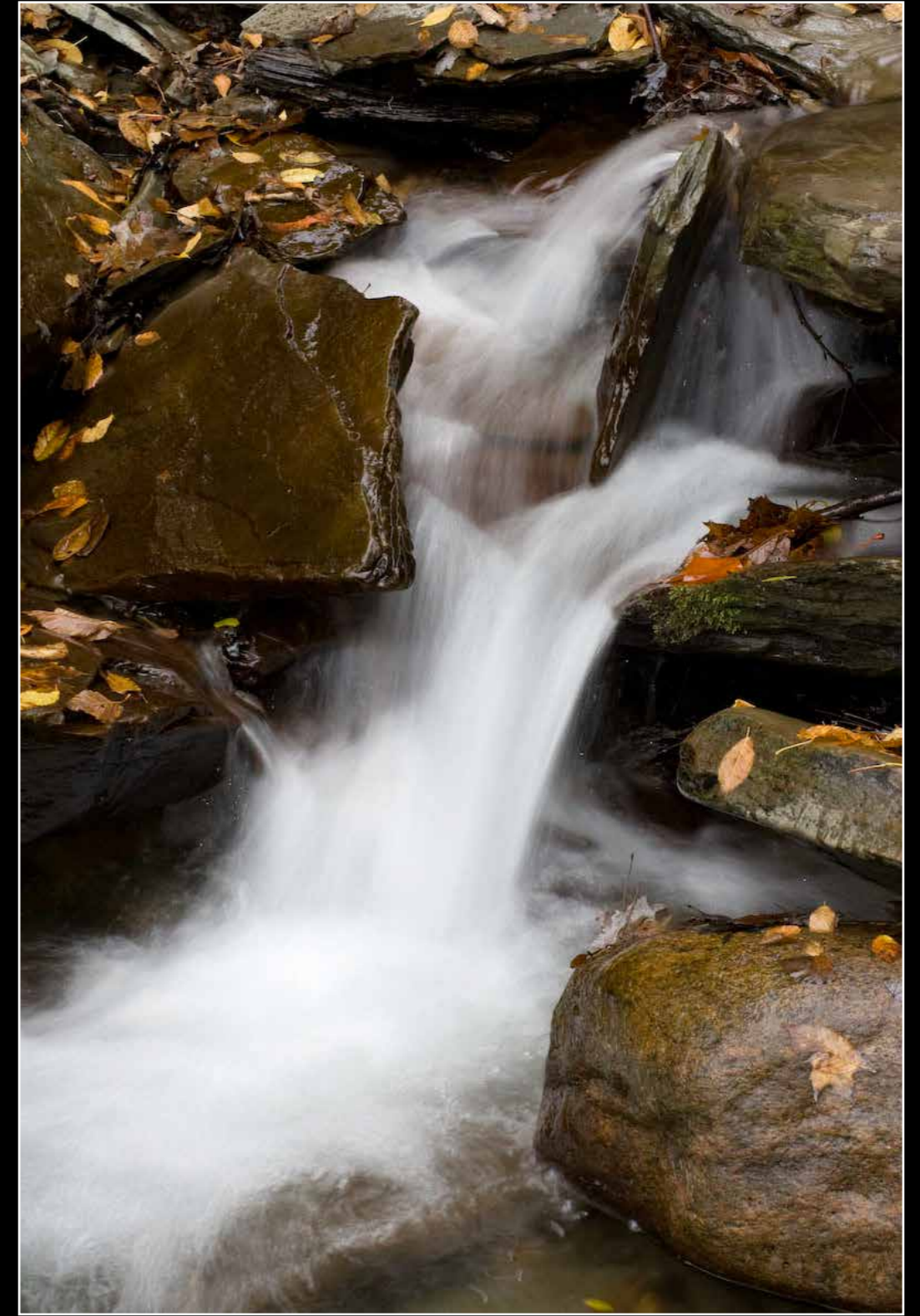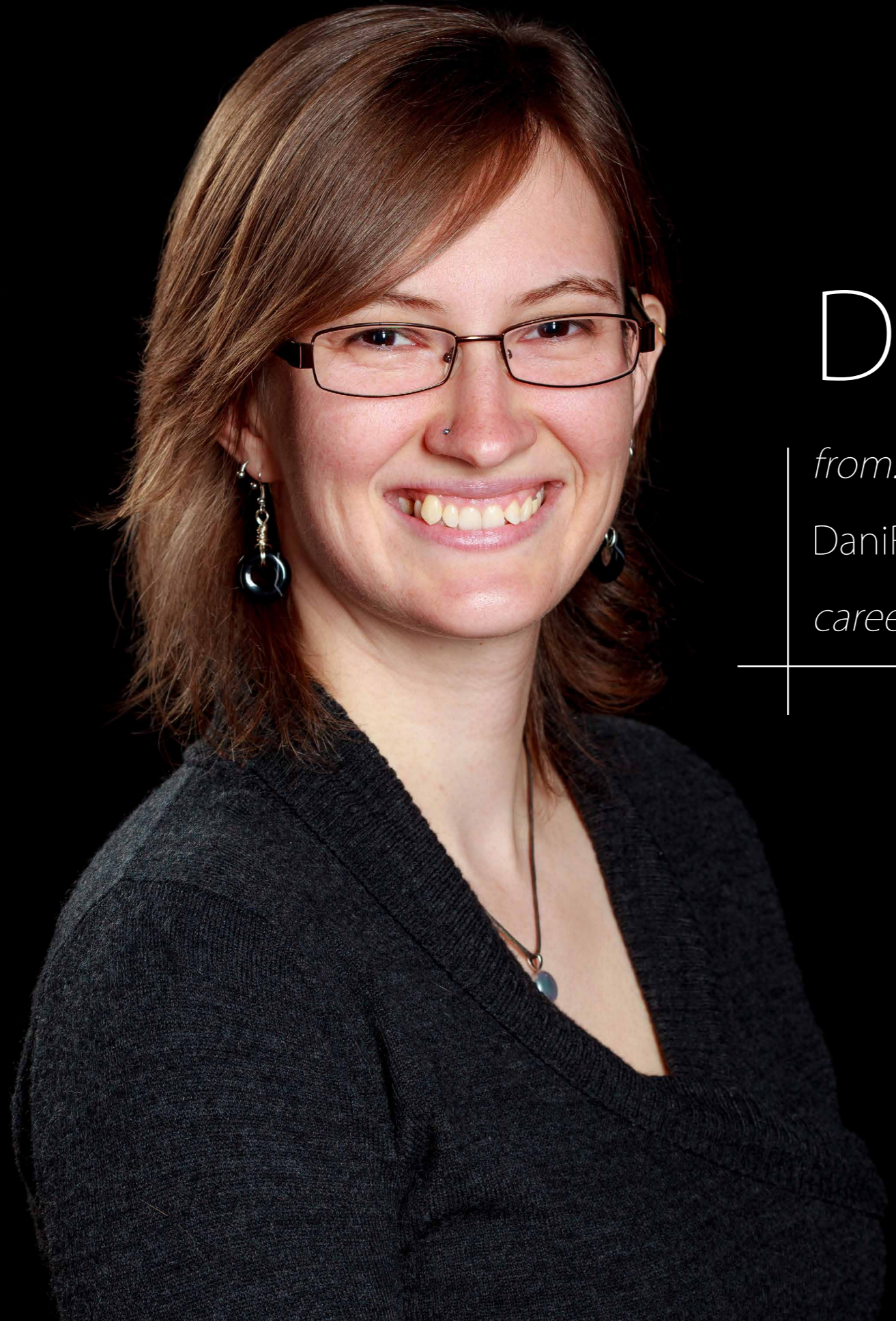
Danielle Brink

from: South Holland, IL

DaniRBrink@gmail.com

career interest: ophthalmic photography

Danielle Brink

favorite class: Nature Photography
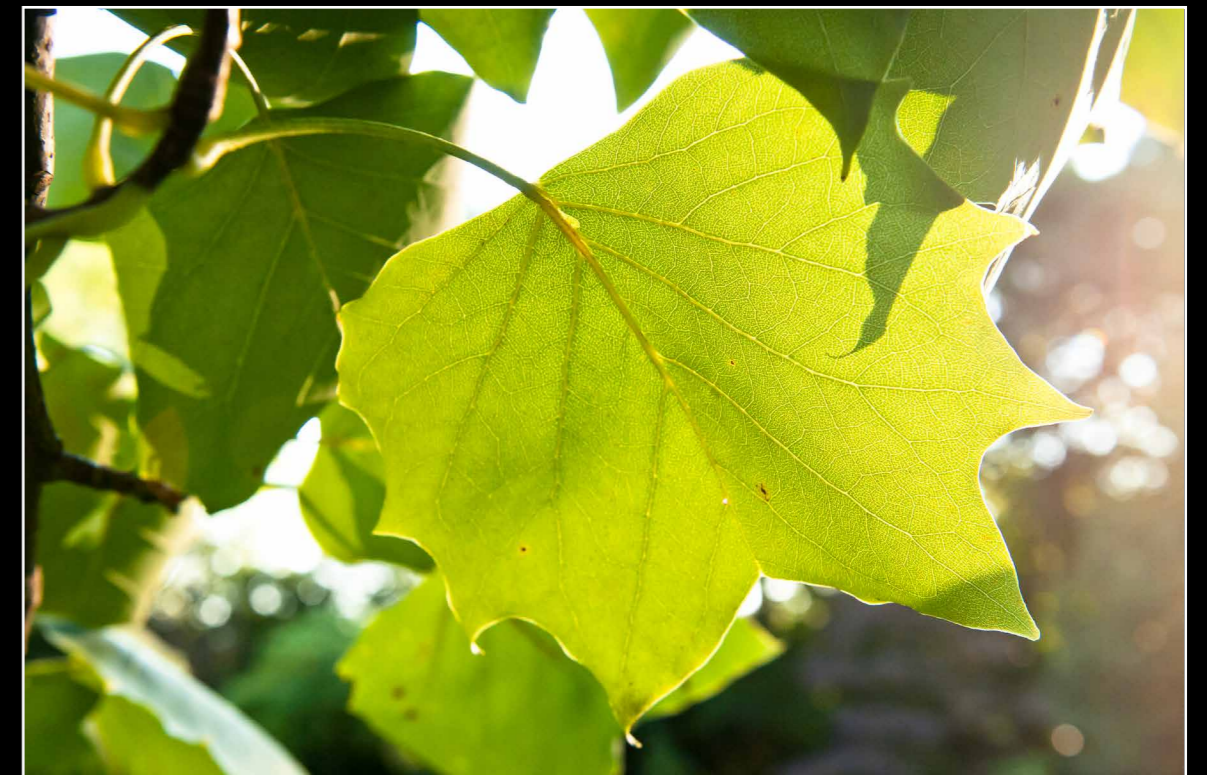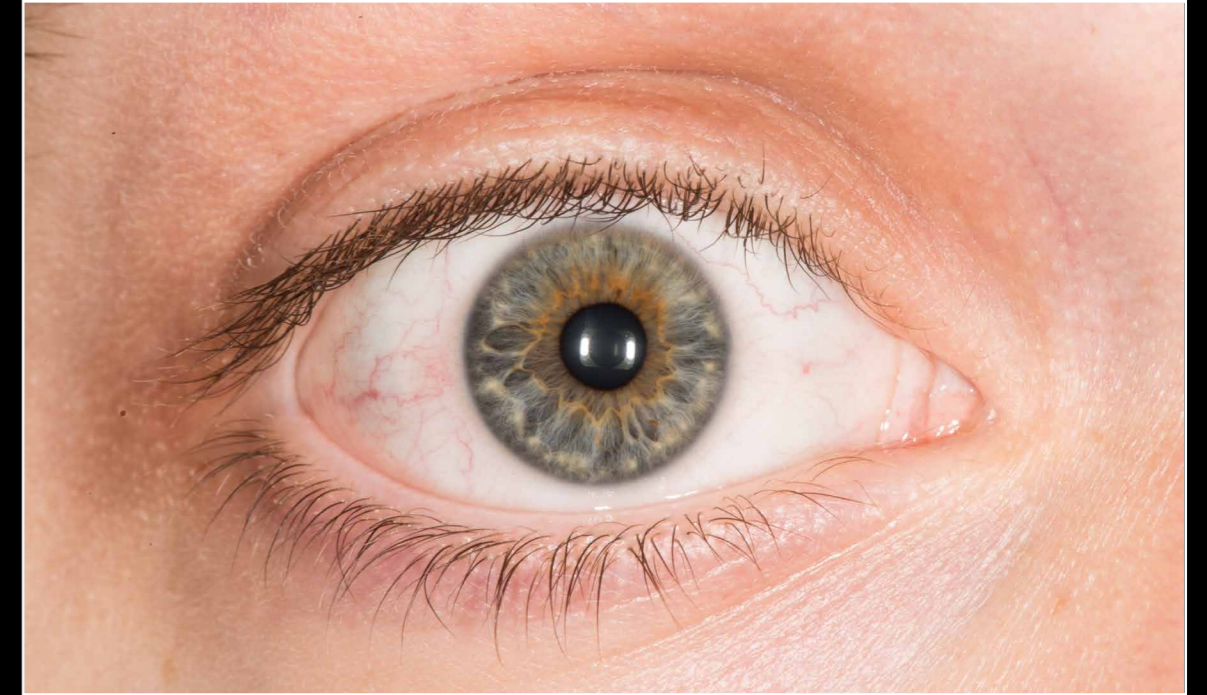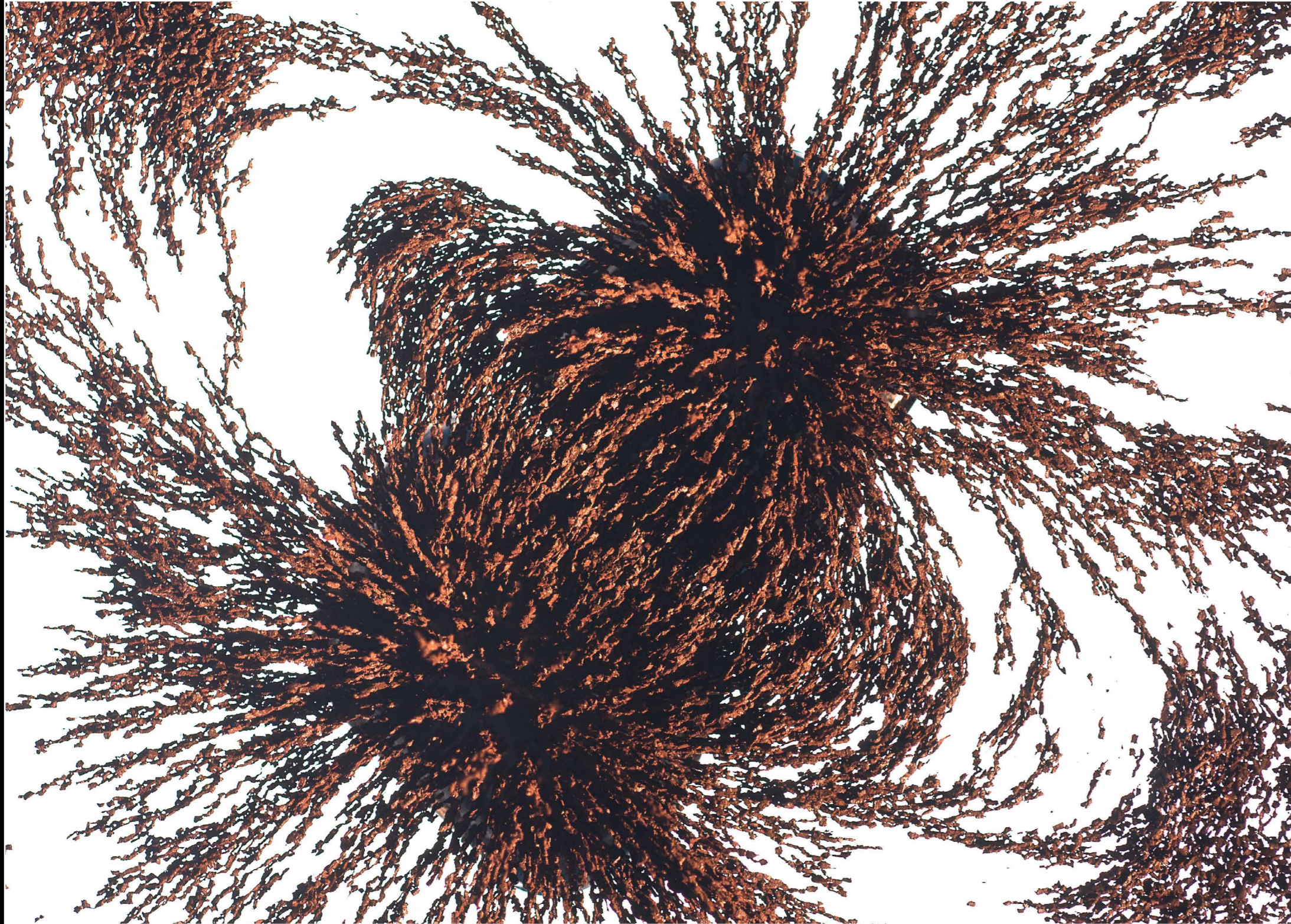
Alexander Hannan

from: Rochester, NY

apdhannan@gmail.com

career interest: ophthalmic photography

Alexander Hannan

co-op: University Hospital of Wales, Cardiff, Wales
favorite class: Photo I

1mm
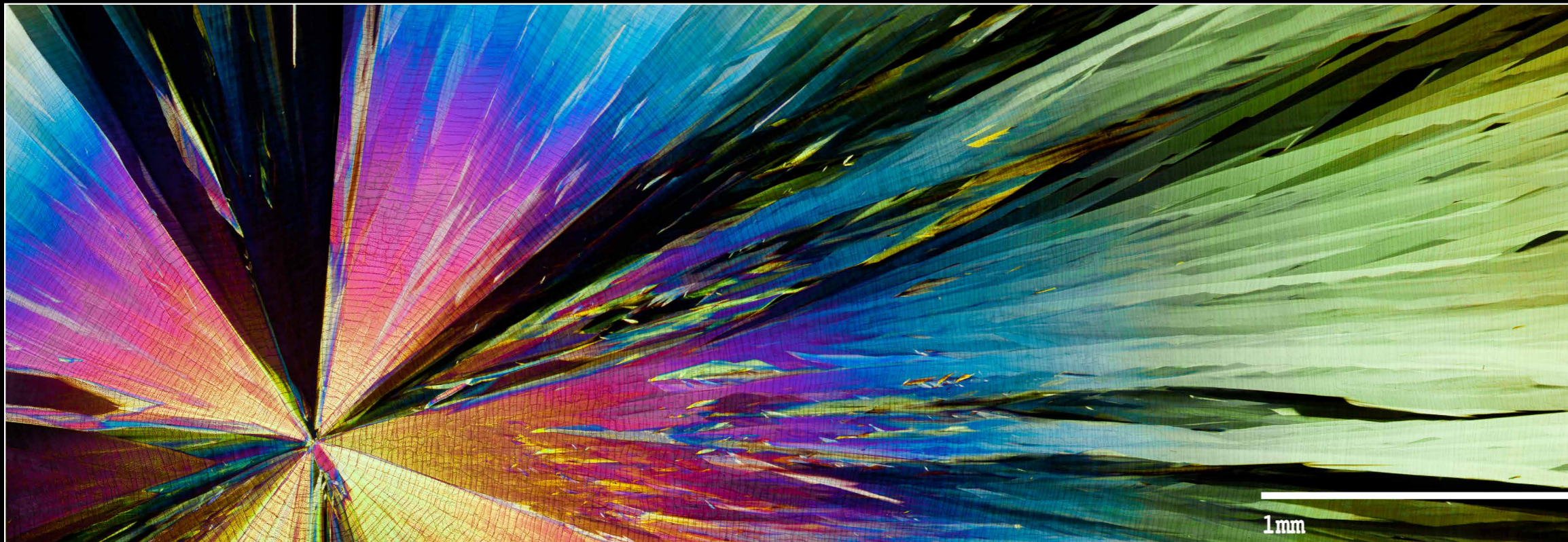
Ryan Harriman

from: Amherst, NH

rjharriman@gmail.com

career interest: ophthalmic photography

Ryan Harriman

co-op: University Hospital of Wales, Cardiff, Wales

favorite class: Ophthalmic Photography
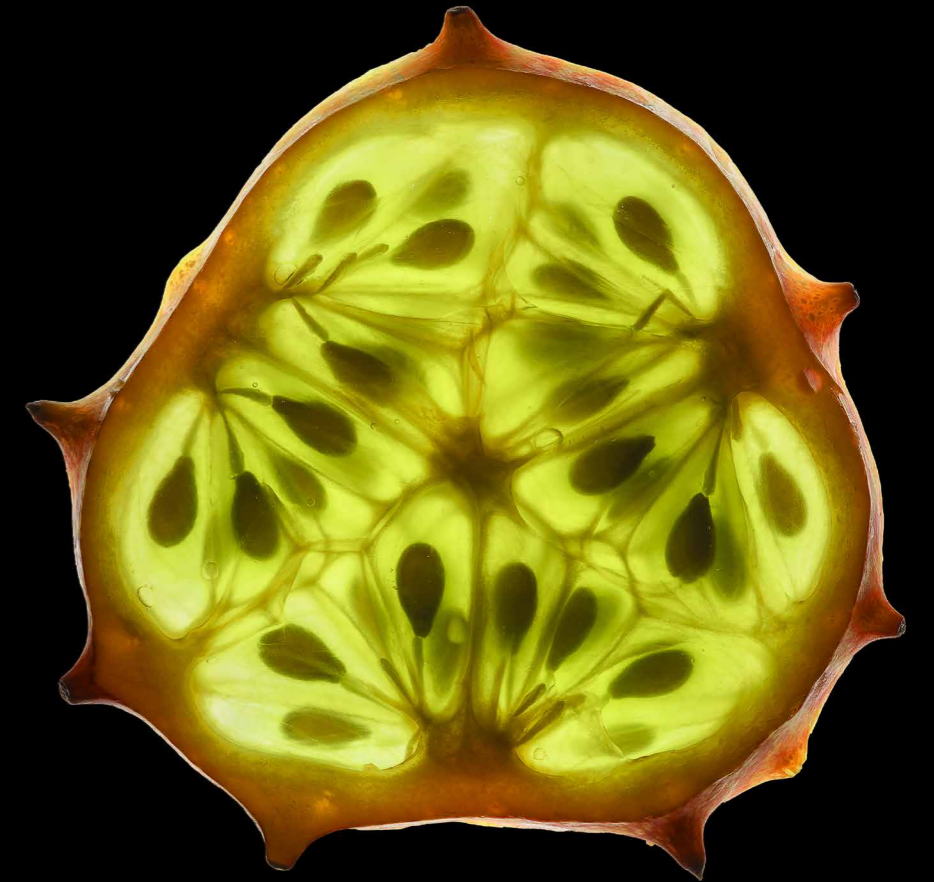
Lauren Held

from: Erie, PA

lheldphoto@gmail.com

career interest: photographic conservation
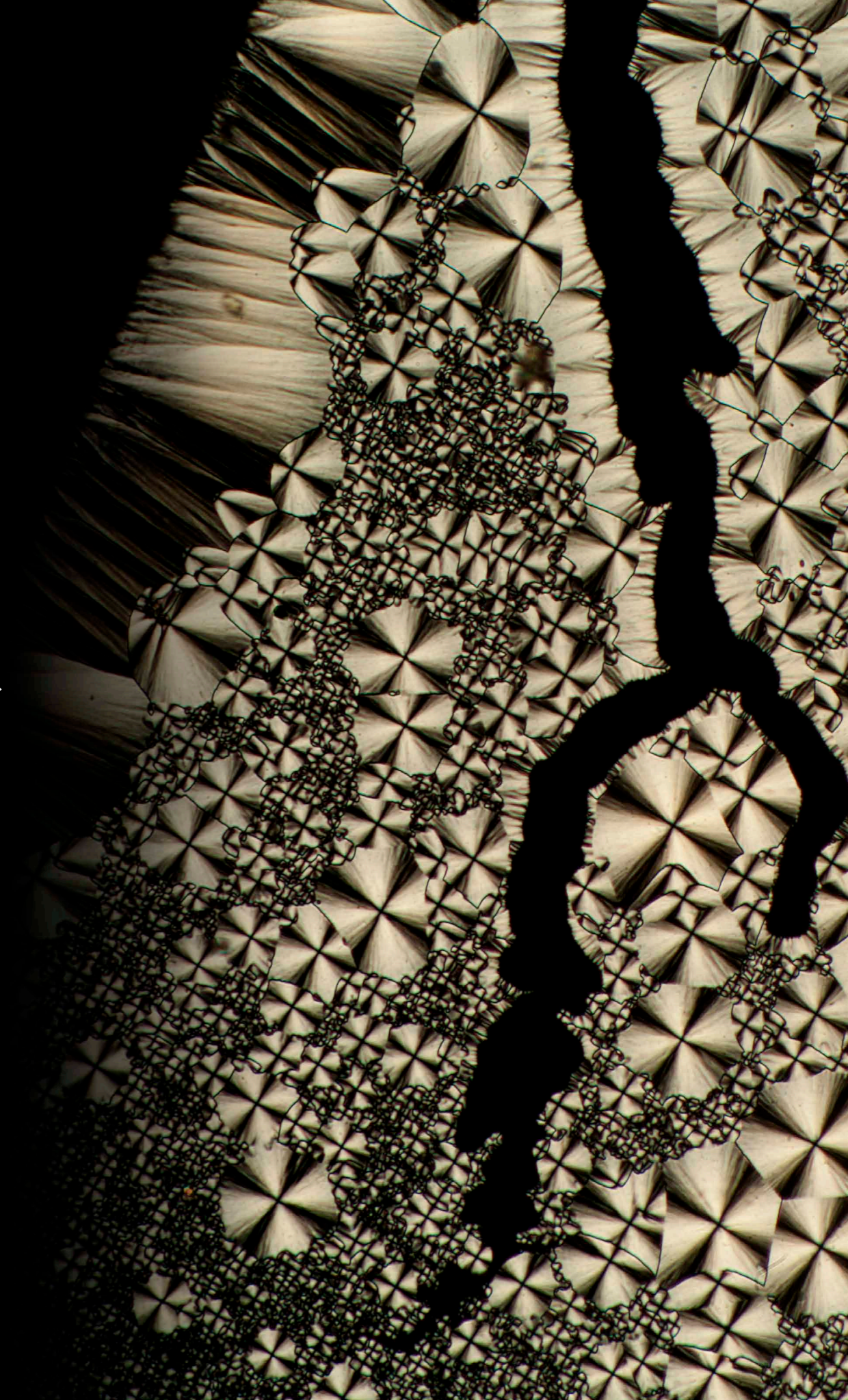
Lauren Held

co-op: Confocal Microscopy at Brigham and Women's Hospital, Boston, MA
favorite class: Photo and the Microscope
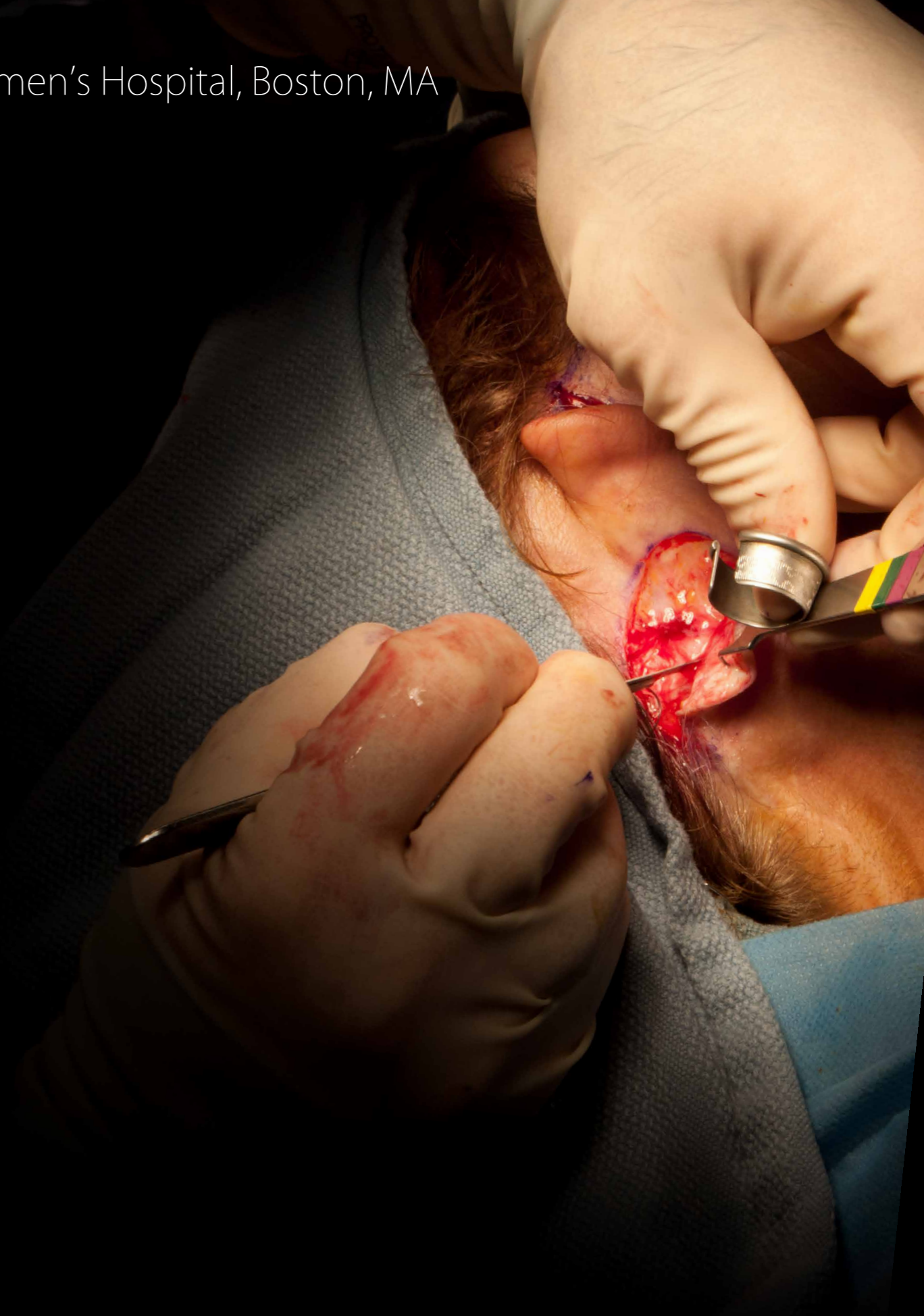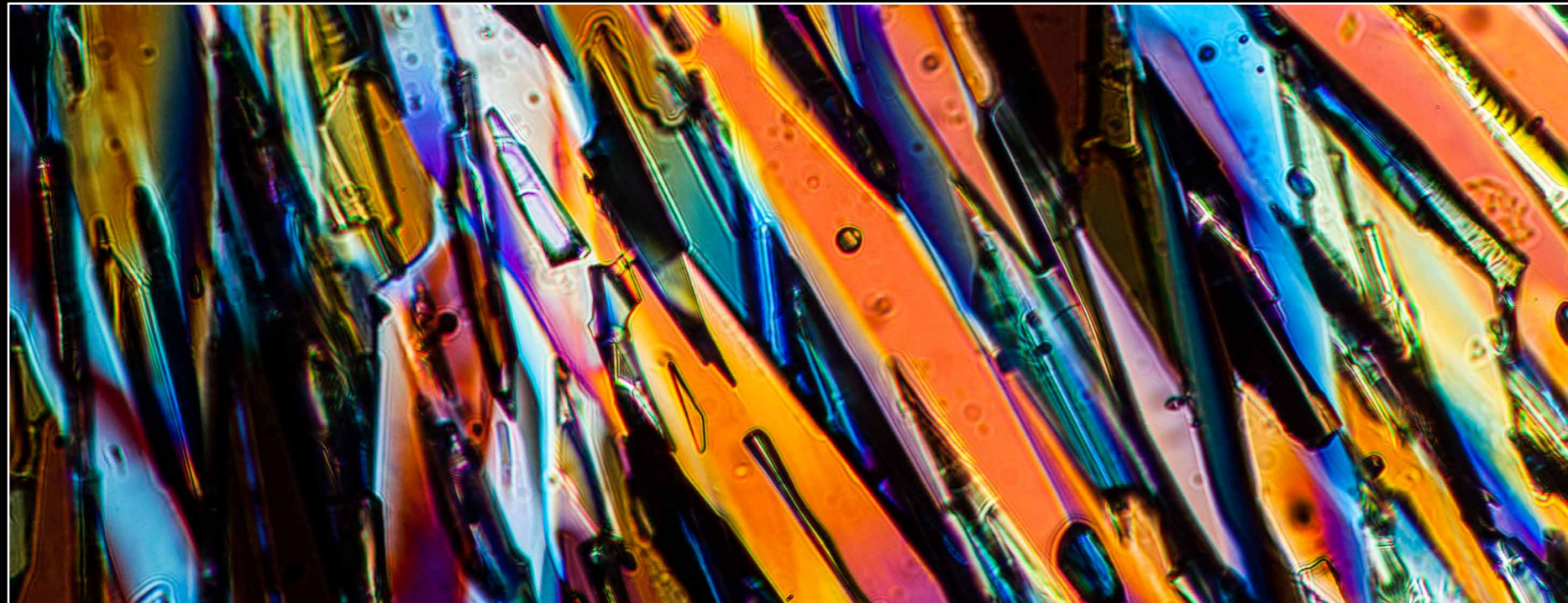
Tamra L. Hirsch

from: Norwood, NJ

tammylhirsch@gmail.com

career interest: ophthalmic photography

Tamra L. Hirsch

co-op: University of Buffalo, Ross Eye Institute

favorite class: Introduction to Ophthalmic Photography
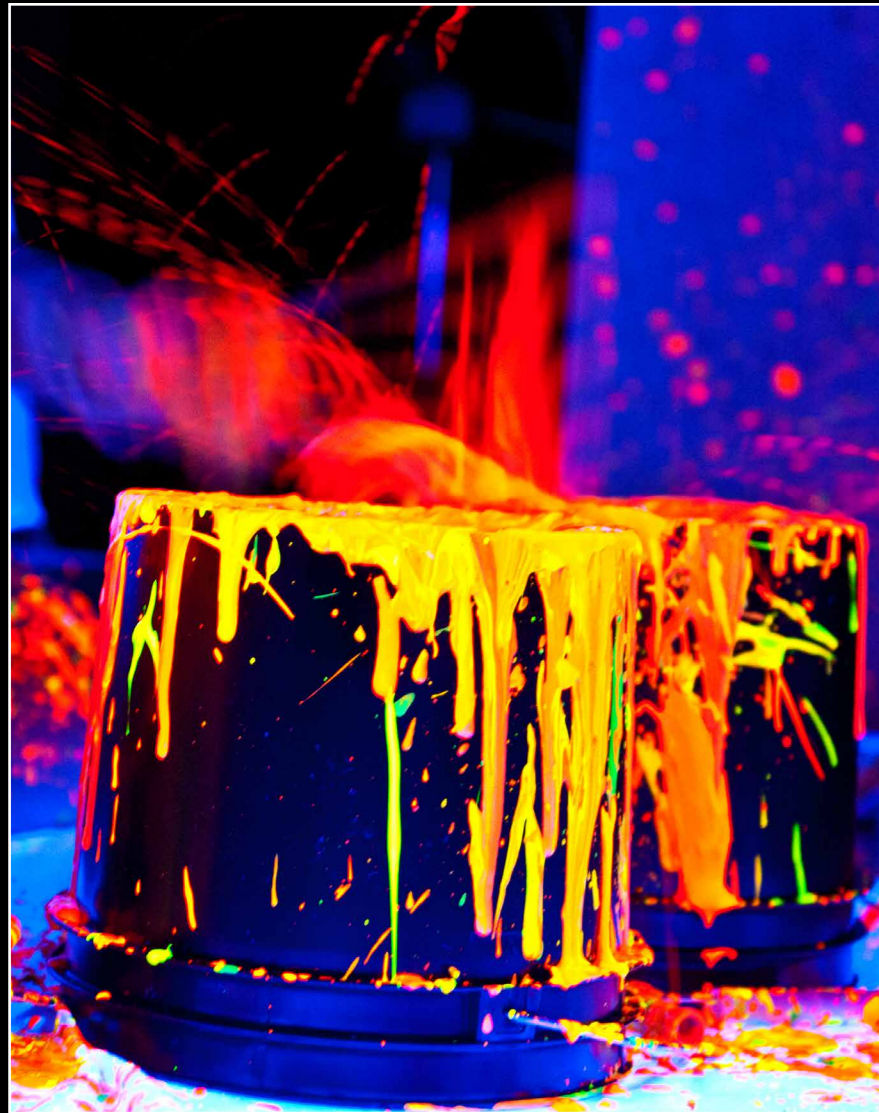
Cassaundra Hobbs

from: Auburn, NH

cjhobbs603@gmail.com

career interest: marketing and sales
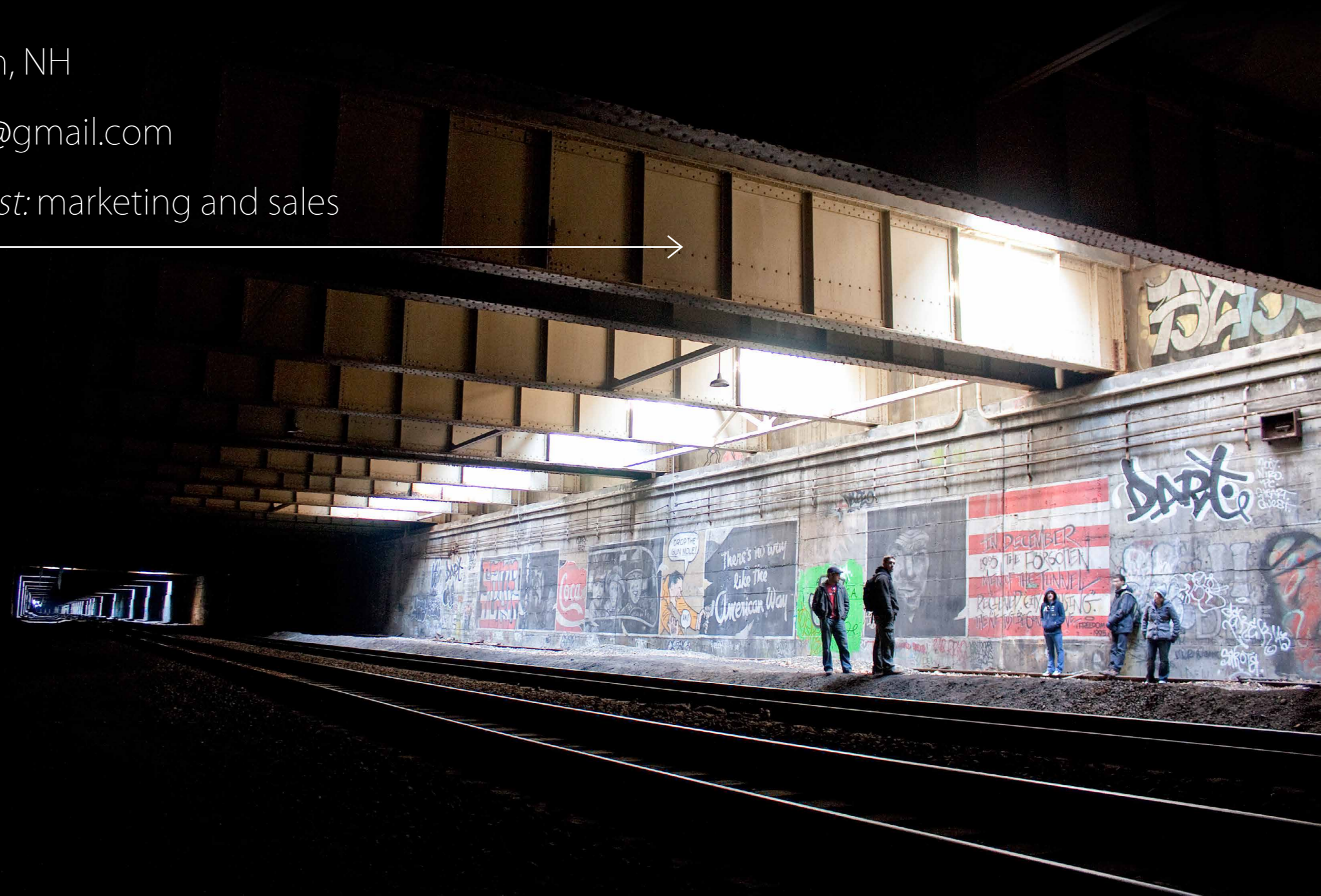
Cassaundra Hobbs

co-op: Mike's Imports, Hooksett, NH

favorite class: Underwater Photography
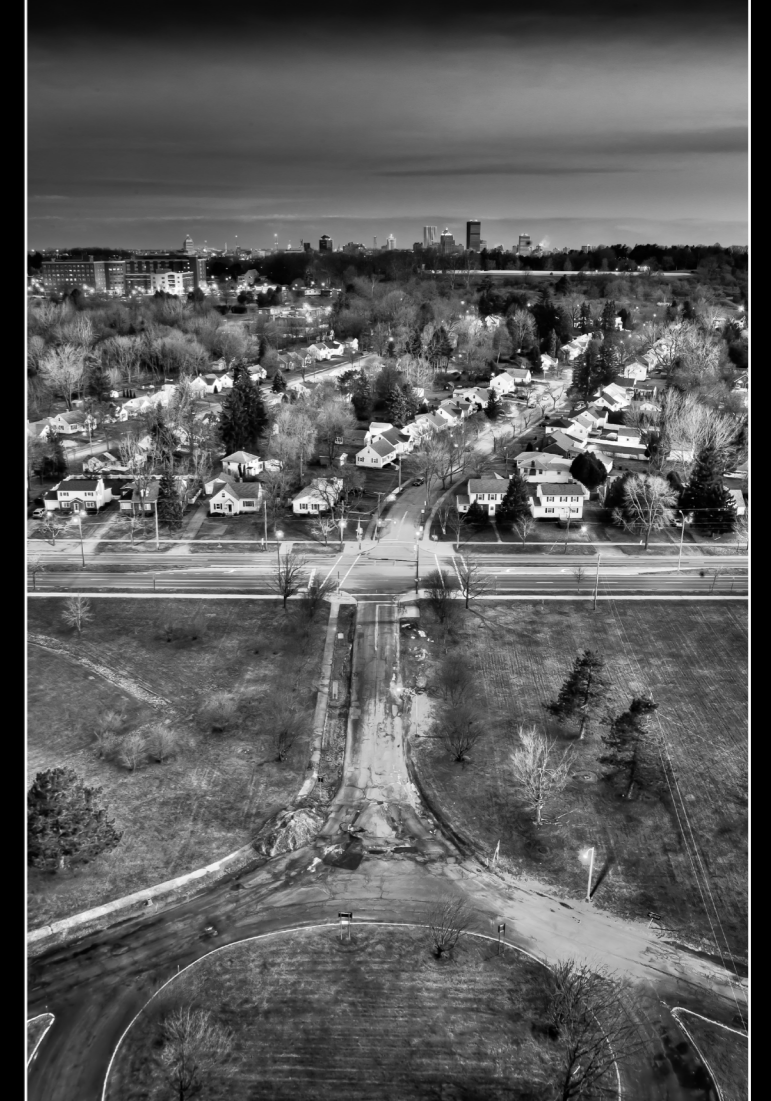
Carissa Hurdstrom

from: Arvada, CO

churdstrom@gmail.com

career interest: microscopy, ophthalmic, and

underwater photography
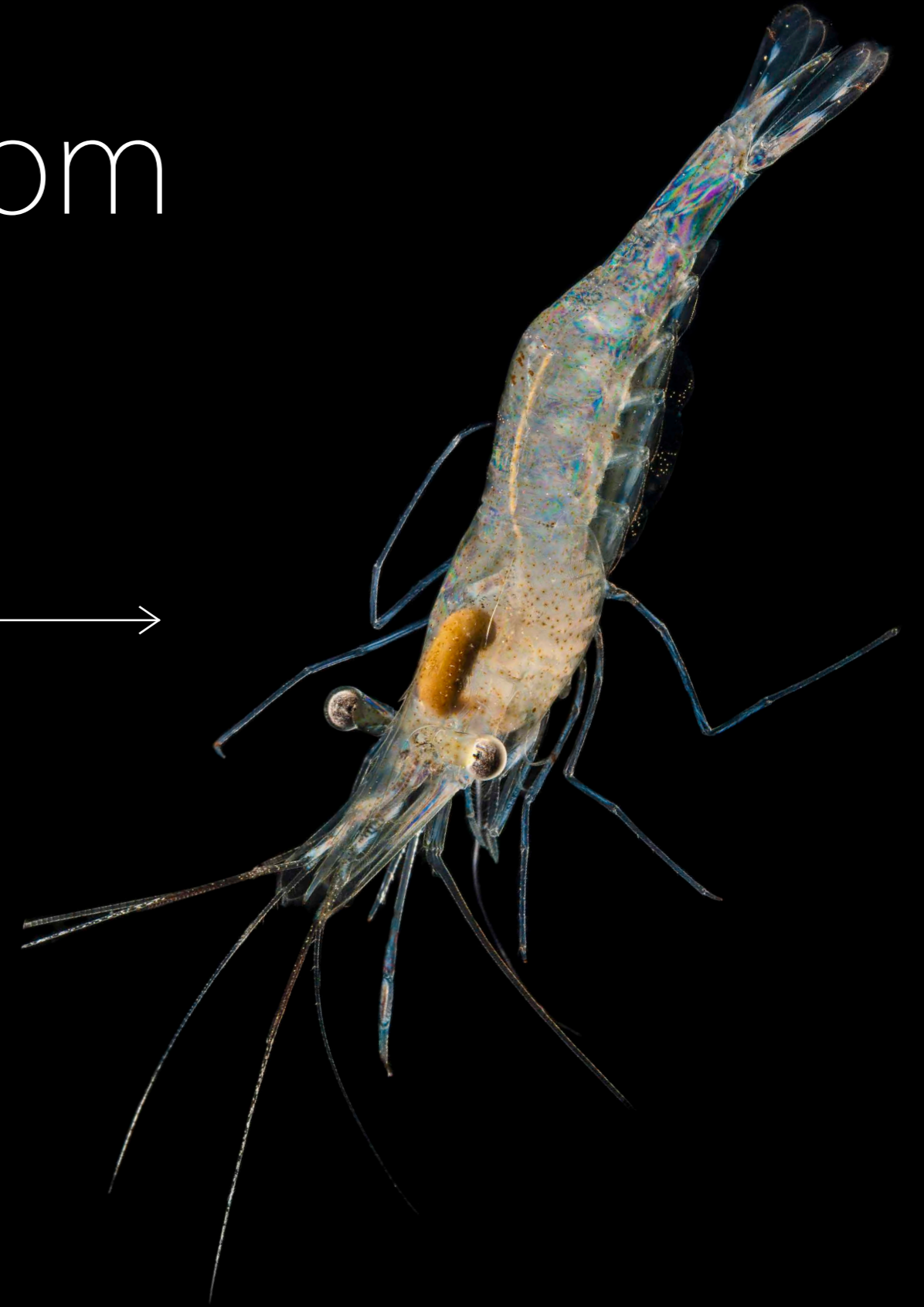
Carissa Hurdstrom

favorite class: Underwater Photography
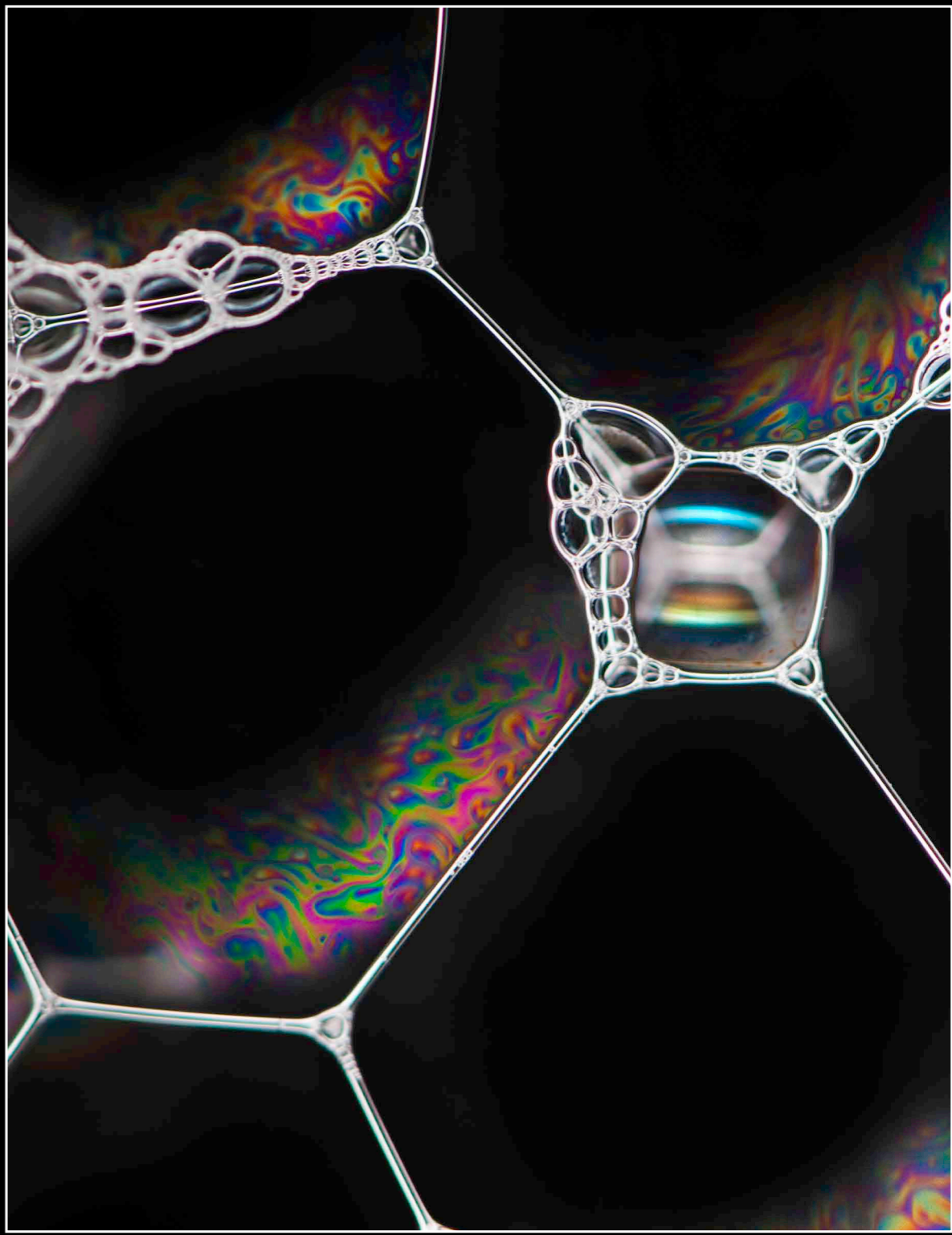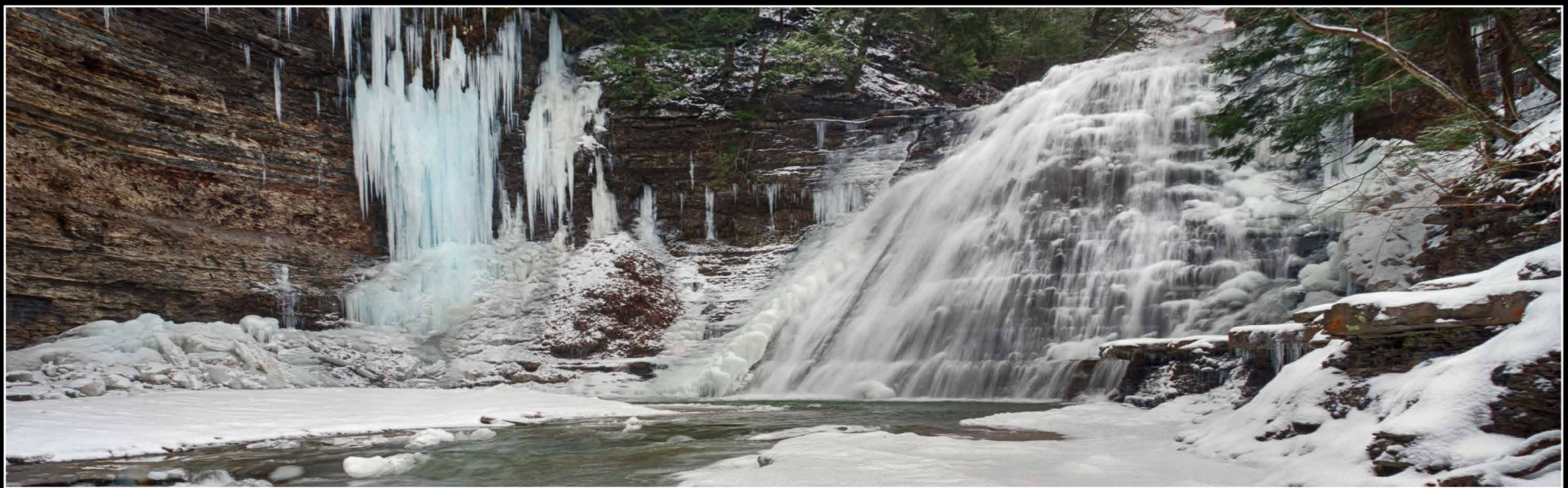
Abigail Jaske

from: Melville, NY

agj1675@rit.edu

career interest: forensics

Abigail Jaske

co-op: Nikon Instruments Inc.

favorite class: Scanning Electron Microscopy

Katie Lachut

from: Fulton, NY

Katie.Lachut@gmail.com

career interest: ophthalmic photography
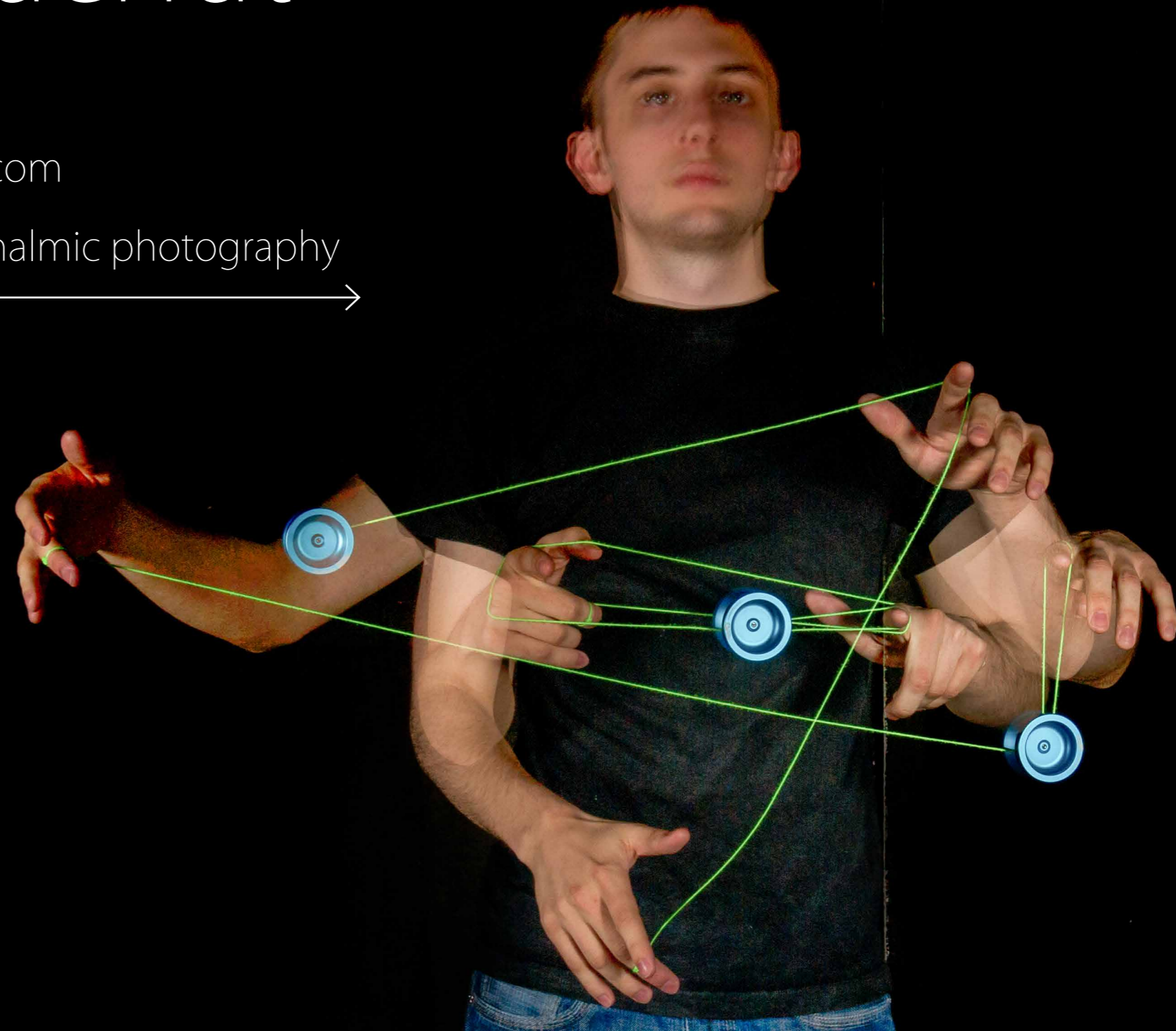
Katie Lachut

favorite class: Elements of Advertising Photography

Kylie Madigan

from: Elmira, NY

kmm3953@rit.edu

career interest: ophthalmic photography

Kylie Madigan

co-op: Ithaca Dermatology, Ithaca, NY
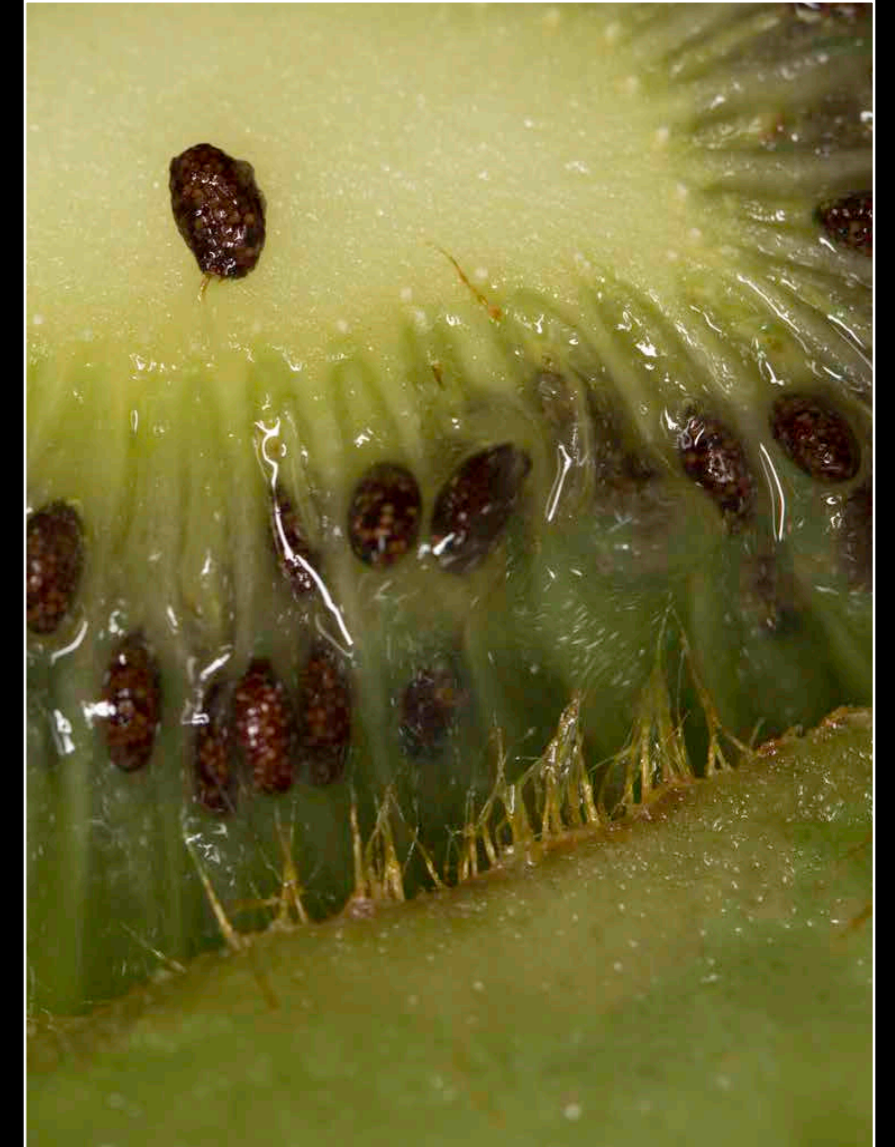
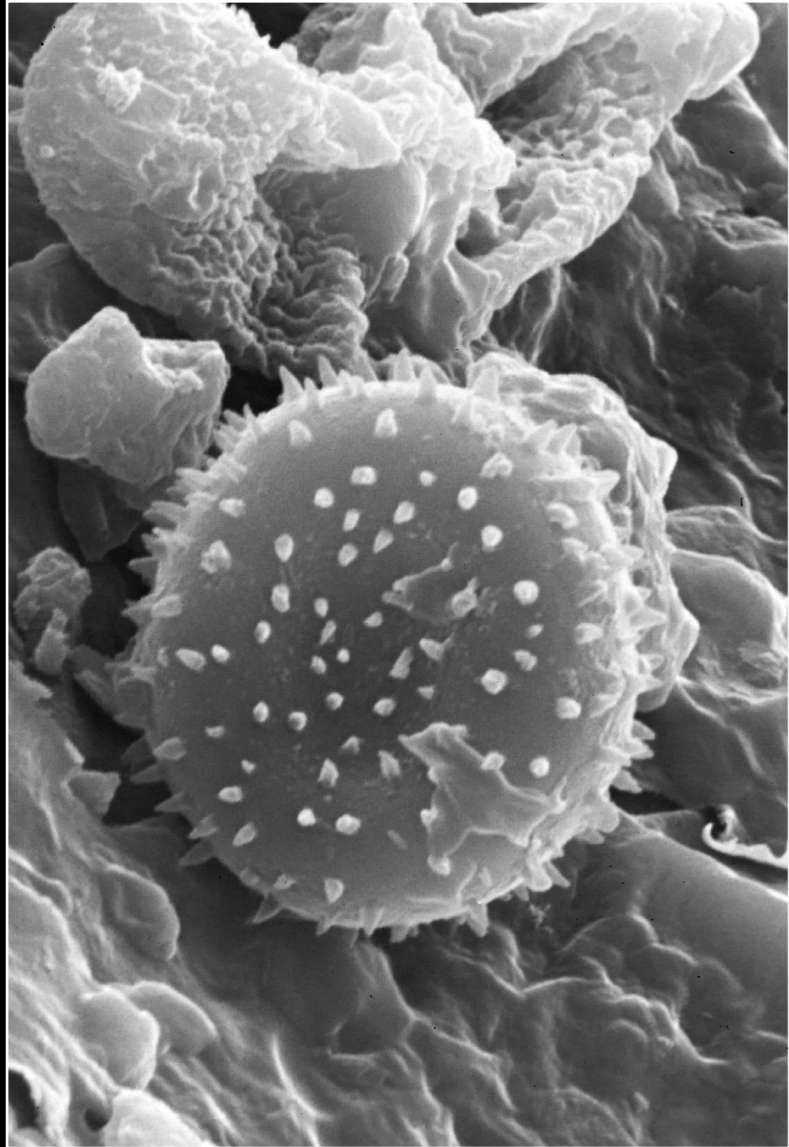*favorite class:* Surgical Photography
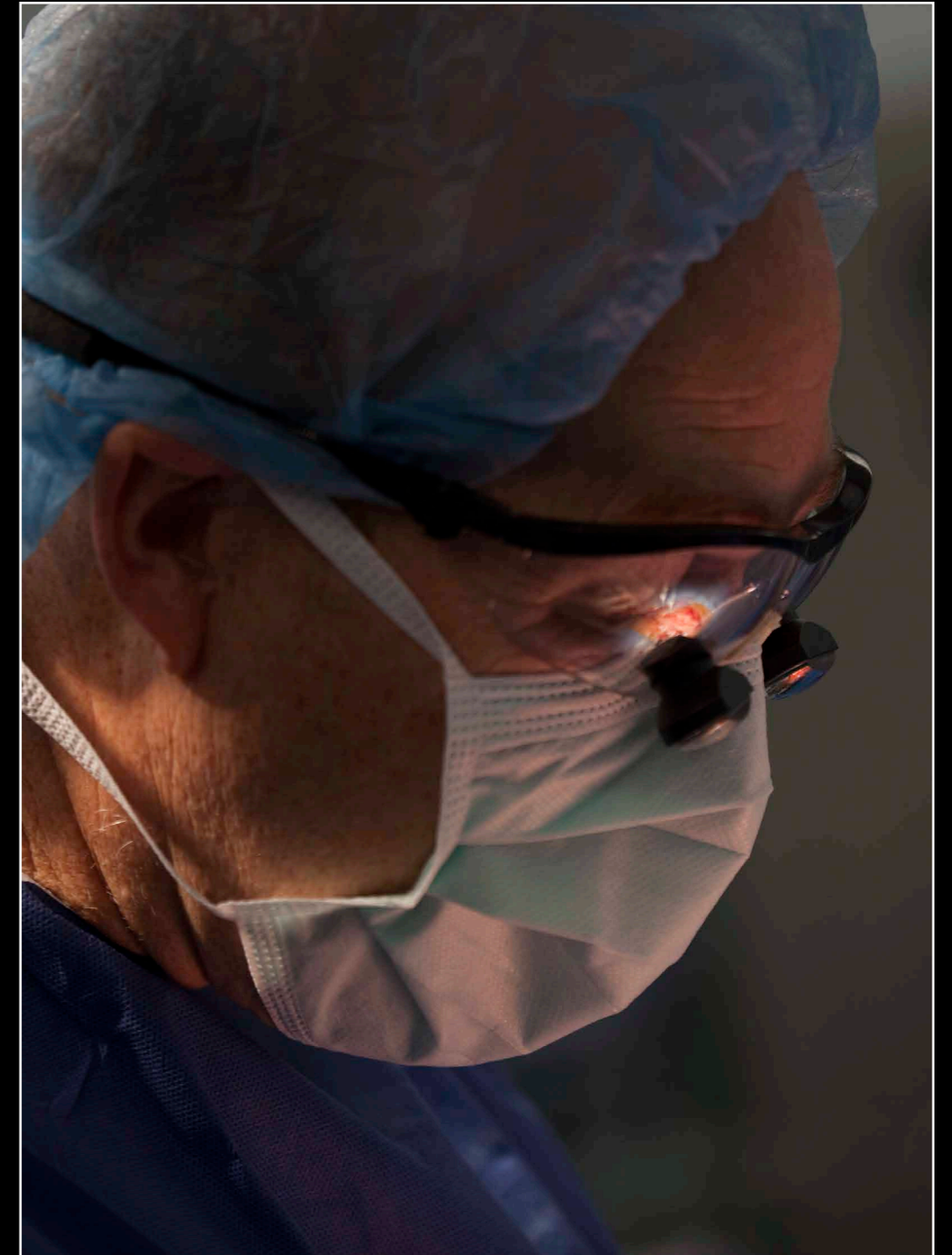
Karen O'Connor

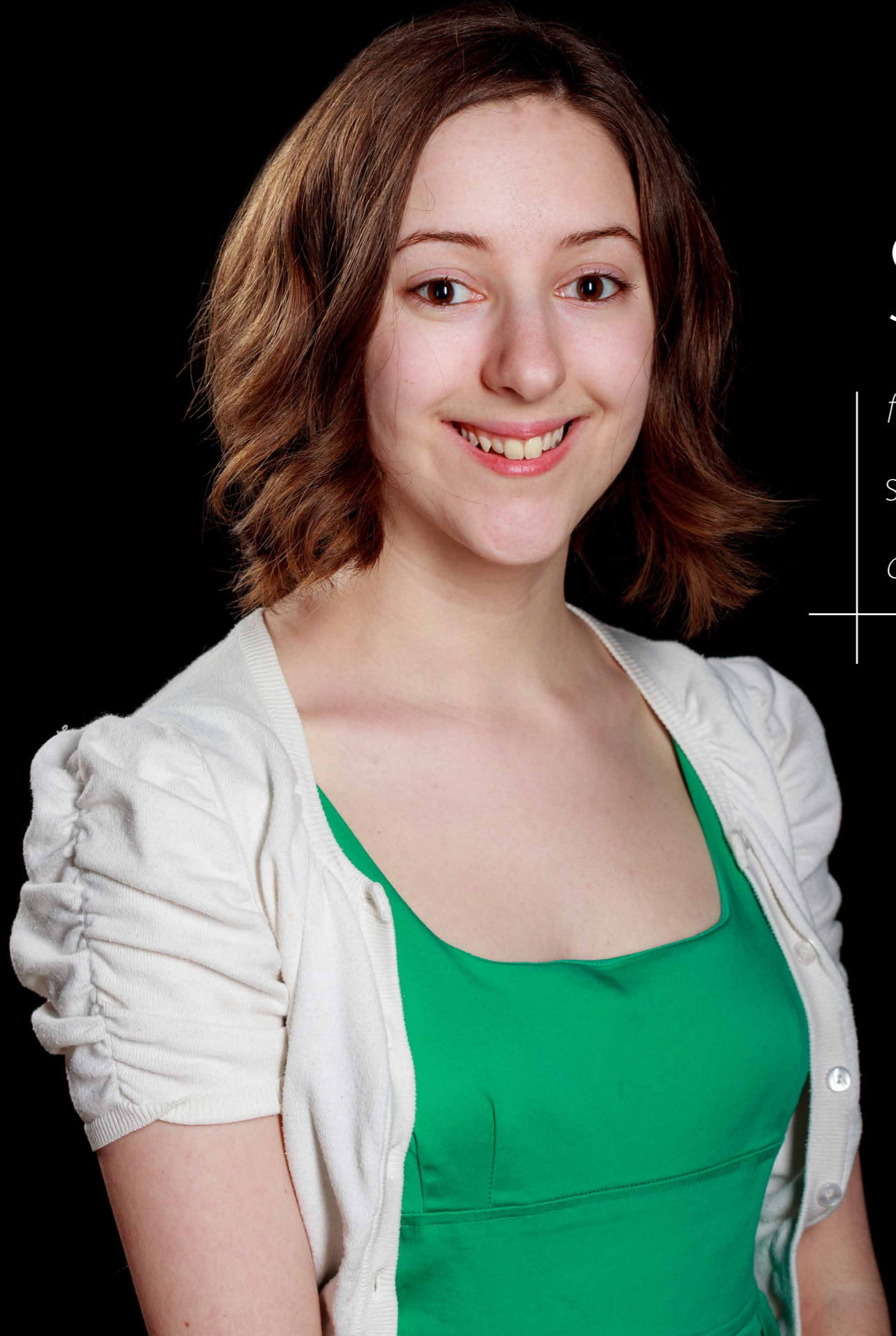*from:* Chili, NY

koconnor018@gmail.com

career interest: microscopy

Karen O'Connor

favorite class: Scanning Electron Microscopy
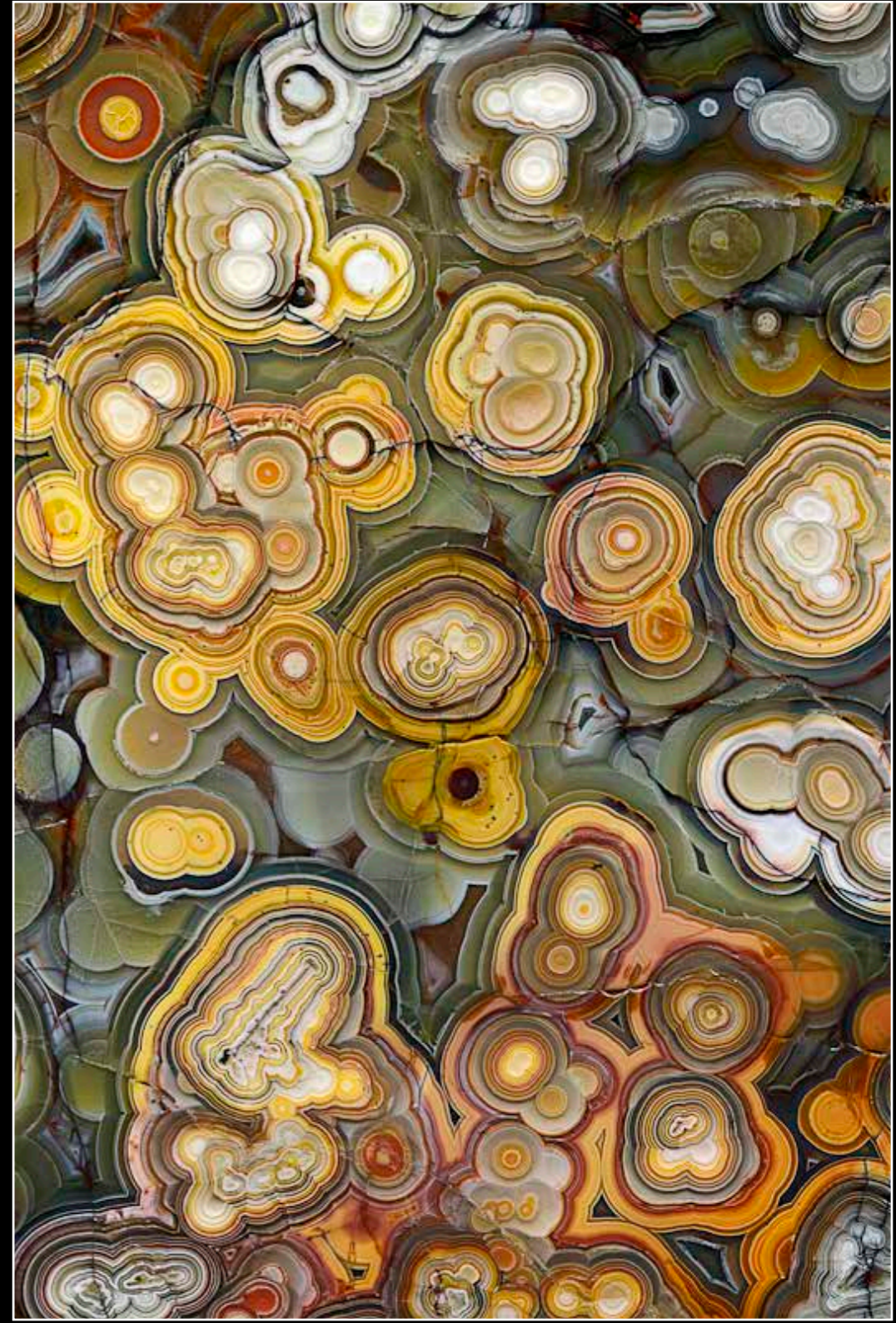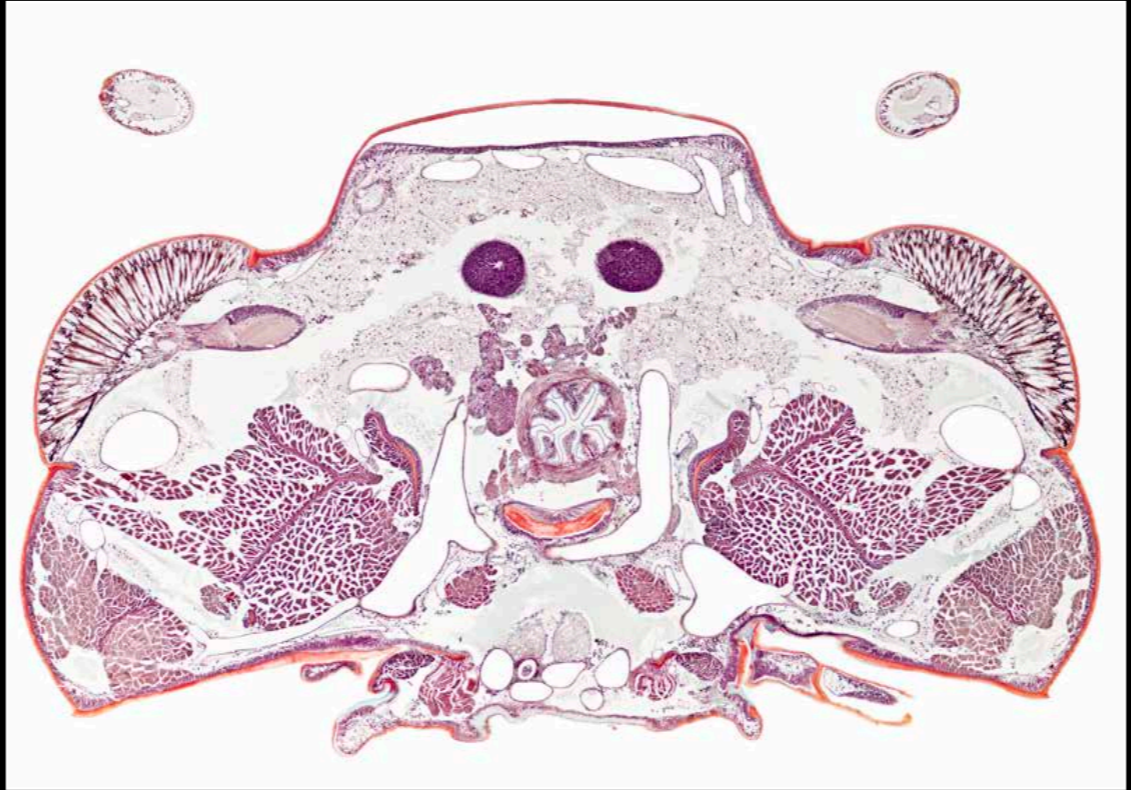
Sarah Oros

from: Trumansburg, NY

sarah@oros.org

career interest: microscopy

Sarah Oros

co-op: Paleontological Research Institution, Ithaca, NY
favorite class: Applications of Scientific Photography II

300μm

Rachel Zoë Rosenbaum
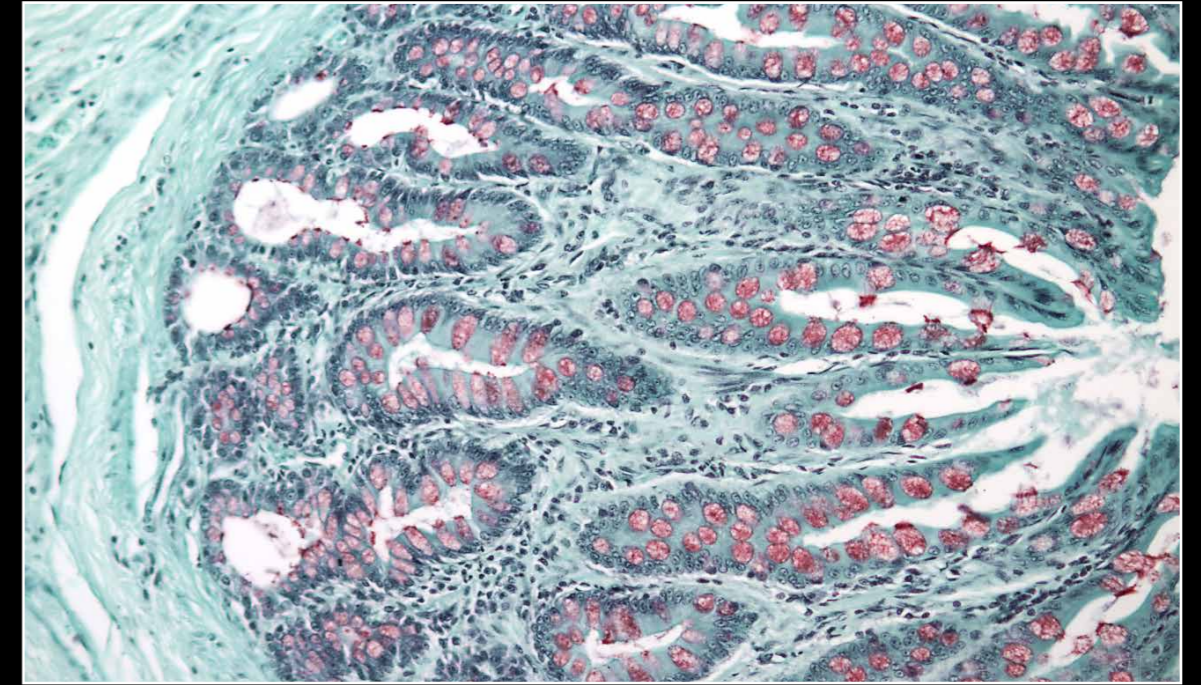
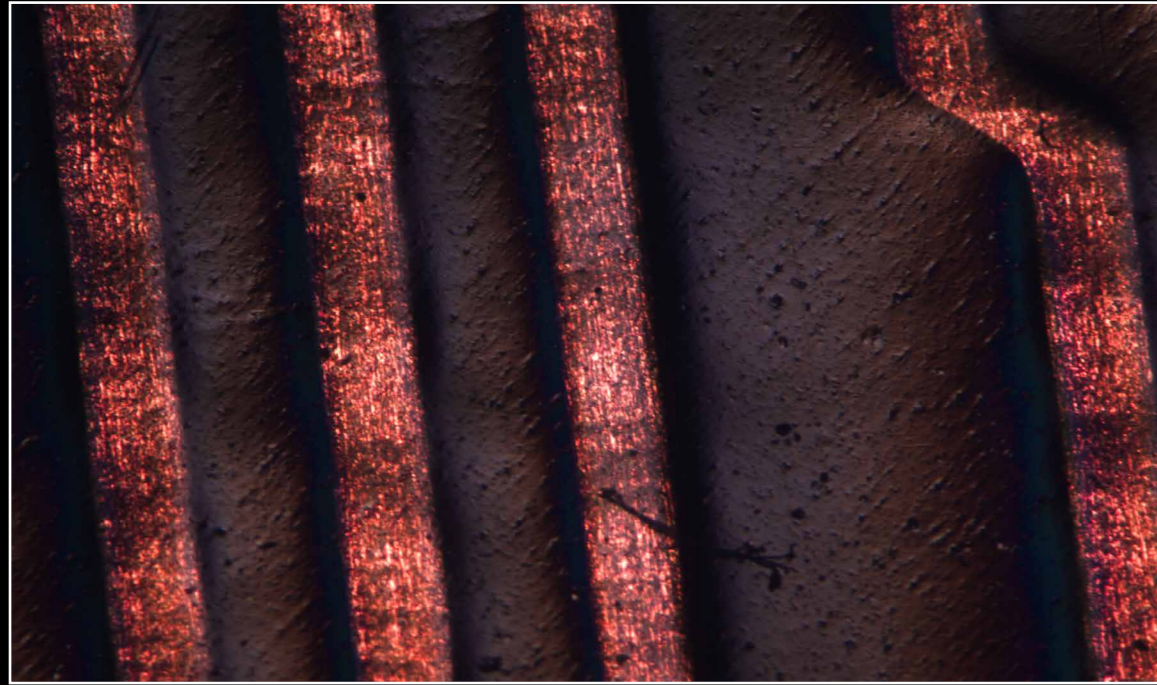*from:* Jericho, NY

4rachel@optonline.net

career interest: microscopy

Rachel Zoë Rosenbaum

co-ops: Memorial Sloan-Kettering Cancer Center, NYC, and North Shore LIJ Health System, Manhasset, NY
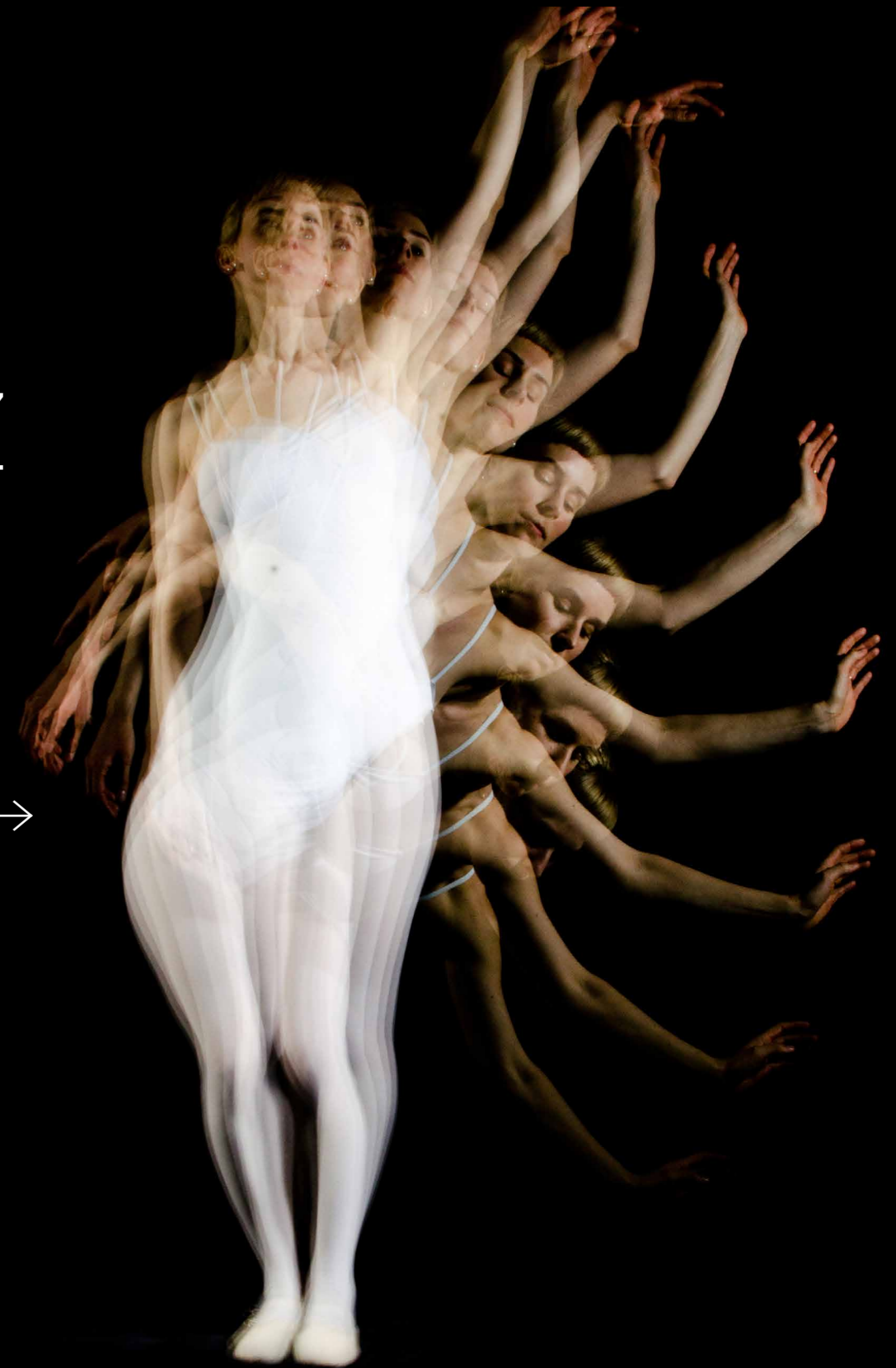
favorite class: Underwater Photography

Amber Schultz

from: Madison Heights, MI

schultzphenomenon@ymail.com

career interest: surgical photography

Amber Schultz

co-op: University of Michigan, Microbiology and Immunology

favorite class: Surgical Photography

Yasmeen Smalley

from: Houston, TX

contact@yasmeensmalley.com

career interest: underwater photography

Yasmeen Smalley

co-op: Retina Associates, Rochester, NY

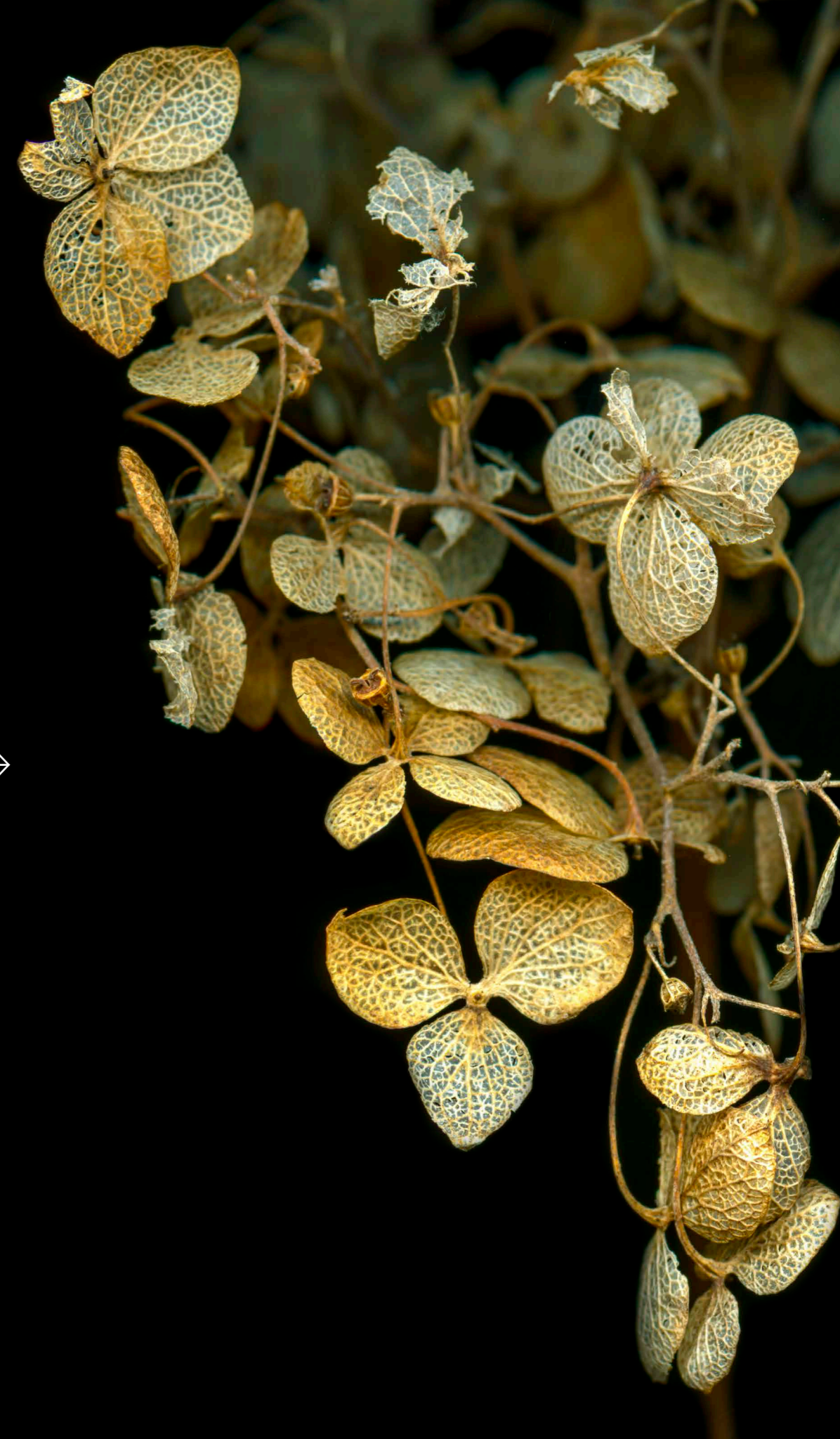*favorite class:* Underwater Photography
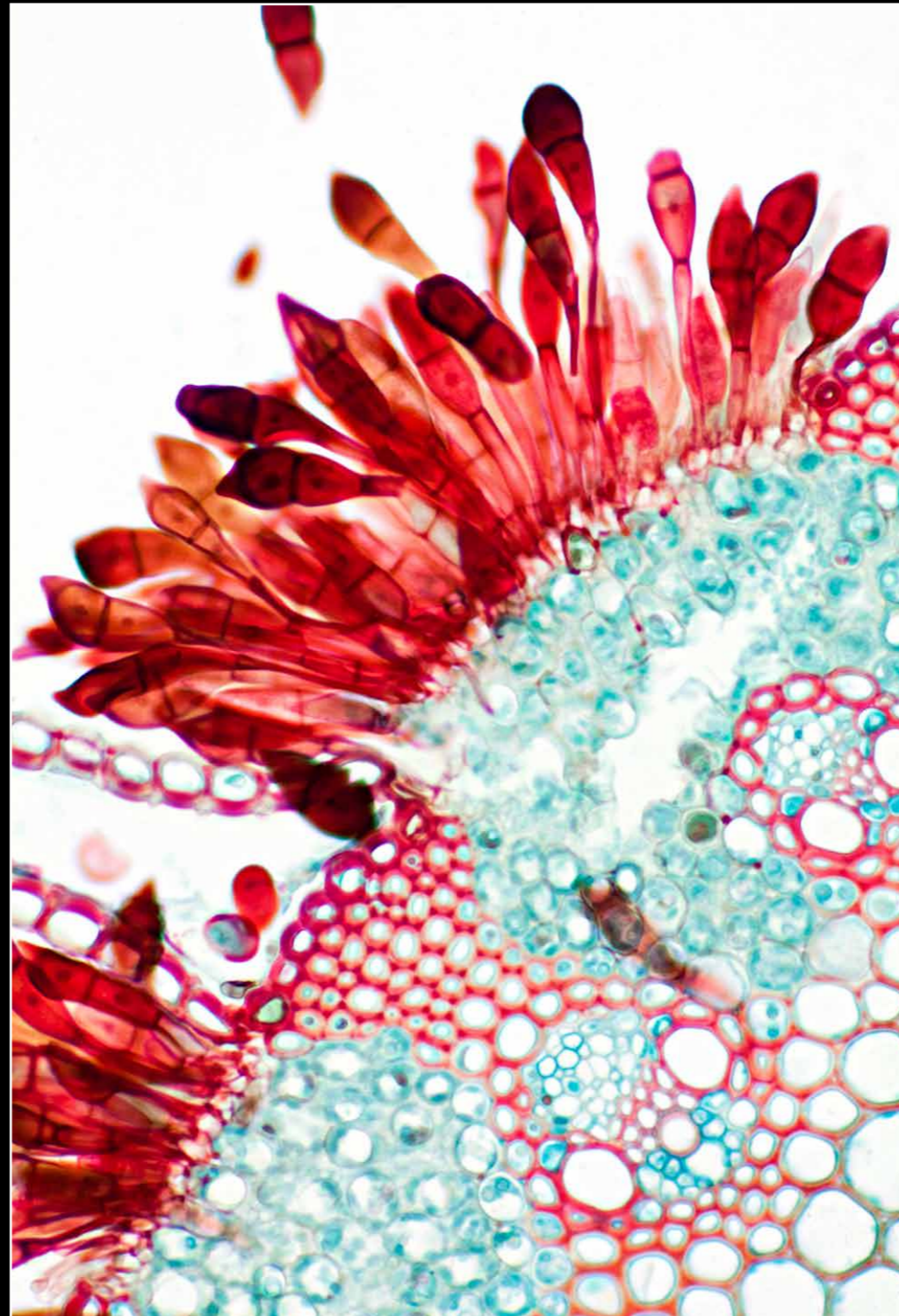
Claire Smith

from: Niskayuna, NY

csmith792@gmail.com

career interest: microscopy

Claire Smith

co-op: Cornell University, Plant Pathology Photo Lab

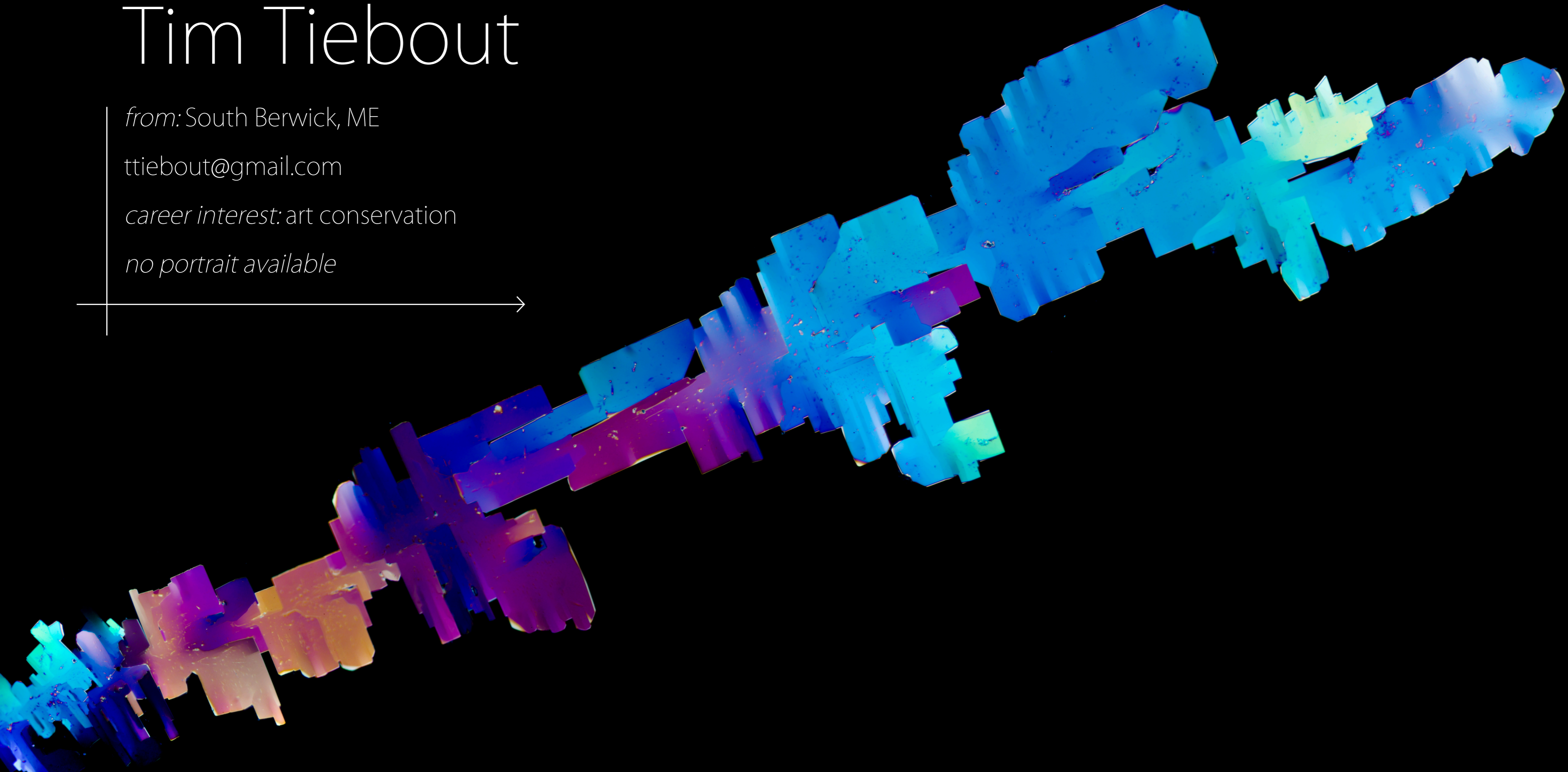*favorite class:* Scanning Electron Microscopy

Tim Tiebout

from: South Berwick, ME

ttiebout@gmail.com

career interest: art conservation

no portrait available

Tim Tiebout

co-ops: Canfield Scientific Inc. and Northeast Document Conservation Center

favorite class: Advanced Underwater Photography
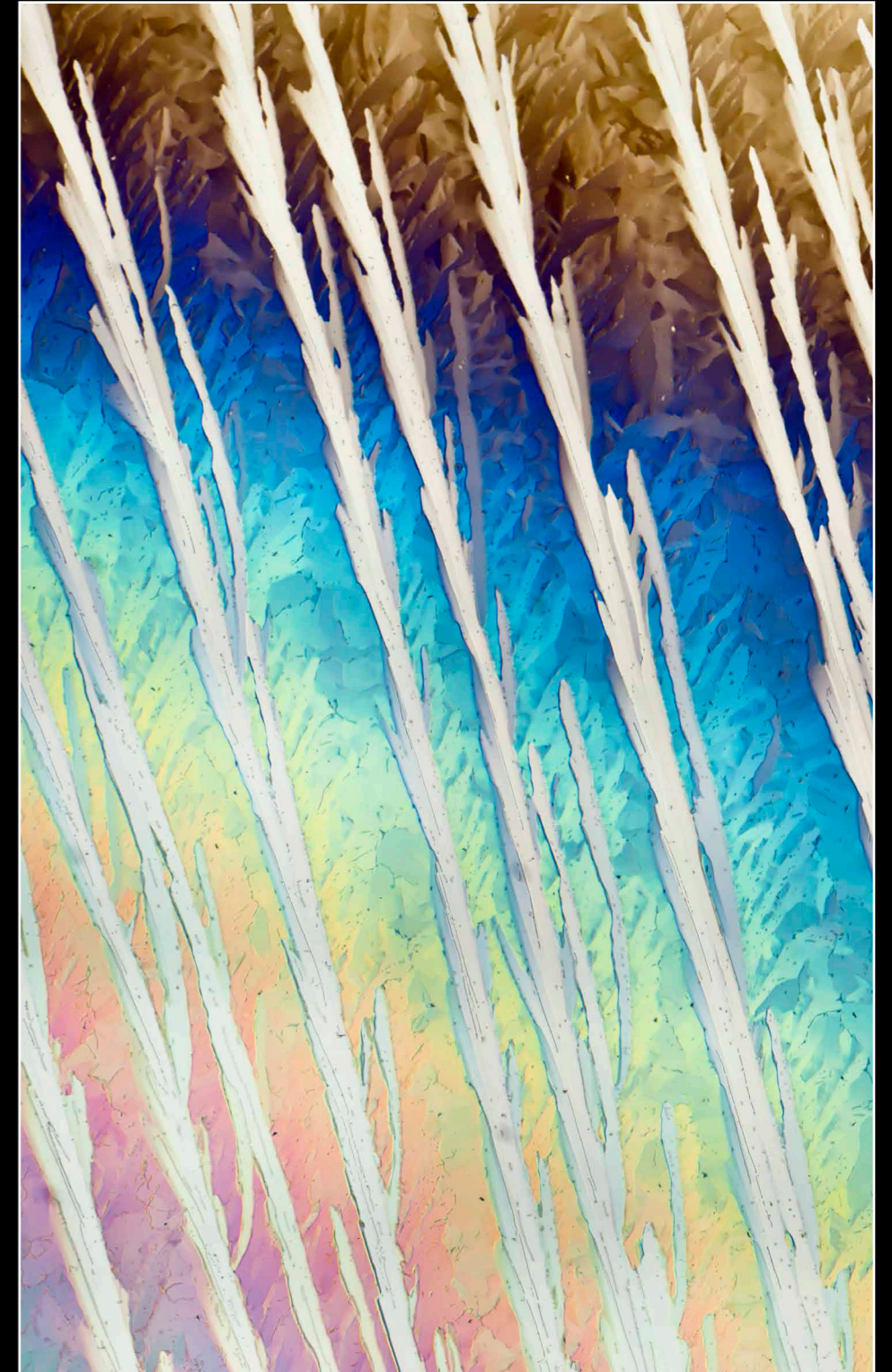
Jolearra Tshiteya

from: Annandale, VA

jmtbpc@gmail.com

career interest: medical photography

Jolearra Tshiteya

co-op: Smithsonian Institution, Washington DC

favorite class: Confocal Microscopy

Lindsey Weidenborner

from: Webster, NY

lweidenborner@gmail.com

career interest: medical photography

Lindsey Weidenborner

co-op: Smithsonian Institution, Washington DC
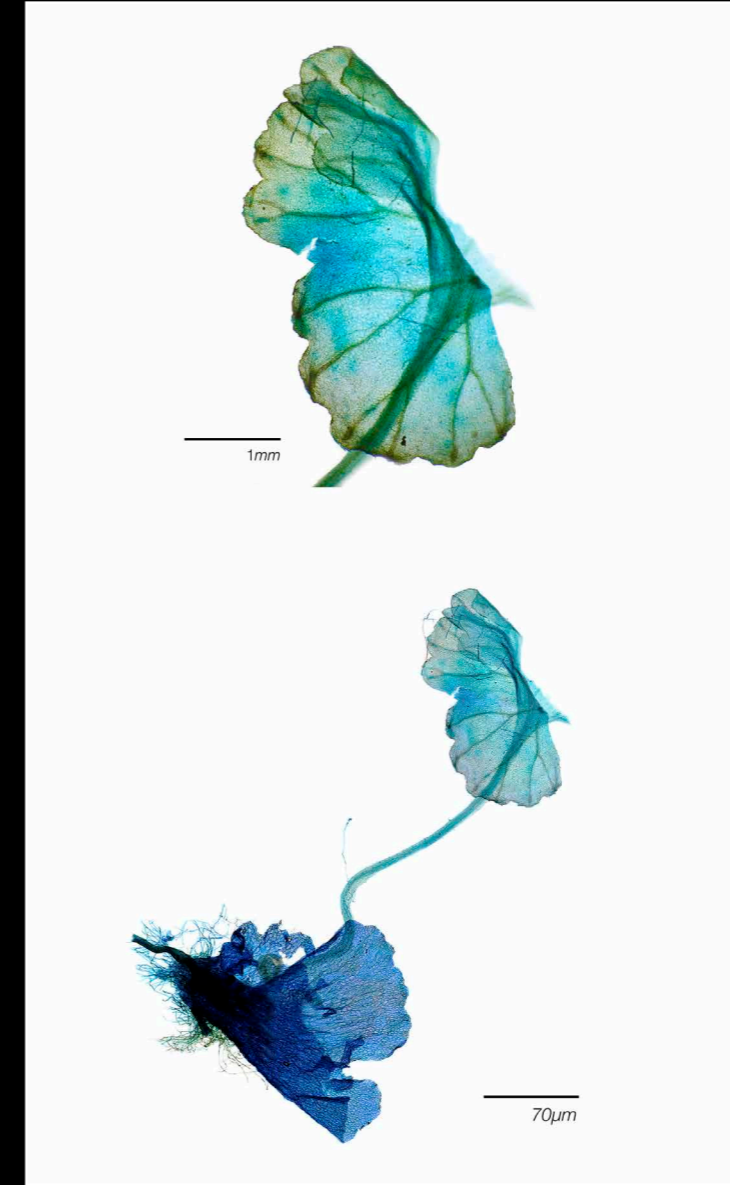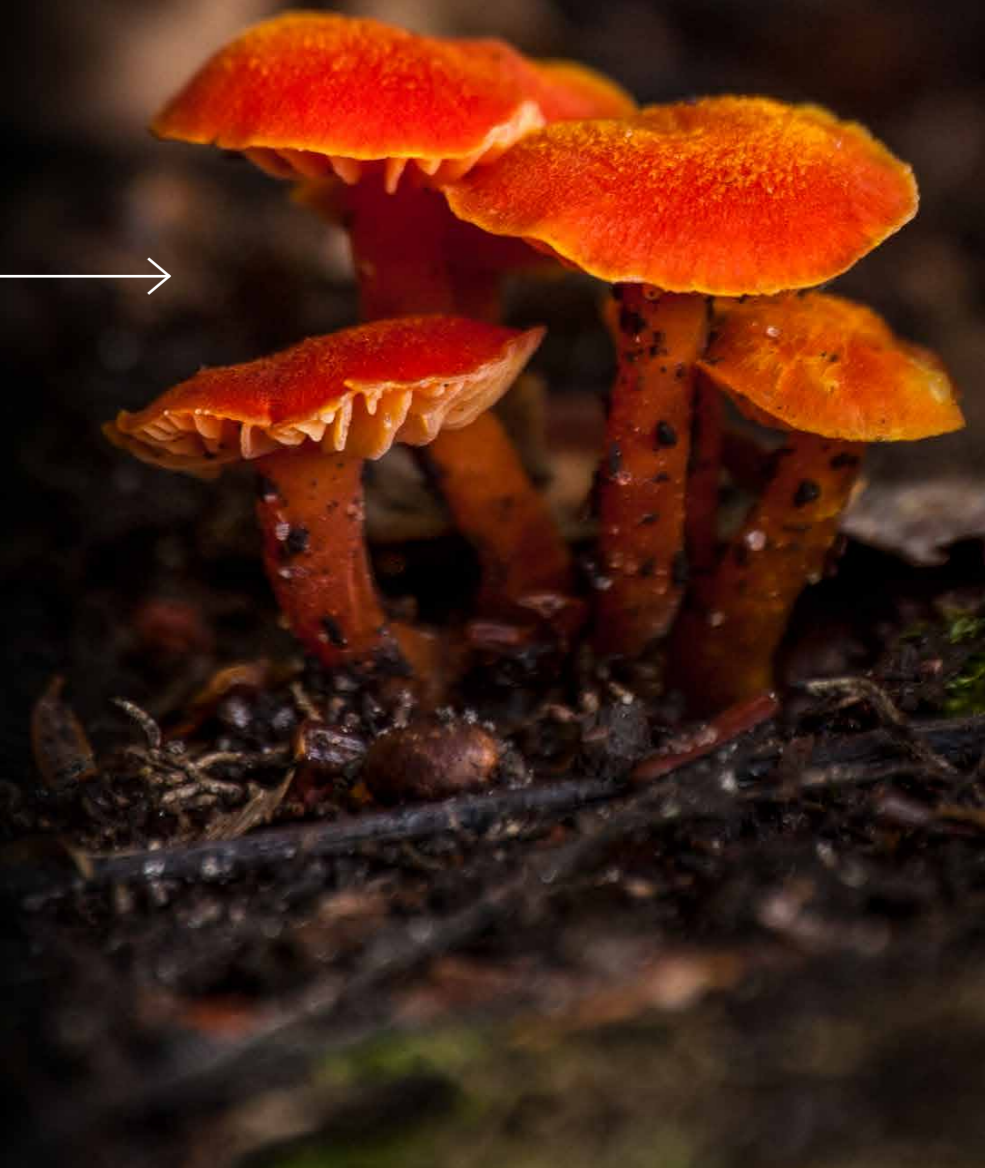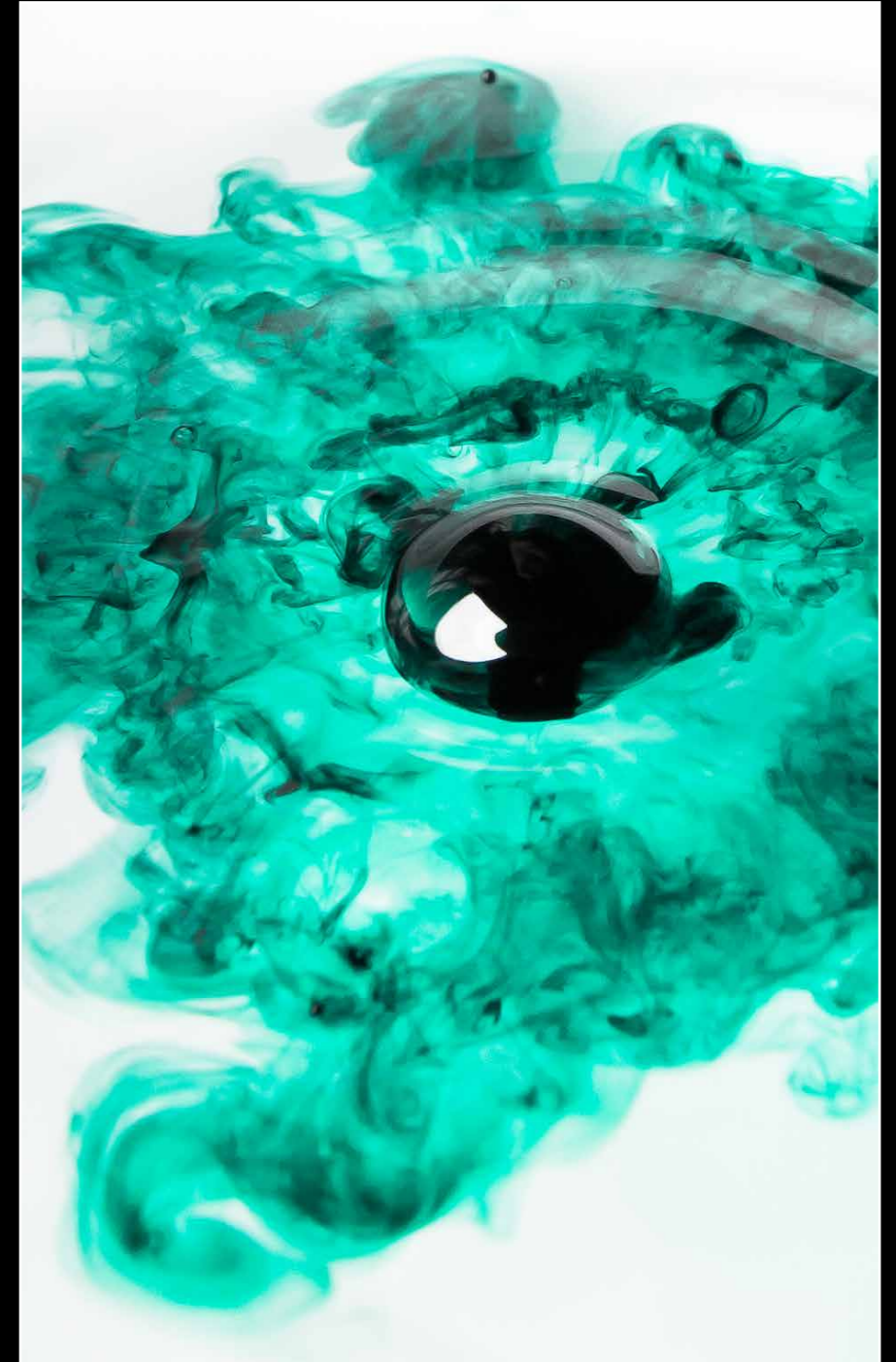*favorite class:* Surgical Photography
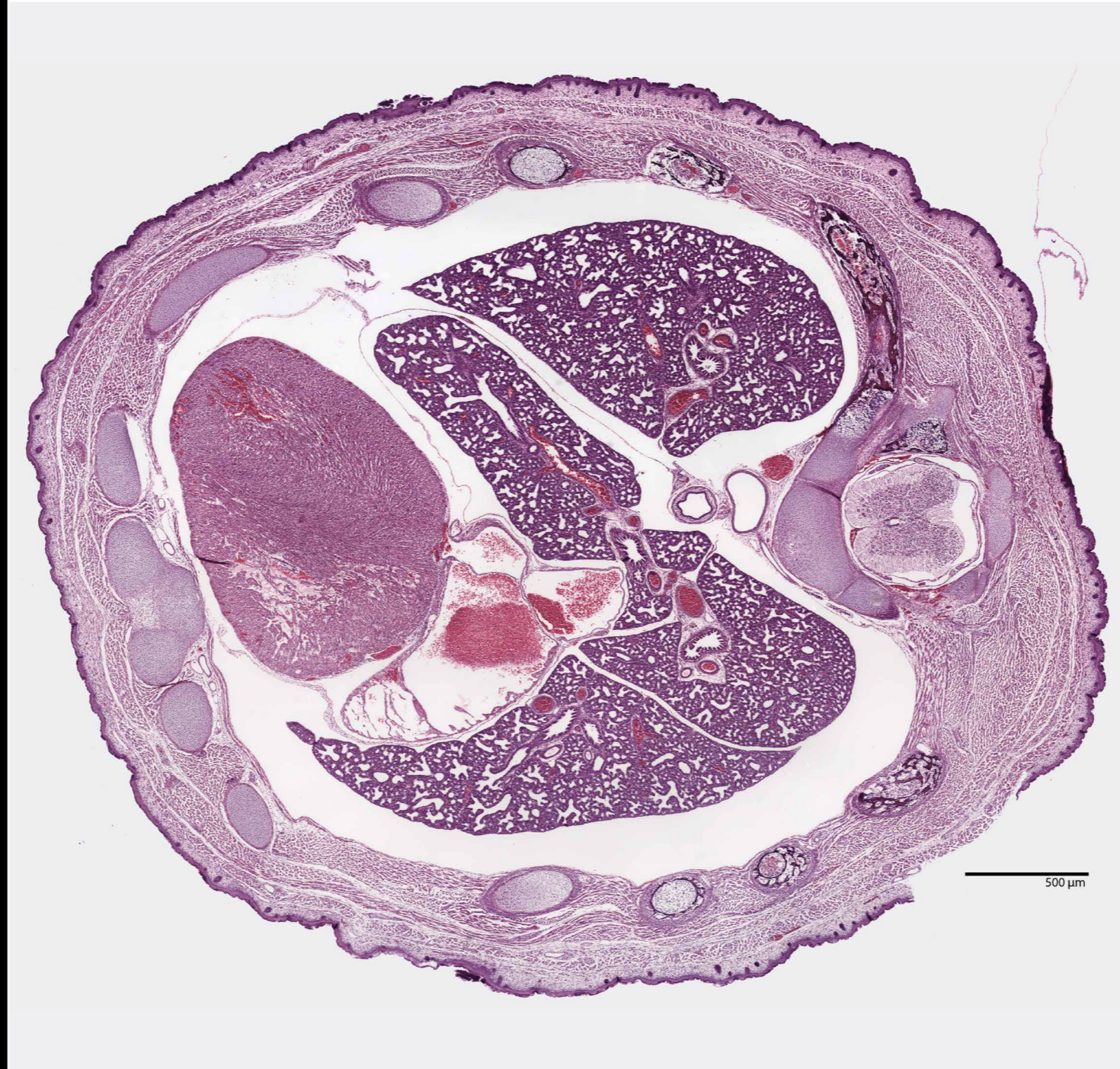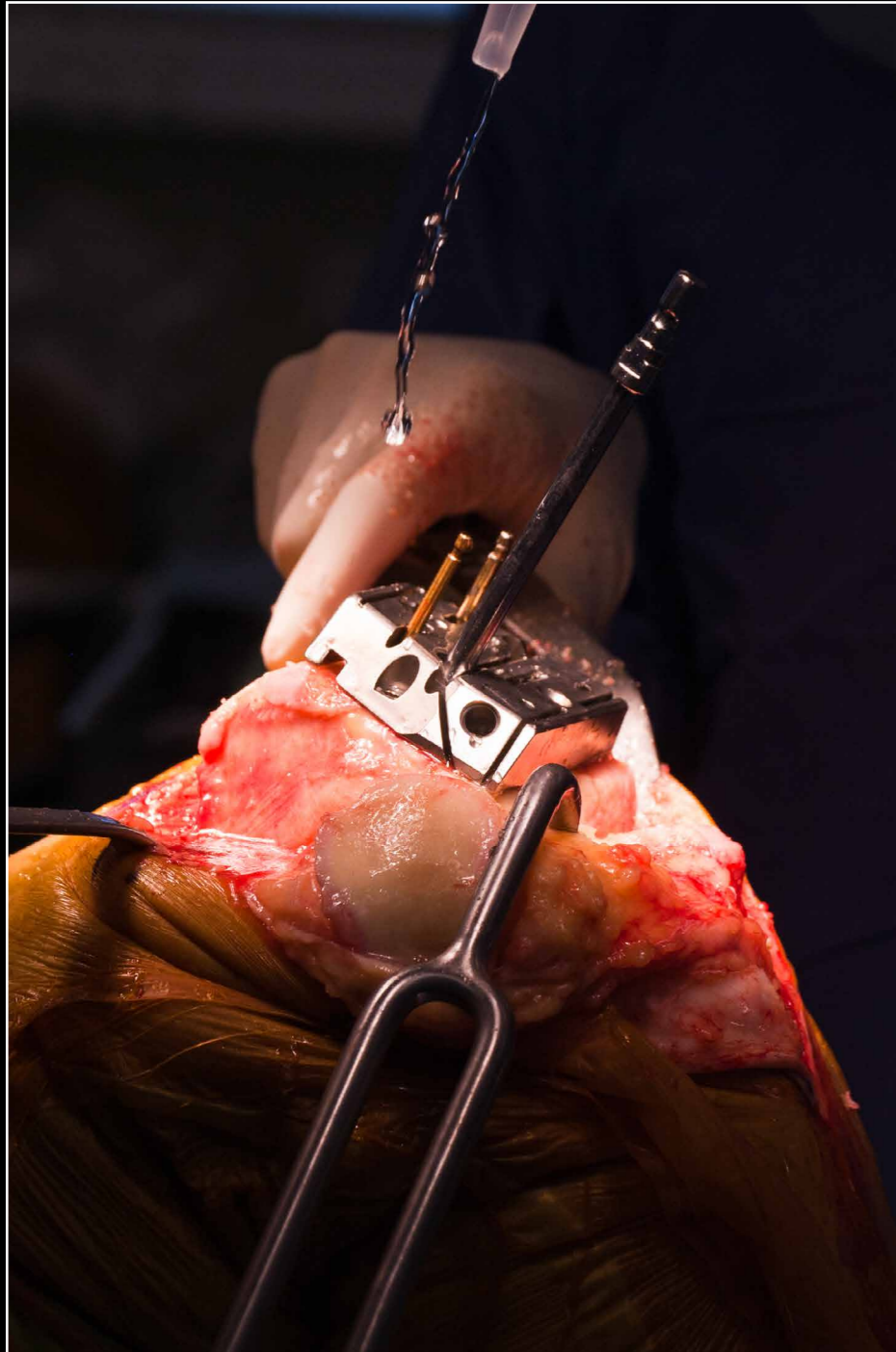
spring picnic invitation

The annual spring picnic brought a new addition to the tradition of creating an invitation - the police! In the middle of the photoshoot, the police showed up, due to the unusual act of TP'ing one's own yard. The students on the photoshoot - Lia DiRico, Griffin Kettler, Erich Fiederer, Marissa Masek, and Sammy Falgiani - reassured officers that their unusual behavior was not illegal. It is believed that this is the first time that the police showed up to a photoshoot of the spring invitation - that we know about.

#YOLO

JOIN US AT THE 28TH ANNUAL PHOTO SCIENCE SPRING PICNIC!!!

NOON - ? ? ?
SATURDAY 11 MAY 2013
MENDON PONDS PARK - THE EAST LODGE
FEEL FREE TO BRING A DISH TO SHARE!

spring photographic science events

IPT student Griffin Kettler at the Corning Museum of Glass

BPTA vs. National Press Photographers Association Bowling Night

BTPA Movie Night at the Park Point Theater

Tim Bennett, CRA, FOPS, OCT-C, presents to Biomed Photo students on stereo viewing and fundus autofluorescence techniques

RIT students meet up with alumni at an Ophthalmic Photographers' Society meeting in Hershey, PA. Photo courtesy Tim Bennett, CRA, FOPS, OCT-C.

HD teleconference on infrared video in ophthalmology by Professor Verdick of the University of Iowa. Photo courtesy Dan Wang.

photographic sciences at Imagine RIT

event photographs by Biomed Photo student Sarah Michaels

On Saturday May 4th 2013 the Photo Sciences program participated in the 6th annual Imagine RIT innovation and creativity festival. The Photo Sciences had an exhibit that consisted of iris photography, high speed video, and augmented reality located in the Gordon field house. Nearly 400 iris photos and 200 high-speed videos were taken. Graduating senior Ryan Harriman also created postcards to hand out show-casing the work of each graduating senior in the program! We are also proud to announce we won two awards from Time Warner Cable INC. and Rochester General Health Systems. Thank you to everyone who came out and supported us and we look forward to next year's festival!

Photo Sciences Seinor's Sarah Oros and Lauren Held hand out postcards featuring work from graduating seniors

An overview shot of the Photo Sciences Exhibit. The iris photography was the most popular attraction in the entire Gordon Fieldhouse

Biomed Photo Senior Ryan Harriman reviews an iris photo while other volunteers embed participants' emails into the files

Photographing one of the younger participants with a slit lamp biomicroscope, featuring a custom-mounted Canon 5D Mark II

Program Chair Christye Sisson celebrates sponsorship award with seniors Ryan Harriman and David Beyerlein

BPC Bulletin

Biomedical Photographic Communications ✛ Spring 2013

We would like to thank the following supporters for their interest and support to the photographic science programs at RIT:

BioCommunications Association, Inc.	Jim Bashant	Allison Forlenza	Keith Mancini
Canfield Scientific, Inc.	Steti Baum	Jim Fosse	Jennifer McEnerny
Carl Zeiss Meditec, Inc.	Tim Bennett	Kristen Frye Orlowski	Jay Packer, MD
Carl Zeiss MicroImaging, Inc.	Keith Bullis	David Gallo	Art Papier, MD
Flaum Eye Institute at Strong Memorial Hospital	Matt Carnavale	Barbara Giordano	Ralph Pennino, MD
Heidelberg Engineering, Inc.	John Czerniawski	Bill Halas	Carl Salvaggio
Jewish Associates of Greater Rochester	Dan DiGregorio	Rachel Hollar	Tim Steffens
Nikon Instruments, Inc.	Glenn Doherty	Paul Hosier	Joe Territo
Ophthalmic Photographers' Society	Don Drake	Chris Irick	Michael Turano
Retina Associates of Western New York	Julie Ducharme	Gurcharan Khanna	Randall Verdick
Rochester General Hospital	Frederick Dushay, MD	Ted Kinsman	Jack Vetter Family
Sonomed Escalon	Mark Fairchilds	Richard Labombard	Chris Wong
Topcon America Corporation	Jason Faulring	Kevin Langton	We welcome your feedback! Contact us at:
Xerox Corporation	Bill Fischer	Susanne Loomis	**bpcbulletin@gmail.com**