THE SEAWAY CURRENT

Newsletter of the Seaway Section of the Mathematical Association of America

SPRING EPHEMERAL 2025
VOL. 48, NO. 2

IN THIS ISSUE...

- Section Election results and Executive Committee members
- *Get involved!*
- *Note from the Section Chair*
- *Membership Milestones*
- *More Than Numbers* by Dan Look
- *Naming Brock University's Learning Centre after Eric R. Muller* by Chantal Buteau & Bernard R. Hodgson
- *Seaway Kudos*
- *Meandering Thoughts* from Elizabeth Wilcox

THE SEAWAY CURRENT

The Seaway Current is published at least twice per year by the Seaway Section of the Mathematical Association of America (MAA) for the benefit of its members. Its pages are open to all members of the MAA and, by invitation to others, for the exchange of information and opinion. Contributed announcements, articles, and editorials are welcome and should be sent to the editor.

Material may be submitted to the editor by e-mail. Opinions expressed in this newsletter are those of the editor or of individual contributors and do not necessarily represent the views of the MAA or of the Seaway Section.

Editor
Elizabeth Wilcox, Assoc. Professor
Department of Computer Science
Oswego State University of NY
tel. 315-312-6586
elizabeth.wilcox@oswego.edu

On the web: maaseaway.org

Facebook: @MAASeaway

SECTION ELECTION RESULTS:

Who is on the Executive Committee?

- **Section Chair:** Brad Emmons, Utica University (2024-2026)
- **Chair-Elect:** Elizabeth Wilcox, State University of New York at Oswego (2025-2026)*
- **Program Chair:** Adam Giambrone, Elmira College (2025-2027)*
- **Treasurer:** Gordon Craig, York University (2024-2026)
- **Secretary:** Jolie Roat, State University of New York at Cortland (2025-2028)*
- **Two-Year College Representative:** Jesse Clark-Stone, State University of New York at Canton (2024-2026)
- **At-Large Member:** Jeff Johannes, State University of New York at Geneseo (2024-2026)
- **Section Representativative:** Hossein Shahmohamad, Rochester Instititue of Technology 2024-2028)**

** indicates an individual beginning a term as of the close of the Spring 2025 meeting, elected during the Business Meeting of that section meeting*
*** indicates a position that is not elected as section meetings, but through elections hosted by the MAA*

Want to get involved in the mathematical community?

Join a committee of the Seaway Section! There is always room for additional input. Plus, it is a great way to get involved in the MAA and to get to know folks in the section. Here is a brief description of our committees.

1. Randolph Lecture Committee: Selects the Randolph Lecture for the Fall meeting, which should focus on Mathematics Education
2. Gehman Lecture Committee: Selects the Gehman Lecture for the Spring meeting, which should be selected from an Institution in our section.
3. Clarence Stevens Distinguished Teaching Award Committee: Solicits nominations for, and selects the winner of, the section teaching award.
4. Education Policy Committee: Considers issues affecting undergraduate education in Mathematics in the larger educational context of elementary, secondary, undergraduate, and graduate education in mathematics
5. Nominations Committee: Provides a slate of nominees for elected positions
6. Seaway NExT Advisory Committee: Coordinates the Seaway NExT program for our meetings
7. Student Program Committee: Organizes the student talks and student activities for our meetings

Other positions in the section include Editor of the Seaway Current, Liaison Coordinator, Public Information Officer, and Webmaster. More information about these positions can be found in our sections bylaws, which are posted on maaseaway.org.

If you have any questions about our committees, or want to get involved in any other way, feel free to reach out to Brad Emmons at bemmons@utica.edu.

Spring 2025: Membership Milestones

Reported by Jolie Roat, Section Secretary.

At the recent spring meeting, the MAA and Seaway Section recognized members who are celebrating milestone membership years in the MAA. Those recognized included

- **25 Years**: Constant Goutziers, Stanley Kochman, Daniel Look and Ian Vanderburgh
- **50 Years**: Nancy Boynton and Nicholas Phillips
- **70 Years**: M. Glasser

In addition, the Seaway Section recognized Don Muench, who is entering his 70th year of membership in the MAA and specifically the Seaway Section. Don has been part of this section since graduating in the first graduation class of St. John Fisher College (now University). He is still has an active presence in our section, giving a talk titled "Solving Linear Systems of ODEs and Discovering Jordan Form" at the spring meeting.

The Seaway Section congratulates and thanks all who were recognized for their continued support and contributions to the Association's mission of advancing the understanding of mathematics and its impact on our world.

Note from the Section Chair

I would be remiss if I did not mention that there were a couple of issues reported from one of our recent meetings as it relates to gender bias. This is an issue that we in the Executive Committee take seriously. We would like to ask all of our members and guests to please be aware of how we conduct ourselves at our meetings, and if you see any issues that might arise, please report them to a member of the Executive Committee.

To specifically address these issues, we have formed an ad-hoc committee consisting of myself, Elizabeth Wilcox, Daniel Look, and Gordon Craig. We are currently working on:

1. drafting a set of guidelines for those giving talks,
2. drafting a set of guidelines for those moderating sessions, and
3. drafting a code of conduct that all attendees must agree to in order to register for our meetings.

If you have any questions or suggestions for our committee, feel free to reach out to one of us.

More Than Numbers: Empowering Young Women Through Math

Daniel M. Look, Rutherford Professor of Mathematics, St. Lawrence University

When Patti Frazer Lock and I started planning the *Math & Everything* event held at St. Lawrence University in October of 2024, we knew we had our work cut out for us. We were keenly aware of the misperceptions often associated with mathematics, statistics, and computer science majors — and with the career paths available to women in these fields. Patti and I were determined to give high school women from across the North Country an opportunity to see their potential from a variety of new angles.

The arrival of 250 high school women, teachers, and counselors brought an exciting energy to campus. "We were astounded by how many were interested in attending," Patti said. "We had to cap it at 250 due to room capacity." The event kicked off on Friday with a welcome from President Kate Morris, opening remarks by Lily Kendall '25, president and founder of SLU's Women in Math and Computer Science Student Club, and a keynote address by Patti.

For the St. Lawrence University Department of Mathematics, Computer Science, and Statistics, it was an all-hands-on-deck effort. We were also incredibly fortunate to have the support and collaborative spirit of women faculty and staff from across campus, who helped develop and deliver a wide range of 30-minute interactive sessions. Each one highlighted how math intersects with other areas of interest — psychology, the environment, art, cybersecurity, sports, magic, and more.

Patti also led a session exclusively for teachers and counselors, where she challenged the idea that students interested in math should be pushed solely toward engineering schools. "I was able to help them understand why a liberal arts university is actually an ideal place for students interested in mathematics, statistics, and data science," she said. "That was a big 'a-ha' moment for many."

We were grateful to receive a $6,000 NSF grant through the Mathematical Association of America to help fund the day-long event. The support allowed us to host a larger group of teachers and provide materials and meals that enhanced the overall experience. That said, we believe a smaller-scale version of the program — such as a half-day workshop or a virtual session with fewer participants — would still be feasible without external funding. As an extension of the program, Patti, I, and our collaborators committed to providing participating teachers with approximately four new online class videos and supplemental learning materials throughout the 2024–2025 academic year. We're also thrilled to share that — on the very day of writing this —we learned we've been awarded the grant again to host *Math & Everything* in the fall of 2025.

We firmly believe that there were young women present for whom this was a transformative event. Even if it was just one student, that alone would make it a success.

Seaway Appreciation:

Know a Seaway Section member who is retiring? Or who has won an award? Maybe they just said a few encouraging words at the right time? Or, they're the quiet person who is always in the background and never in the foreground? Or, do you want to write a few words to recognize a Section member who is special to you?

Submit a short note to the Seaway Appreciation column! Send Elizabeth Wilcox (elizabeth.wilcox@oswego.edu) an email (Subject Line: Seaway Appreciation) with the person's name and a sentence or two (or a few more!) about their contributions.

Spring 2025: Seaway Kudos

Congratulations to our members!

- Brad Emmons (Utica University): promoted to full professor! Woo-hoo!
- Dan Look and Patti Frazer Lock (St. Lawrence University): grant to support *Math & Everything* in fall 2025! Great work!
- Sarah Hanusch (State University of New York at Oswego): MAA-sponsored grant to establish Math Cirlces in Oswego County! Exciting things lie ahead for junior and high schoolers!

No matter how big or small, we support the achievements of our members. If you know of someone who you think has earned a kudos mention, send those notes to Elizabeth Wilcox (elizabeth.wilcox@oswego.edu).

Brock University's Department of Mathematics and Statistics names its Learning Centre after Professor Emeritus Eric R. Muller

Chantal Buteau, Co-Chair
Department of Mathematics and Statistics
Brock University, St. Catharines, ON

Bernard R. Hodgson
Department of Mathematics and Statistics
Université Laval, Québec, QC

This honour recognizes Eric Muller's outstanding and many contributions to the mathematics teaching and learning environment at Brock University, particularly in connection with the instigation of an education program for secondary school teachers in which discipline knowledge and teaching skills are developed concurrently, as well as the undergraduate MICA program which focuses on an approach to "**m**athematics **i**ntegrating **c**omputers and **a**pplications".

Through this laurel is as well acknowledged his sustained dedication to the broader mathematics community at the Canadian, North American and international levels. Eric was the recipient of four teaching awards, among which, from the Mathematical Association of America, the 1996 Seaway Section Award for Distinguished University Teaching of Mathematics. He was also selected as the MAA Seaway Section Randolph Lecturer in 1996.

Eric Muller was directly involved over several decades in many activities of the MAA, notably within the framework of the MAA Seaway Section. He hosted for example the Thirty-Fifth Fall Meeting of the Section at Brock University (2002) and regularly presented papers at various Seaway Section meetings. He also served a term on the MAA Board of Governors, and authored papers published in the *Mathematics Magazine*, the *Monthly*, as well as in a couple of *MAA Notes* volumes. He was in addition the recipient in 1995 of a MAA SUMMA mathematics summer camp grant for First Nations students from Southern Ontario. And he also was in 1995 . . .

(Continued on the next page . . .)

(Brock University's Department of Mathematics and Statistics names . . . continued from previous page.)

. . . the co-organizer (with one of the authors) of activities on "Popularizing Mathematics" at two consecutive MAA general meetings: a panel presentation at the Winter meeting in San Francisco, and a paper session at the Summer meeting in Burlington.

Eric was intensively involved in various bodies related to mathematics education in Canada, for instance at the provincial level through the Ontario Association for Mathematics Education (OAME) and nationally in the context of the Canadian Mathematics Education Study Group (CMESG) and the Canadian Mathematical Society (CMS), from which he received the 1999 Adrien Pouliot Award for sustained and outstanding contributions to mathematics education.

More widely, Eric is a Fellow of the Fields Institute for Research in Mathematical Sciences and the recipient of the 2002 National Research Council of Canada Michael Smith Award for Science Promotion. At the international level, he has contributed to six of the so-called ICMI Studies organized by the International Commission on Mathematical Instruction (ICMI), including in one case as a member of its International Program Committee. He played an active role in different ICMEs (International Congress on Mathematical Education), including playing many major roles in the organizing and running of the 1992 ICME-7 held in Quebec City: he served then as a member of the Canadian National Committee in charge of ICME-7, a member of its Executive Committee, as well as a member of the International Program Committee. He was also intensively active daily during this congress in bringing to the Local Organizing Committee a specific and crucial support of "troubleshooter".

After his retirement, Eric was invited in 2005 by Pacific Resources for Education and Learning (PREL) located in Honolulu to contribute to the mathematics education development in colleges on the North Pacific Islands. He has continued (with one of the authors) joint work in mathematics education, focusing mainly on technology in undergraduate mathematics. This has resulted in some 70 refereed book chapters, journal papers, conference proceedings, etc.

For more details about Eric Muller's contributions that led to this outstanding honour conferred on him by his home university, see the announcement on Brock University's Eric Muller Math and Stats Learning Centre website.

What is a "spring ephemeral"?

In early spring, wildflowers quietly bloom in the woods, putting on a show of color and a feast for waking pollinators. Plants that emerge in early spring, bloom, and then disappear for the rest of the year are called "spring ephemerals" and you've surely seen some – daffodils and tulips – but have you seen the native ones in the woodlands? Dutchman's breeches, rue anenome, trout lily, trillium, eastern shooting star, jack-in-the-pulpit, mayapple, bloodroot, ramps, . . .

We've gotten to the part of spring where the ephemerals have either already shrunk back into their bulbs or corms, or soon will. But, if you don't go out looking then you have no chance of finding them. So, take a walk in the woods and look! For more info:

- Cornell Botanic Gardens
- NYS Parks
- Nature Conservancy of Canada
- Toronto Botancial Garden

MAA Seaway Section Fall Meeting

St. Lawrence University

October 3-4, 2025

All are welcome to participate!

TLDR: I WAS IN BAD SPIRITS FIGHTING WITH ALGEBRA, CHATGPT PROPPED ME UP, BUT STUDENTS MADE THE DIFFERENCE!

Elizabeth Wilcox, State University of New York at Oswego

For our intro to programming course, one of our assignments involves students reading and understanding, and then implementing a somewhat complicated program. Learning to read code written by others is a skill to be developed in steps, and learning to write complex programs involves seeing how more experienced programmers do things — there are effective ways of thinking for programmers that just aren't intuitive for most people, so seeing these new ways of thinking and understanding them can be a critical part of developing programming skills.

This semester, I decided to use the *Abstract Gradient* program that was originally written by Daniel Schlegel, colleague and friend, for the class. Dan's program results in an image with columns of dots, where the width and height of the image are decided by the user along with the space between the columns, but within a single column the dots are randomly spaced in such a way that the dots increase in density towards the bottom of the column.

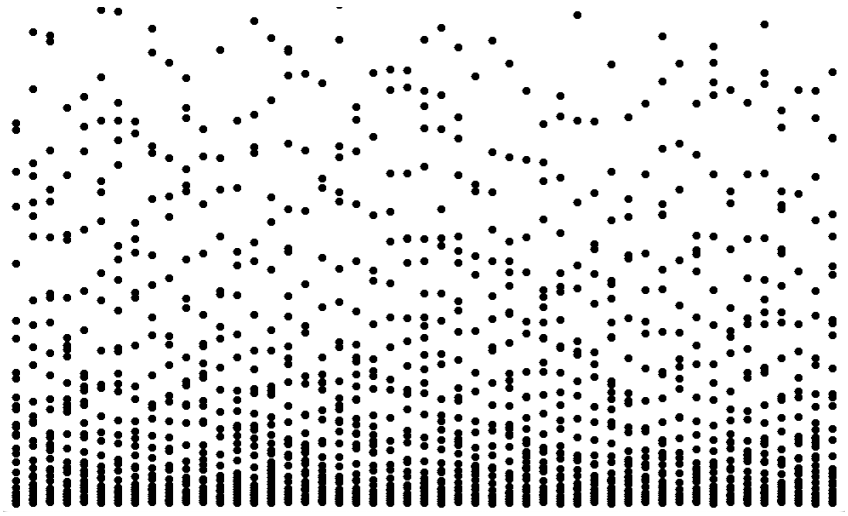
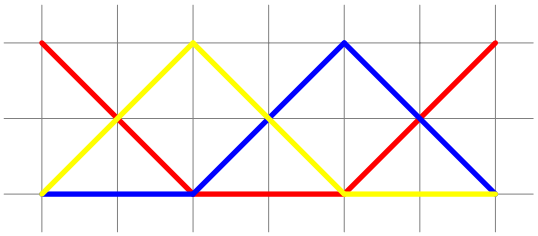


Image produced by Abstract Gradient, a Java program by Daniel Schlegel.

But this winter was emotionally difficult for me; I was in desperate need of cheerfulness and looking at a black-and-white image for 75+ student was just not going to do the job. I needed to make this gradient in *rainbow* or I might not make it through marking the assignment.

Colors in Java are easily designated with RGB values, meaning that you can treat the standard basis vectors $e_1 = \langle 1, 0, 0 \rangle$, $e_2 = \langle 0, 1, 0 \rangle$, and $e_3 = \langle 0, 0, 1 \rangle$ as color basis vectors with integer scalars from $\{0, 1, \ldots, 255\}$. Colors become integer linear combinations of these three vectors. The combination $0e_1 + 0e_2 + 0e_3$ is the absence of color, known as *white*, and $255e_1 + 255e_2 + 255e_3$ results in *black* but if we "turn up the volume" on just one component at a time then the result would be red, green, or blue in order — so $255e_1 + 0e_2 + 0e_3$ is red, $0e_1 + 255e_2 + 0e_3$ is green, and $0e_1 + 0e_2 + 255e_3$ is blue. Of course, we mostly ignore the basis vectors and write the coefficients as a 3-tuple for convencience, like $0 - 0 - 255$ for blue or $255 - 255 - 255$ for black.

The *Abstract Gradient* program itself allows the user to enter the width of the canvas and how far apart to make the columns of dots, so I had to work with the variable `nrOfCols` that stores the number of columns that the finished image will have, with the 0th column being on the left side of the canvas and the `nrOfCols`-th column being on the right side of the canvas. I mentally split `nrOfCols` into thirds, starting off entirely red with $255 - 0 - 0$ and then transitioning to $0 - 255 - 0$ by "dialing down" the red-coefficient linearly and "dialing up" the middle coefficient. Then, transition to blue, and finally to purple.



My graph for how the color "channels" would work.

You probably see, right now, what I completely missed during my painstaking algebra journey: the middle basis vector is *GREEN* and not *YELLOW*. I wrote the code using the variable `g`, oblivious to the conflict between *GREEN* and *YELLOW* happening in the code on the other end of my fingertips. And the result, well . . .

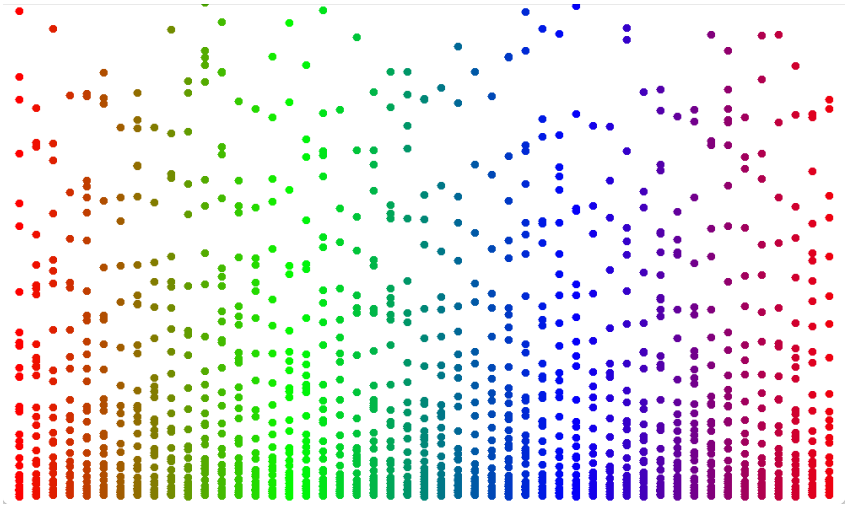
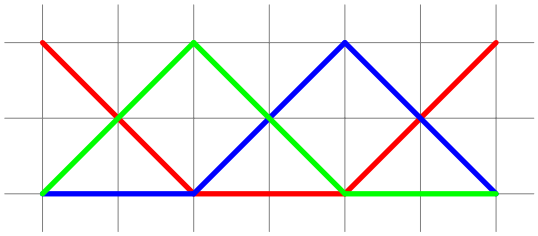


Image produced by an edited version of Abstract Gradient, where the green vector was mistaken for a yellow vector.

There is no shame in admitting that I cried.

```
double currentDistance = (double)col/ (double)nrOfCols;
// col the current column number, nrOfCols is the
// total number of columns in the image
int r = 0;
int g = 0;
int b = 0;
if (currentDistance < (1.0/3)){
    r = (int) ((-3*currentDistance + 1)*255);
    g = (int) ((3*currentDistance)*255);
} else if ((currentDistance>= (1.0/3)) && (currentDistance < (2.0/3))){
    g = (int) ((-3*currentDistance+2)*255);
    b = (int) ((3*currentDistance - 1)*255);
} else {
    r = (int) ((3*currentDistance - 2)*255);
    b = (int) ((-3*currentDistance + 3)*255);
}
```



My student worker was quite shocked to see my frustration and dismay over this mishap. I *do* feel some shame for being so pathetic as to shock a student, but my student worker's response was pretty unsympathetic: "Why don't you just work it out again, right this time?" and that, of course, did not help my spirits. I explained that I did not have time to rework the algebra. His response: "Just ask ChatGPT to do it for you."

This was shocking to me! Why would I ask ChatGPT to do something that I definitely could do myself?!? Except, of course, that I had already spent a good chunk of an hour working out the math and really needed to get this assignment written up so that my student worker could actually photocopy it during his shift.

So I asked my student worker to put my color-defining code into ChatGPT and get this sorted for me. Sheesh. I have my pride, afterall, and he's the one who thinks ChatGPT can solve any problem. (This is despite me demonstrating several times that ChatGPT cannot do math with big numbers, even simple math.) And I can proudly say that ChatGPT did not accomplish what I envisoned, either. ChatGPT *was* able to turn my unwanted green into a lovely yellow, but the hard jump in green two-thirds of the way through the image was just not ok.

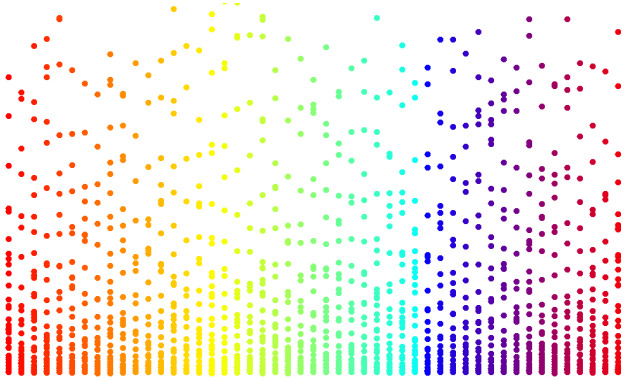
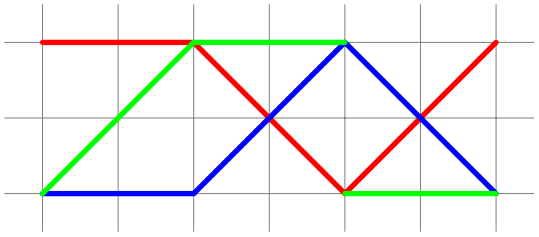


Image produced by an edited version of Abstract Gradient, ChatGPT was supposed to rescue me from a colorful dilemma.

```
double currentDistance = (double)col/ (double)nrOfCols;
int r = 0;
int g = 0;
int b = 0;
if (currentDistance < (1.0/3)) {
// Adjust this to ensure proper red + green mix
// for yellow
    r = 255;
    g = (int) ((3 * currentDistance) * 255);
    b = 0;
} else if (currentDistance >= (1.0/3) && currentDistance < (2.0/3)) {
    r = (int) ((-3 * currentDistance + 2) * 255);
    g = 255;
    b = (int) ((3 * currentDistance - 1) * 255);
} else {
    r = (int) ((3 * currentDistance - 2) * 255);
    g = 0;
    b = (int) ((-3 * currentDistance + 3) * 255);
}
```



And what was worse, I was just frozen in a jumble of ideas and couldn't exactly figure out how to fix this. Should green go from max power of 255 down to 0, following the same slope as the red? Should we max out green until 2/3 of the way through the middle third (now we have sixths?!?) and then cut down to 0 at about 1/3 of the way through the last third? Should we just break down and quit again??

While I was having kittens over what to edit to make the result more rainbow-like and less cliff-at-cyan-like, my student worker turned back to ChatGPT and edited his prompt. The result was, well, fine — it was the close to where my jumbled brain was heading, at least, and mostly looked rainbow enough.

Why is this result just *fine*? I want a deep blue, not a soft blue/purple, for the blue-only area. I want to have a pretty classic purple, not a purpley-red-pink color at the end. This is just not what I envisioned.

However, the result was rainbow-enough that I decided it was time to move forward — I wrapped up the assignment and tasked my student worker with making photocopies.

Not before I realized, if I was dissatisfied then my students would be, too. And maybe, just maybe, the better solution was not to ask ChatGPT to fix my rainbow problem but to ask my students what their vision would be for coloring this image. So a separate part of the assignment gave the students license to develop their *own* color scheme for *Abstract Gradient*. The task specifically said, "come up with your own color effect" but, the students didn't limit themselves to playing with color.

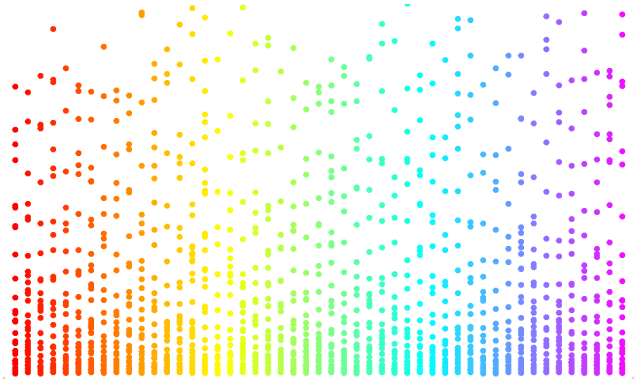
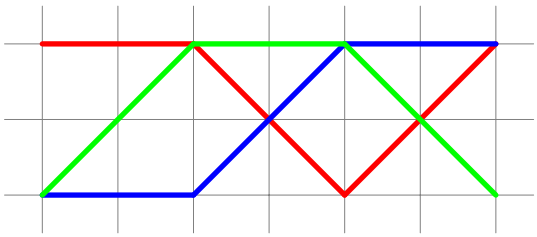
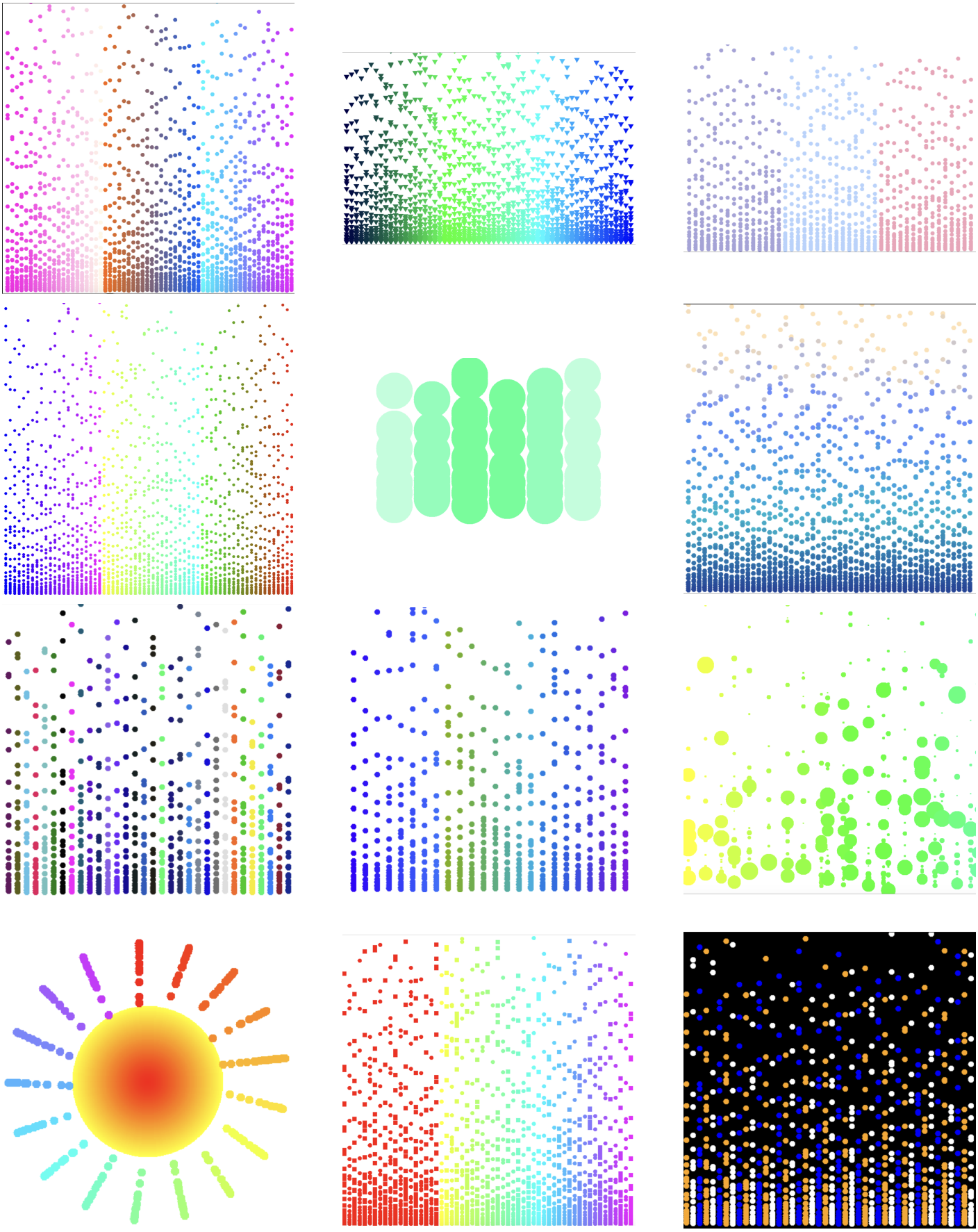


Image produced by an edited version of Abstract Gradient, where ChatGPT did rescue me from brain freeze.



Ultimately, what cheered me up most during an emotionally trying time was not devising a colorful rainbow scheme — though that let me sink my mind into a do-able, just satisfying enough problem — but the creative license that students took with that *Abstract Gradient* program. And while some students didn't really stick to *my* game plan, their work was creative and beautiful, and reminded me that there can be moments of inspiration in the middle of difficult intervals of life.



and only about 50-ish more!