

GRIT: A student-lead effort to enhance diversity, inclusion, and equity in Chemistry and Beyond

By Sheila Evans

The Graduate Recruitment Initiative Team (GRIT) is a student organization working to increase the recruitment and retention of students from marginalized backgrounds. GRIT started as a grassroots student organization in the Biological Sciences Division over the 2016-2017 academic year to recruit underrepresented minorities (URMs) to STEM graduate programs. Since its inception, GRIT has expanded across the Pritzker School of Molecular Engineering and the Physical Sciences Division.

GRIT is exclusively led by people from underrepresented groups and focuses on three central components: recruitment, retention, and sustainability. GRIT tries to center identities often left out of current equity, diversity, and inclusion efforts – including race, disability, economic background, and the compounding impact of existing along multiple axes of marginalization. Jake Higgins is a Chemistry Graduate student and was formerly the Co-Director for recruitment. “GRIT’s involvement in PSD is fairly new. We tried to take what worked for the Biological Sciences Division and adapt it for our climate,” said Higgins.

A large part of the effort to recruit people from underrepresented backgrounds, particularly URM students, includes traveling to diversity conferences and speaking with prospective students. GRIT then works to connect prospective students with current grad students or faculty with relevant research interests. GRIT members also provide application assistance and connect prospective students from underrepresented backgrounds with other resources on campus.

The retention branch of GRIT puts on events throughout the academic year. The events can range from a workshop for women of color in STEM to a “Big Gay BBQ” for scientists in the Lesbian, Gay, Bisexual, Transgender and Queer community. “One of the best things about GRIT is that it spans over 20 departments, so you can make community connections across the University,” said Higgins.

GRIT has made an impact in Higgins’ own life, “I was able to find a queer community through GRIT. I met other scientists who are also queer because, despite what a lot of normative cultural values in STEM say, those two things don’t have to be separate.”

GRIT is active with Departmental leadership in advocating for faculty education on underrepresentation in STEM, creating more checkpoints for students, and making an effort to hire diverse candidates.

“GRIT is a real driving force for change and betterment in our department. As in scientific research, the students are often the thought leaders in plotting out a course and coming up with creative solutions,” said Prof. John Anderson, “I’ve been fortunate to work with GRIT and to benefit from their drive and commitment.”

“I’ve made lots of good friends being involved in GRIT. I’m very proud of the impact we have made both culturally and structurally,” said Higgins, “Being a part of this team has made me a braver and more creative scientist.”

Students from all backgrounds are welcome to attend GRIT events or join the team. For more information about GRIT’s ongoing efforts, you can follow GRIT on Twitter/Instagram (@ucgrit) or visit their website (grit.uchicago.edu).

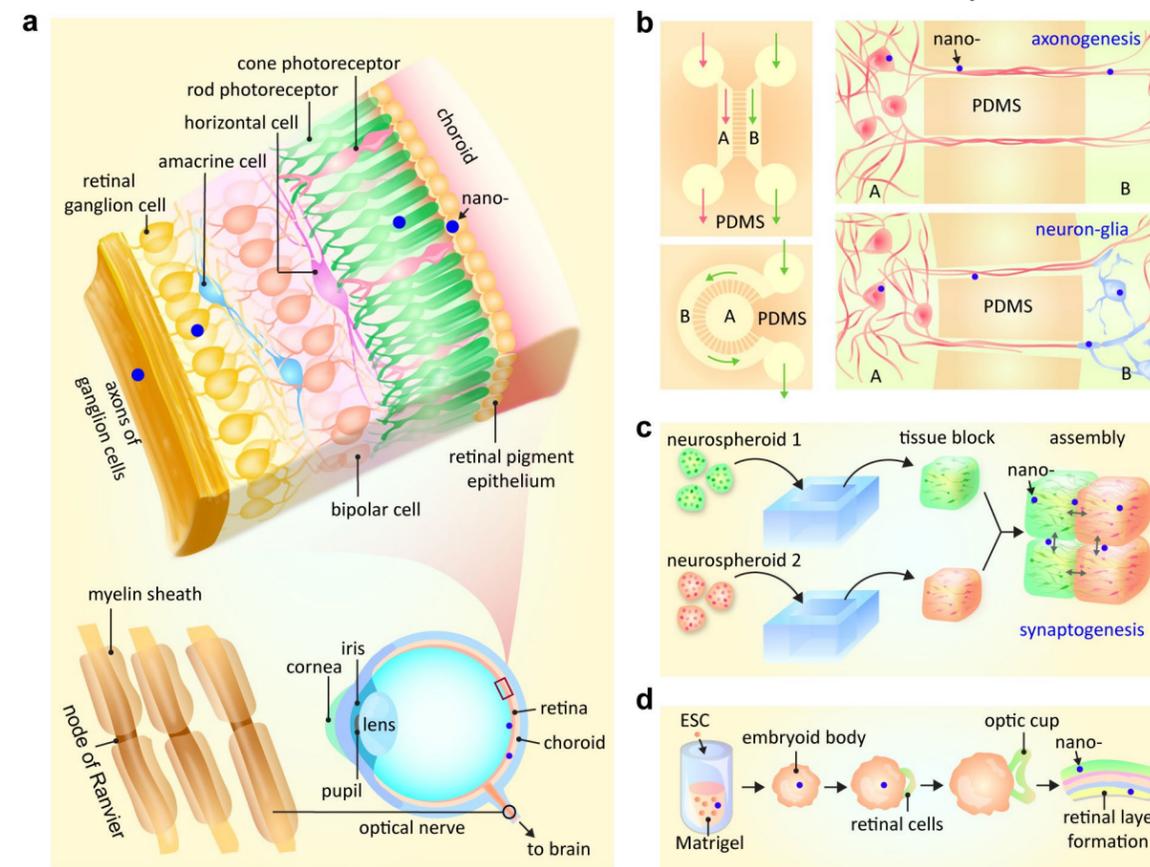


Figure 1: Schematic diagrams (a-d) used for the review paper “An atlas of nano-enabled neural interfaces”.

The Art & Science of the Bozhi Tian Lab

How did you find out you enjoyed art?

My dad is an artist and does calligraphy. My Grandfather was also an artist and created paintings. I started doing calligraphy at 3 years old and by 6 years old I did more painting and drawing, eventually getting an art tutor to get formal training. In retrospect, these are the fondest memories of my childhood. Later on, I focused more on science and core studies. I still kept up with art as my hobby to help me relax and gives me inspiration I could use in science. My first time joining a research lab, I worked with materials with nanopores. These were highly ordered, very pretty self-assembled cubic or hexagonal structures. Appreciating the beauty of those nanoscale architectures helped me fall in love with science.

You use art to tell a story, do you feel like art in a research paper can do the same?

For many of my research papers, I draw the figures. For instance, for “An atlas of nano-enabled neural interfaces” published in *Nature Nanotechnology*, I spent more than 150 hours just creating the figures. I hoped to use limited figures to deliver a large amount of information about the application of nanotechnology in neural science (Figure 1). That was a strenuous time in my career and while it took a lot of time, it brought back those sweet childhood memories and boosted my mood. I also co-designed a cover for the Chemical Society Reviews with my other lab members. In this composite image (Figure 2), entitled “Dawn at the bioelectronic interface”, there are many elements of exploration and positivity. Researchers have to be exploratory and bold to seek challenges and new opportunities.

What do you think activities such as a painting or pottery party do for your lab group? Do you think it’s just fun bonding or does it go beyond that?

Bonding with one another is the primary goal. We want people to feel supported and let members know that life isn’t *just* about doing research. Many of my lab members have artistic endeavors and I encourage them. I don’t see it as a distraction, it is good to have relaxation, it’s not just art

The Art & Science of the Bozhi Tian Lab (Continued)

Figure 2: The cover design used for the review paper "Recent advances in bioelectronics chemistry". The vertical projection of the bioelectronic grids (foreground) and the masts (background) imply an upward progression of the field.



and it's not just science. I treat my lab group as my family so I care not only about their career development but also their mental and emotional well-being.

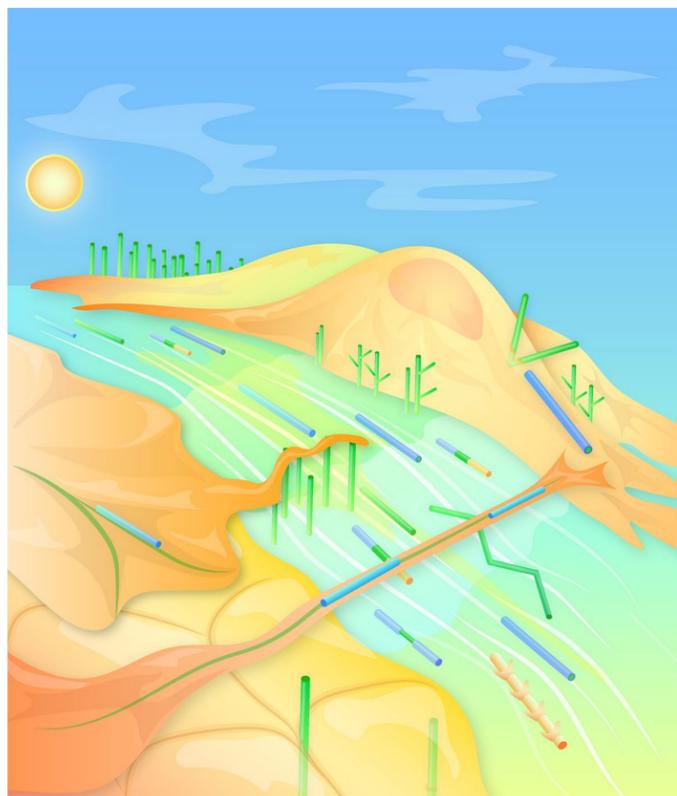
People tend to see art and science as two different and distinct things, do you think doing art or pursuing creative hobbies makes you a better scientist? Or does being a scientist make you a better artist?

As a scientist, the most important thing is to be innovative and imaginative and artists are all about that. I didn't know the scientific meaning of self-assembled cubic structures at first but it struck me visually. Art gives us the motivation to want to understand more. When I do a presentation or research paper writing, I think about approaching it through an artistic perspective. A research paper is two-dimensional, trying to describe science in motion. I think about how movies try to convey motion. I write my papers thinking about highlighting and zooming in and out like a movie. Or, I think about it like music with low pitches and high pitches. My dream is presenting science in a manner like presenting a movie.

Do you have any artistic inspirations or artists that you enjoy?

I enjoy many artists from China and traditional Chinese art. Eastern art contains many emotions that are kind of sealed somehow and I felt

Figure 3: The cover design used for the review paper "Nanowired bioelectric interfaces"



this resonated with my personality. To have strong emotions but not let them show. For a similar reason, I enjoy literary films more than commercial ones.

How would you describe your art?

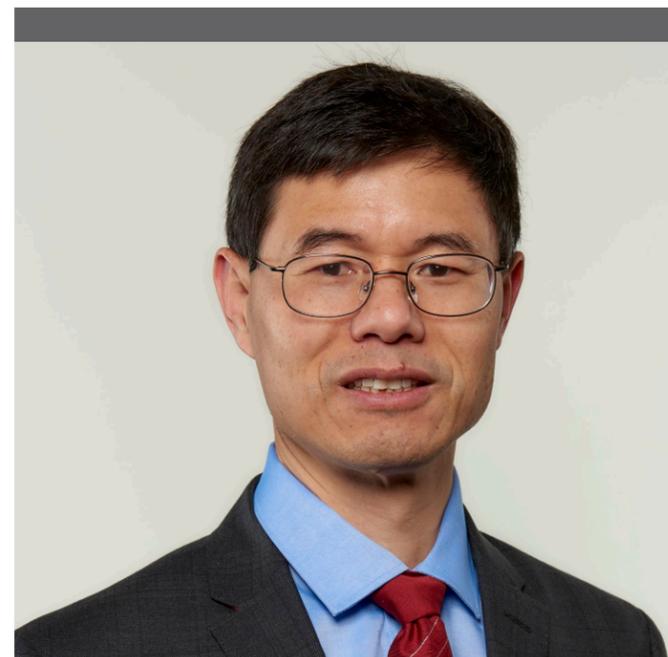
My primary interest is in painting, and in recent years, I started to do digital art as that takes much less time to create. Teaching and research take a lot of my time already, so digital art can be helpful. Colors are the essential component in these digital art pieces, as they express the emotions in the pictures. I hope to use each picture to tell a different story such as the evolution of the research about nanoscale wired-up cellular interfaces (Figure 3), in a way that is shown in the photographs. Many of these digital art pieces are composite photographs. Some are shown under the "Gallery" in my group webpage (tianlab.uchicago.edu/gallery).

Do you participate in showcasing the arts in the wider UChicago community?

I plan to have more involvement in the UChicago Arts community in the near future. This past year has been transformative to me through many changes. I find value in this time as an opportunity for reflection and have been able to practice art regularly.

Wenbin Lin Feature: Using Science to Address Societal Issues

By Sheila Evans



in seawater, we could have nuclear power for several thousand years. If uranium can be extracted from seawater, we would give us some time to transition into totally renewable energy sources.

At the end of the day, we need a measure of success for research and societal problems provide a real way to measure. Real science is more complex than a single research paper and needs a real demonstration of purpose.

Is there a particular reason that you choose to work at the University of Chicago?

I moved here 8 years ago, it was a great opportunity with a great Department with a great history. I was able to switch my research direction into something I think is much more urgent and solvable. In the process, I transformed myself from a card-carrying inorganic chemist into an expert in radiation oncology and tumor immunology. The biggest difference in coming to UChicago is it's a very integrated campus for interdisciplinary research. The environment creates a lot of intellectual engagement with people across campus.

Do you have any specific achievements that you are particularly proud of?

I'm very proud of our work on developing innovative nanomedicines for cancer therapy. We have discovered two entirely different technology platforms and by working with people in my startup company, we have already translated four candidates into human trials. I helped raise funds to pay for preclinical development and clinical trials that are testing if the interventions would help cancer patients.

If you could wave a magic wand and change something about the scientific community or our understanding of science what would you do?

I think the US scientific establishment is working pretty well and people have good intentions in doing science. I would like to see increased diversity and different ways of thinking in the lab. Personally, I couldn't have dreamed of a better outcome after my 32 years in a foreign country.

How did you originally get interested in science?

To be frank, in the area in China I grew up in, pursuing science is a way out of poverty. I knew I liked Chemistry but I didn't know which kind. There were two chemistry departments, applied and modern, in the college I attended. I chose modern over applied and studied chemical physics in undergrad.

What aspects of your education or early career lead you to where you are today?

I conducted undergraduate research in inorganic chemistry and fell in love with the subject. At that time in China, there were very modest resources for this type of research. But, this taught me to be resourceful and is still a useful attribute of my research today in trying to get more out of less.

Do you have a certain philosophy about research or a particular approach?

My approach in applied science is using chemistry as a tool to solve problems that are important to society.

It's really interesting that the work your group does usually seeks to address societal issues. Can you give an example of one of these projects?

One of the projects in my lab involves designing porous materials for uranium extraction from seawater since 99% of terrestrial uranium is in seawater. With the uranium in the earth's crust, we can power nuclear energy for less than 100 years but with the amount of uranium