For Transgender Day of Visibility (TDoV), we highlight six trans or gender non-conforming individuals working in STEM. They tell us about their work, the motivations that drive them, how who they are influences what they do, and why representation matters.

**The value of transgender perspectives in STEM**
**Samuel Krall (he/him)**

I am currently in my third year as an undergraduate student, studying and doing research in molecular and systems biology. I have advocated for queer rights and been out as a transgender man for 6 years now.

STEM fields, even when presenting themselves as objective, often have an embarrassing blind spot when it comes to trans people.

In my first research internship, we studied cardiac gene expression datasets divided by “sex.” While I believe that this type of research can be valuable, it felt weird to see that I did not accurately fall into either of the two apparently self-explanatory and all-encompassing sex categories. One option that would have made that research more inclusive would have been to offer a short explanation of how the dataset defined sex categories (chromosomal, hormone levels, self-identification, etc.) or replacing them altogether. That would also have made the data more accurate, universal and reproducible. As an intern and the only trans student in my faculty at the time, it felt too awkward and self-involved to advocate for these changes.

Seeing any but especially more scientifically accomplished people openly and proudly trans and dealing with similar issues gave me the confidence to be visibly trans and speak up. Trans visibility and sharing our perspectives will result in more accurate research and fewer blind spots, which will ultimately benefit not only trans people, but also society at large.

**Examining bacterial decision making and my gender identity**
**Patrick McLaughlin (they/them)**

I have always been fascinated with the ability of microbes to process information in order to “make decisions.” When I began my postdoc in 2019, I decided to study how transcriptional and signaling networks influence cellular decision making in the bacterium *Caulobacter crescentus*. In particular, my project is focused on understanding how *C. crescentus* “decides” if it should adhere to a surface or not. To this end, I have been characterizing the structure of a multi-protein signaling complex that promotes adhesion. Additionally, I have been mapping out a network of transcription factors that is regulated by this signaling complex to understand how the network architecture influences the regulation of this behavior.

I came out as a trans non-binary person in March 2020 amidst the pandemic. For a long time, I didn’t really know who I was; I just knew that I was different from the people around me. What was really instrumental in starting me on my journey of self-realization was hearing and seeing another trans person. For me, this person was a trans chemist. Connecting with someone that I could identify with on both a personal and a professional level helped me to understand myself better. This is why representation for trans and gender nonconforming people in STEM has become so important to me. I hope that by embracing my identity and making myself visible, I can help someone else in the same way that others helped me.
Science as a source of agency
Andy Anderson (they/them)
Science appeals to me as an avenue for unraveling the natural world’s daunting mysteries. Taking an active role in scientific investigation is especially empowering in biomedical sciences; when we can understand the inner workings of our own bodies, we can rely on that knowledge when beset by disease. My PhD thesis work focuses on pancreatic beta cell replication in the context of diabetes, a chronic disease that affects hundreds of millions of people. My work lies in the identification of the molecular regulators of beta cell expansion, knowledge of which could lead to more effective diabetes treatments.

The agency conferred to us through understanding our bodies at the molecular level should be accessible to everyone. Transgender and non-binary people are underrepresented in biomedical research, both as investigators and study participants, and this has resulted in gaps in our scientific and medical knowledge. As a non-binary scientist, it is my privilege and responsibility to offer important unconventional perspectives on biology and disease, helping to identify outdated assumptions regarding sex and gender that often undermine the applicability of research in the field.

Disease affects us all, and biomedical science wards against feeling helpless when our bodies fail. The trans and non-binary populations deserve the reassurance afforded by knowing biomedical research has been designed with people like themselves in mind. Promoting inclusion of these identities in STEM is an essential step toward this goal.

Trans representation in software development
Julia Eskew (she/her)
In software development, one can work on a variety of applications across numerous fields. In my software career, I’ve helped develop video games, battlefield simulations, telephone switching equipment, and fair card deck deals for Solitaire games. I currently help develop and maintain an online educational platform reaching millions of people around the world. How I spend my day depends on my current task. I might be writing Python or Javascript code, reviewing the code contributions of others, designing a new functional piece of the platform with my team, documenting a technical decision or how some area of the code works, or debugging a current issue with our website. Women have constituted a small minority of the total number of software developers in every company at which I’ve worked, though I’ve worked with some exceptionally skilled women. I am a transgender woman, so I’m a sub-group of that minority. As a member of an under-represented group, it’s important that my career and my contributions are visible to others. Seeing me succeed as a software developer encourages others like me to pursue a software career and that boosts representation. Also, my visibility demonstrates to the highly represented cisgender majority of my co-workers that gender isn’t a relevant factor to whether one can develop software and that diverse development teams deliver better products.
Research for a community
Krisha Aghi (she/her)

I started my neuroscience journey investigating the projections within the entorhinal cortex and their contributions to contextual memory under the direction of Dr. Rebecca Burwell. My graduate work in the lab of Dr. Ehud Isacoff focuses on spatiotemporal modulation of synaptic release at the fruit fly neuromuscular junction.

I am fascinated by the ways in which my transition, a period representing a third of my life, dramatically altered my own cognitive abilities and physiology. Thus, I am moving into the field of neuroendocrinology for my postdoc. I hope to understand how multiple neural pathways are shaped under fluctuations in estrogen and apply this knowledge to better hormone replacement therapy. This direction is one that aligns most closely with the vision I have of a discipline that can and should be viewed through the experiential lens of trans people. Anti-trans proponents continue to question our humanity, and we deserve to have a hand in the science that they too often misuse to wield clumsy anti-trans arguments against us. My love for neuroscience mirrors my love for my Black and Brown trans siblings who are a part of my community, and I intend to bring our experiences to the forefront when pursuing fundamental research in the life sciences.

Trans perspectives are needed in reproductive fields
Tegan Horan (she/her)

I was attending a sex determination conference when the question “how should we define sex?” came up for discussion. The intense politicization of this question has become a wedge issue in the US, with a staggering number of anti-transgender legislation proposed over the last year. As scientists, we have a powerful influence on how these issues are framed in public discourse and policy decisions. At the meeting, a male principal investigator suggested sex be defined in terms of gamete production, only for another attendee to stress the obvious: such a definition erases anyone incapable of making gametes, including menopausal individuals. I suggested an adherence to a singular definition couched in a binary distinction was getting in the way of more productive conversation. A fish researcher voiced agreement: she had presented earlier on sexual transdifferentiation of the germline.

Most of my research has focused on meiosis: my PhD was on the effects of environmental estrogenic exposures on spermatogenesis, and as a postdoc I research DNA damage repair in oocytes and spermatocytes. I used to think there was something cruelly ironic about being a queer, trans woman studying gametogenesis. However, I cannot think of a better field in which to be openly trans than reproductive biology. My gender gives me a distinct and critical perspective on the multifaceted nature of sex. We are living in the post “trans tipping point” era; it is more important than ever that trans scientists play active roles in shaping inclusive futures for their fields.