

# Diversity statement

In today's dialogues on diversity, equity, and inclusion (DEI), the interplay between learned knowledge and lived experience is often overlooked. Institutions often rely on those with formal DEI credentials yet fail to engage the individuals whose everyday realities are most directly impacted by the issues under discussion. This dynamic can leave people with the deepest insights feeling sidelined as if their real-world perspectives carry less weight than theoretical expertise. At the heart of this discrepancy lies the difference between passive allyship and active advocacy: one quietly endorses change, while the other takes tangible steps to bring it about. By proactively inviting the voices of those who have experienced discrimination firsthand, we move from superficial gestures to authentic transformation. This conviction guides my understanding of inclusive education, which should be a space shaped by a conscious commitment to sharing, hearing, and integrating diverse narratives from the outset.

## Personal and academic background

Teaching is more than a professional career for me—it is a deeply personal mission inspired by my grandfather, Joe Maldonado, whose story embodies resilience and the transformative power of education. Born into a life of hardship in Dimmitt, Texas, he left school after the 7th grade to work as a migrant laborer. Driven by the hope for a brighter future and better job opportunities, he relocated our family to Michigan. Despite these strides, economic stability remained elusive, compelling him to attend night classes and earn his GED while working at the General Motors factory. Through sheer determination, he advanced to become an engineer, almost lifting our family out of poverty before pancreatic cancer cut his life short when my father was 21.

My grandfather's sacrifices and grit left a profound legacy, inspiring my father and me. My father, who worked blue-collar jobs and navigated economic uncertainty, instilled in me the value of education as a pathway to a better life. While my mother attended college for social psychology, she struggled to use her degree, reinforcing the importance of persistence and purpose in higher education. As the first in my family to pursue a STEM career and earn a graduate degree, I feel deeply responsible for creating opportunities for students from historically underrepresented backgrounds. His story reminds me that education is far more than acquiring job skills; it can potentially transform entire families and communities.

My upbringing also shaped my commitment to fostering a sense of inclusion and equity. When I was growing up, our Hispanic family was seen as a disruption in a predominantly homogenous community. Although I understood that diversity is about more than simply who occupies a space, it also became clear that how a community receives different identities matters just as profoundly. The feeling of alienation faded when I began my undergraduate studies at Western Michigan University (WMU). Encountering classmates from a spectrum of racial, cultural, and socioeconomic backgrounds taught me that unique perspectives, far from being disruptive, enrich our broader community.

This new mindset carried over when I started graduate school at the University of Pittsburgh, where I had to rebuild my support network from scratch. The STRIVE (Success, Transition, Representation, Innovation, Vision, and Education) fellowship proved invaluable. It offered resources and connections beyond the traditional advisor-advisee relationship and culminated in an annual retreat that welcomed students, faculty, and administrators as equals. Those experiences reinforced my desire to pay it forward, particularly to first-generation and international students, by demystifying research, paperwork, and academic expectations.

While I have benefited from assistance programs due to my underrepresented identities and the obstacles I have faced (including poverty, housing instability, and personal hardships), I recognize that many individuals with equally significant hardships may not meet the formal criteria for support. This experience has underscored the limitations of standardized approaches to assessing need. Although my family initially faced significant financial challenges, we achieved some stability by the time I was preparing to apply for college. However, this newfound stability disqualified me from federal grants, leaving me to shoulder the financial burden of my education. To make ends meet while pursuing my chemical engineering degree, I worked full-time, juggling weekend 4 a.m. shifts as an ice rink assistant, delivery driver, and stocker. Balancing these demanding jobs often left me fighting exhaustion as I strove to keep up academically.

Much of this struggle stemmed from a lack of cultural capital—my family simply did not know how to navigate the complexities of college life. Over time, I have understood that cultural capital is not solely about socioeconomic status or race but about access to knowledge, networks, and resources. Drawing on my own experiences, I am deeply committed to supporting students who face similar challenges in navigating higher education. My goal is to identify and address systemic barriers, creating a more equitable academic environment where every student, regardless of their background, has the opportunity to succeed. As an educator, I view my role as a chance to help students unlock doors they may have thought were out of reach. By fostering an environment rooted in empathy, accessibility, and respect for diverse lived experiences, I aim to equip students with the tools and confidence they need to shape their futures.

## **Outreach and Investing Now**

My involvement with Investing Now, a college preparatory program targeting underrepresented groups in STEM, emerged from a connection I formed at STRIVE's retreat. Dr. Alaine Allen, now the Associate Dean for Diversity, Equity, and Inclusion at Carnegie Mellon University, invited me to design and teach a short course on energy and sustainability for incoming high school juniors. Through hands-on labs and interactive lessons, I strove to create a safe environment where all students felt encouraged to question and explore.

One pivotal moment came when I lectured on equitable access to clean water, using the Flint water crisis in my home state as a case study. Rather than ending with just one city's story, I extended the discussion to Pittsburgh's ongoing efforts to address lead in drinking water. This sparked an enthusiastic debate about public policy, environmental justice, and potential career paths in science

and engineering. By helping students see how global crises can reflect local struggles, I aimed to show them that they, too, could contribute to vital solutions.

Investing Now also taught me the importance of accessible pedagogy. I discovered that one particular student, Eugene, struggled to engage until we reached the electromagnetic spectrum. When he asked, “Are gamma rays the same thing that turned Bruce Banner into the Hulk?” I realized the power of leveraging his interest in Marvel comics to keep him engaged, and excitedly said, “Yes!”. This moment reminded me that students’ passions, no matter how seemingly off-topic, can be the key to unlocking their potential.

Sadly, Investing Now initially lost its funding and ceased operations; however, the program has recently been revitalized under the Provost’s office, and I was fortunate to participate again—this time as a postdoctoral associate in a new capacity. I served on a panel about graduate school and co- led a hands-on demonstration on protein structure and crystallization with Sanika Ambre (a graduate student from Dr. Andrea Berman’s lab). One student, seemingly disinterested initially, revealed his true passion was art and graphic design. I explained how scientific visualization is vital to our work and showed him some of my illustrations. He lit up upon realizing there was a place in science for his artistic skills, asking probing questions about how visualization helps communicate and advance research. Witnessing his transformation reminded me why I am dedicated to programs like Investing Now: they broaden participation in STEM and illuminate surprising paths for students whose unique passions can drive innovation and discovery.

## **Classroom practices**

Over time, I have seen that nurturing individual identities, fostering open dialogue, centering diverse examples, and emphasizing accessibility are critical in creating a classroom culture where students feel respected, valued, and eager to participate. This conviction stems from my background of growing up an outsider throughout my education. Those formative experiences taught me the importance of building an academic atmosphere that acknowledges and integrates all identities rather than treating them as peripheral or unwelcome. I strive to achieve this by being intentional about curriculum design, discussion formats, and the real-world issues we tackle as a class.

This commitment includes fostering open dialogue by actively using interactive tools that empower students who might otherwise hesitate to voice their questions or concerns. For example, anonymous Top Hat discussions can lower the stakes for students unsure if they “fit in” or if their questions merit being asked aloud. This is especially effective when I share my own journey, including anecdotes about academic hiccups, poor test taking, and changing interests, because it helps me connect with students on a human level. Such transparency reinforces the notion that education is a collaborative process and encourages students to participate more freely. By modeling vulnerability, I show students that missteps are normal and curiosity is welcome, regardless of how trivial they perceive their queries to be.

Moreover, I emphasize centering diverse examples so students can recognize science and engineering as universal pursuits that transcend geography or demographic boundaries. Whether teaching computational biology or sustainable energy concepts, I integrate case studies illuminating marginalized populations' challenges. One example involves studying antibiotic resistance in underserved communities to highlight the tangible impact of scientific interventions on public health and social equity. This underscores the significance of the subject matter and encourages students to see themselves as contributors to positive change, regardless of where they or their communities come from.

Finally, I make accessibility a key priority in every course I teach. I keenly know that students do not enter the classroom with the same financial resources or technological capabilities, so I incorporate user-friendly, low-cost platforms like Galaxy and Google Colab to run computing tasks. I remove barriers that keep students from fully engaging in computational work by employing hardware-agnostic tools. I also freely release my lectures, class notes, software, and data on my website to further democratize knowledge. Ultimately, students can channel their full intellectual and creative potential with equitable access to the materials and tools needed for success. This teaching approach—rooted in inclusion, dialogue, example-based learning, and open access—helps ensure that every student has the chance to flourish academically and personally.

## **Mentorship**

Mentorship has been a guiding force throughout my academic journey, shaping my personal growth and my approach to teaching. Early in my graduate career, the STRIVE fellowship illuminated how essential it is to find mentors beyond the traditional advisor-advisee model. That sense of community, built on multiple layers of support from fellow students and faculty alike, allowed me to see the true value of mentorship as a collaborative process rather than a narrow hierarchy. By observing how these various mentors freely shared their wisdom and resources, I realized that mentorship could genuinely transform the academic experience—especially for those who might feel disadvantaged or marginalized due to limited cultural or institutional capital.

Ever since, I have taken deliberate steps to become a trusted guide for others, aware that students and junior researchers often face intangible barriers when seeking opportunities. My involvement in mentorship includes connecting these individuals with research positions closely aligned to their aspirations and sometimes advocating for their inclusion in competitive programs they might not initially realize are within their reach. To reduce the mentorship burden on busy labs, I regularly offer my own co-mentorship, devoting time to answering questions, reviewing drafts, and providing guidance on everyday research challenges. I have seen firsthand how even the smallest gesture (such as forwarding an email introduction or suggesting a key faculty member to contact) can unlock doors that would otherwise stay closed. These transformative moments reinforce my belief that an essential aspect of mentorship is helping mentees envision possibilities they may never have considered independently.

Another key aspect of my mentoring style involves offering targeted feedback on graduate and fellowship applications, conference presentations, and strategies to maintain mental well-being throughout the rigorous journey of academic research. Writing grants or preparing for a major conference can be daunting, especially for first-generation college students or those unfamiliar with the conventions of scholarly communication. I help demystify these processes by providing examples of successful proposals, conducting mock presentations, and sharing tips on effective slide design. More importantly, I remind mentees to prioritize self-care, understand that imposter syndrome is a common obstacle, and cultivate resilience through healthy coping strategies.

Reflecting on these experiences, I firmly believe mentorship is about consistent, empathetic engagement. It is not merely a transaction of advice but an ongoing dialogue that evolves as students move through different academic or professional stages. Whether they are drafting their first research proposal, juggling the demands of work and family, or pondering how to translate a niche interest into a broader career path, I aspire to be a mentor who listens deeply, offers tailored resources, and celebrates every small victory.

### **Lasting commitment**

I have witnessed firsthand how equitable access to resources and personalized support can change lives. By shaping my teaching around openness, empathy, and inclusive practices, I want to cultivate future generations of scientists, engineers, and leaders who value each other's varied identities and collective strengths. Ultimately, my goal is to help create a culture—both in and out of the classroom—where everyone feels they belong, where their stories are seen as assets, and where they can achieve their full potential without the weight of systemic barriers. I am committed to continuing this journey by learning from my students, expanding my DEI initiatives, and contributing to a more inclusive and accessible academic community.