

I Am a Black Mathematician¹

John Urschel

I am an outlier. And in my opinion, it has nothing to do with what I have done as an athlete.

I am a black mathematician.

I am an African-American male raised by a single mother. Those facts make me an anomaly, statistically unlikely to love math, let alone to be a doctoral candidate at MIT.

My mother's parents were born and raised in the South, during a time when schools were segregated. My grandmother's classroom was one big room located in the basement of their church, led by a teacher who taught all grades. She only completed the eighth grade, because that was the highest level taught where she lived in South Carolina. My grandfather, as the oldest of his siblings, had to drop out of school to find work to help support his family in Alabama. He eventually got his high school diploma at the age of 25. They both left home and moved to the North, where they became blue-collar workers. Although they possessed only very basic educational skills, they believed that a better education was essential for their children.

My mother attended public schools where the goal was just to get by, not to expand a student's mind. Her high school had high dropout and teen pregnancy rates. Fortunately, her math teachers recognized that she had an unusual aptitude and placed her in classes above her grade level. By the time she entered her senior year, she had taken all of the available math classes her school had to offer. Her math teacher, Mr. Stern, took the initiative to enroll her in a college calculus class and arranged for the school to pay her tuition. She was valedictorian of her graduating class. Even so, her guidance counselor encouraged her to become a secretary. Instead of following a path in mathematics, she attended university and became a nurse. Still, her love of math never died.

When I was a young child, walking down the street or riding in the car, she and I would frequently play games. Every week, we had family night, where we would play board games. I thought we were just having fun. I never saw it as learning, but learning I was. My mom would buy me countless educational games and books along with whatever action figure was popular at the time. She gave me a balance of education, fun, and sports.

As early as the first grade, my mom was contacted by my teacher and informed that she believed I had problems "processing," which was a politically correct way of

John Urschel is a PhD student in mathematics at MIT. His email address is urschel@mit.edu.

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saying that I was unable to grasp the material. The teacher's suggestion was to test me so that they could place me in a class where the material was not so strenuous. As one of my biggest advocates, my mother agreed that I should be tested, because she had no doubt I knew the material. At home, I was an avid reader and devoured algebraic math books faster than my mom could get me new ones. After the teacher saw my result on the test, the teacher suggested that I be moved up a grade level. My mom said no. From her meetings, my mom believed that my teacher saw me as a child from a single-parent household and viewed my shyness as a sign that I was a typical minority child unable to keep up in a classroom setting. My mom withdrew me from the school and looked for educational environments that would not prejudge my abilities based on the color of my skin. She did not want me labeled as a "lesser-than."

In that respect she succeeded—so much so that I can say I have never in my life felt that the color of my skin has ever affected my math, nor how I have viewed myself as being perceived. In many ways, my experience and view of the world as an African-American is disjoint from my mother's. Where she sees racism, I often see fairness. Where I see a struggling student, she sees a minority who has been implicitly told their whole life that they are "lesser-than."

I sometimes struggle to reconcile my experience with her worldview—and also with the realities of the field. I know that the color of skin has nothing to do with the ability to do mathematics, and yet when I look at the top mathematics departments in the US, I cannot help but notice that many do not have a single African-American professor. Since it is ridiculous to think that all of the most brilliant mathematical minds born in the US are Caucasian, this leaves us with the sad truth that talented African-Americans are being left behind.

The optimist in me says that change has already occurred, and it will be more and more apparent as time goes on. But sometimes, I find too much truth in my mother's sentiments. Sometimes, I find myself meeting with young African-American would-be mathematicians, hearing them ask how I have managed to get to where I am, and watching them hold back tears when talking about being behind or feeling like they cannot succeed because they do not have the background that the "elite" young talent in their classes have had. It is a sobering experience, and I cannot help but feel a sense of privilege for being unable to relate to it personally.

As an outlier, I have a responsibility to set a good example for young people everywhere who have mathematical talent but may feel like they cannot succeed because they do not look like those who have succeeded before. I have a responsibility to succeed, not just for myself, but for my mother, my grandparents, and every minority who feels like the field is closed to them. I am all too aware that as a

mathematician, the color of my skin means both nothing and all too much.



John Urschel

Credits

Author photo is courtesy of John Urschel.

Othering and Such Climatic Joy Killers²

Arlie O. Petters

I remember being giddy with excitement to attend the welcoming reception for my entering class of math graduate students. I walked into the room and heads turned towards me. Feeling out of place, I walked over to two student-looking faces. One happened to be a fourth-year graduate math student and the other was a first-year like me. I introduced myself and, because I wanted a quick exit, I asked the more senior student how to get to the main math office. He told me that when I walked out the door, I should make a left, walk down the hallway, make another left, and it would be on my right. “Or, you could tie a rope to the ceiling and swing over to the other side,” he said with a mischievous grin. The first-year student turned red with embarrassment. It did not matter whether the senior student thought of me as a monkey in a tree, Tarzan, or something else; his decision to engage in an unnecessary framing that could provoke a negative stereotype was telling. I quickly responded, “I see that you’re going to be an asshole,” and I walked out of the room. Here I was, looking forward to being part of a new community of mathematicians and then being made to feel unwelcome at the onset.

I went directly to my apartment and started packing. My mind was racing and I was angry: “To hell with them. They turned around looking at me because I am a person of color. I am leaving this place. To hell with these people.” As

Arlie O. Petters is Benjamin Powell Professor of Mathematics and professor of physics and economics at Duke University. His email address is arlie.petters@duke.edu.

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I started calming down, a counterintuitive thought occurred to me: “What if the others in the room weren’t like him? What if they turned around and looked at me because they don’t often see someone like me in an entering class and were curious to get to know me? ... If I leave, this guy will win. I refuse to let him win.” My psychological bounce back was that he had brought the fight to me, and I refused to cower in fear or run away in anger. I had briefly allowed him to hijack and taint my perspective. And, even worse, by allowing him to make me angry, I had given him power over me in that moment. Never again. The emotional-intelligence battle was on. Would I have had such a fight-back spirit in the academic sphere if from pre-kindergarten my sense of self had been chipped away, bit by bit, by individual and institutional racism? I doubt it. Fortunately, I was raised until the age of 15 in Belize by a loving and resilient grandmother who strengthened me internally, fortifying my identity and allowing me to maintain its structural integrity in the face of undermining forces.

I was not naive about the epiphany that caused me to stay. My hypothesis that most people in the room were not like him needed to be tested. But I had enough internal energy and grit to hold on to it by blind faith in the short term. The energy sustained me through the long hours of hard work needed to perform very well on my homework sets. And the grit enabled me to bear the anxiety that maybe most people in the environment did not really care for my being there and did not think much of me intellectually. In my case, I was fortunate to discover with time that most of the people were not like that graduate student. I had a perceptive and supportive thesis advisor and a positive interaction with the majority of the other math and physics graduate students and faculty. That young man had acted as if he owned the place. To me, he had a warped sense of belonging and entitlement that made him feel confident enough to treat me in a demeaning way without consequences.

I wish I could tell you that my experience was an anomaly. Over the years I have mentored a host of underrepresented minority students and listened to their experiences. They range from regular racial micro-aggression, through “oppressive othering,” to more overt examples, like being the only one not invited to a bus outing organized by fellow math graduate students. A sense of belonging involves one’s personal belief that one is an accepted member of an academic community whose presence and contributions are valued. This is important not only for the mathematics community but also for education and our society at large. At the convocation for Duke’s entering 2017 undergraduate class, Stephen Nowicki emphasized to our students:

We only learn best from each other and teach each other well if we all feel like we belong. We can only achieve the excellence that lies in the potential of the different people and perspectives, the different