

(<https://medium.com/q-e-d/who-gets-to-be-called-a-mathematician-15f73f2d0e5d>, retrieved 6/20/2019)

Who Gets To Be Called A Mathematician?

Why I won't surrender my mathematical identity

Junaid Mubeen,¹ November 5, 2017

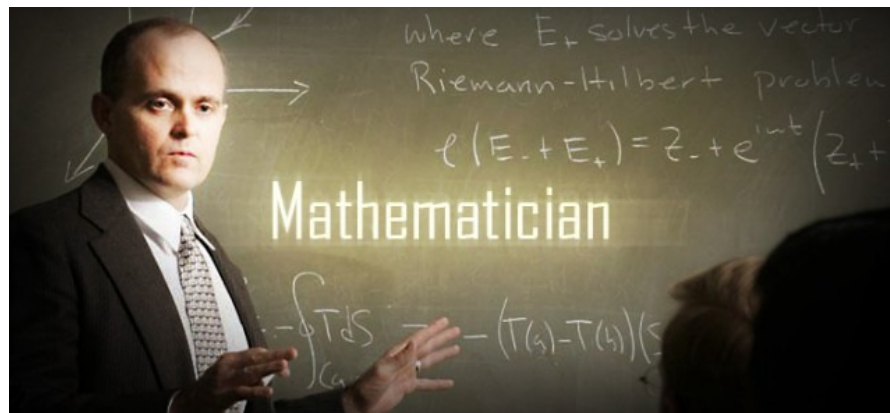
My name is Junaid Mubeen, and I am a recovering mathematician.

I usually pick up a few laughs—or at least a few groans—with this introduction. It is my light-hearted way of recognising that I no longer earn the stripes of a research mathematician. I am reluctant, however, to surrender the label of *mathematician* entirely. My mathematical training has shaped my identity and worldview. I take heart when friends and colleagues remark on my distinctly analytical mannerisms. It means they have connected with the essence of who I am and how I think.

My formal study of mathematics ceased in 2011 when I completed my doctorate. *Informally*, I have never stopped thinking and working through maths problems. Some are motivated by work, others by life, and most by nothing in particular. My main reason for pursuing maths is maths itself. The maths I partake in these days is largely recreational; I delight in the everyday puzzles and paradoxes that fill my bookshelf and social media feed. They are far removed from the obscure edges of research mathematics that I invested four years of my life in. Some people take offence at the suggestion that I still have mathematical blood in me. *He hasn't even got a postdoc*, they'll remark, *what the hell kind of mathematician is he, anyway?!*

For the purists, a mathematician is no more and no less than a creator of proofs; one only earns the accolade by architecting previously undiscovered proofs. A cursory look at the past and the future of mathematics reveals just how limiting this criterion is.

I look back with wonder at Ramanujan, the man who knew infinity, and so much more.² Ramanujan was a creator of mathematics like no other, deriving and extending the knowledge of his day with a primitive textbook his only aid. Some of his creations were new; others, it would turn out, were rediscoveries of truths known to his western contemporaries. Does that make Ramanujan part mathematician, part something else? Surely not; to Ramanujan every result was as inspired as the other, irrespective of whether folks across the globe had already developed their own solutions. Ramanujan was a mathematician whole.



That's not me, but I'll take the label (<http://weusemath.org/?career=mathematician>)

¹ I am a research mathematician turned educator working at the nexus of mathematics, education and innovation.

² <https://www.britannica.com/biography/Srinivasa-Ramanujan>

I look ahead with trepidation because the rigid requirement that mathematicians are those—and only those—who contribute new research does not bode well for humans. The computational proof of the *Four Color Theorem*³ was a watershed moment for mathematics, when we first glimpsed the boundary where human intuition ends and brute force computation takes over.

In mathematics, the promise (and hype) of Artificial Intelligence takes the form of *automated theorem provers*⁴ that may one day render humans redundant in the quest for mathematical discoveries. Maths is more complex and more abstract than ever; often to the point of alienating all but the patient few who can labour through hundreds of pages of tedium to extract the minutest of insights.⁵ Mathematical research may one day become a realm that humans witness from afar with barely a trace of understanding, never daring to venture to its cutting edge. If hype becomes reality, intelligent machines will emerge as the existential threat mathematicians never imagined they'd have to contend with.⁶

Should that day ever arrive, I hope I'm not around to witness it. Yet I would remain hopeful for my fellow humans, because mathematics need not be situated at the extremes of established knowledge. We can all revel in problems whose solutions are known. Even when humankind has exhausted its capacity to extend its collective knowledge base, as individuals our ignorance is what keeps our mathematical instincts aflame.

Problem solving lies between the boundaries of what we know and what we seek. This sweet spot is where we all—novices and experts alike—get to bend and twist what we know to forge new truths for ourselves. Who cares if our discoveries are already known to the rest of the world (or machines, for that matter)? The satisfaction of finding my own solution, of pushing through my own knowledge limits, is as enthralling as the pursuit of 'new' proofs promised by research mathematics. Let the machines come; mathematics does not belong to the omnipotent.

What kind of mathematician am I? The everyday kind, extending my own personal boundaries of knowledge, still addicted to the search for elegant solutions to intriguing problems. I hope that's something I never have to recover from.

³ https://www.maa.org/external_archive/devlin/devlin_01_05.html

⁴ <http://www.cs.miami.edu/~tptp/OverviewOfATP.html>

⁵ <http://www.nature.com/news/monumental-proof-to-torment-mathematicians-for-years-to-come-1.20342>

⁶ <https://www.newscientist.com/article/dn28065-our-numbers-up-machines-will-do-maths-well-never-understand/>