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We have focused this newsletter on the changing face of education and careers due to the advent of Artificial Intelligence (AI) tools. We ask the question - Do school, college and degrees matter anymore when you can learn pretty much anything using an AI tool as a patient tutor. This also begs the question: what do you really **learn** in a school or a college?

We offer perspectives from professionals at various stages of life: students currently pursuing their degree, and a professional who started his degree in Physics, ended up working in and even founding data science companies and, is currently a research scientist at a prestigious institute. His degree in Physics answers the question whether the basic degree matters.

We hope that these perspectives will help in making informed selection of college and program, as well as guidance in building your professional skills over the next few years!

We would like to point to a personal growth platform, **Welica**, that is built for the stage after you choose your career path and land in an institution. It helps you discover careers that fit who you are, then opens a personal preparation path into the role you choose: what to learn, what to practise, what to build and show, how to get in the door, and how the role is changing as AI reshapes work. 400+ roles. A personal path for each. Alongside, structured life skills courses and daily wellbeing check-ins give you the skills and steadiness to see it through.

Explore Welica at <https://welica.app>

Beyond the Degree: A Journey from Physics to AI Research

An Interview with N Raja, Research Scientist at IIT Madras

This interview was conducted by allcareerguru (ACG) to inspire students by exploring the non-linear career path of N. Raja, a data scientist who transitioned from a basic physics degree to leading data science teams and eventually conducting AI research at one of India's premier institutions.



Every year, thousands of students ask the same question: *How do I become a data scientist?* Many believe the answer lies in choosing the "right" degree, graduating from a prestigious institution, or learning the latest programming language.

N. Raja's journey tells a very different story.

He began with a B.Sc. in Physics from a modest college in Madurai. He briefly pursued a master's degree at IIT Guwahati, switched to an MBA, entered industry through digital marketing, transitioned internally into data science, built expertise through relentless self-learning, started his own data science consulting company, led AI and analytics teams in industry, and today works as a Research Scientist in the AI Department at IIT Madras.

His story is not really about data science. It is about curiosity, resilience, and the willingness to keep learning throughout one's career.

In this conversation with **AllCareerGuru (ACG)**, Raja reflects on the decisions that shaped his journey and shares lessons that every student can benefit from.

The Foundation: Choosing Passion Over Prestige

ACG: Let's start with your final year of school. What were your interests back then, and how did you choose your college?

Raja: After grade 12, I was torn between mathematics and physics. I felt more inclined toward physics because it brought mathematical equations to life. I chose to pursue a B.Sc. in Physics, a subject I had loved since my high school days.

ACG: Was engineering not on your radar? It also offers a lot of math and practical applications.

Raja: At the time, I wasn't focused on high scores needed for engineering entrance exams. More importantly, engineering education was expensive. Unless you secured a seat in a government college, it was financially out of reach for my family.

ACG: So you ended up at Yadava College, affiliated with Madurai Kamaraj University. Did you ever regret that decision?

Raja: Not at all!. While the college environment wasn't highly academic—most students were just there for the degree—it had an excellent library. I realized early on that I wouldn't learn much from the standard classroom training, so I turned to self-study. I spent my time in the library solving problems from standard textbooks to prepare for postgraduate entrance exams at the IITs.

ACG: That sounds like a lonely path. Did you have a peer group to support you?

Raja: Hardly. In these kinds of colleges, finding a motivated peer group is a challenge. But the library was my sanctuary. Back then, we didn't have the internet or personal computers, so books were everything. In Tamil Nadu colleges at the time, physics was often taught descriptively—memorizing how a nuclear reactor works rather than solving the underlying physics problems. I knew that wouldn't be enough for entrance exams, so I pushed myself to master the mathematical side of physics independently.

The Pivot: From Physics to an MBA

ACG: What happened after your B.Sc.?

Raja: I discovered the JAM (Joint Admission test for Masters). In 2005, I secured a seat at IIT Guwahati for an M.Sc. in Physics. However, within six months, I realized that my family's financial situation required me to get into the workforce quickly. I wasn't interested in pursuing a PhD or a long-term research career in physics at that time.

ACG: That's a big shift. How did you transition from pure science to the corporate world?

Raja: I realized an MBA was the fastest "cash machine" to a job. Because of my strong foundation in math and logic from physics, I excelled at entrance exams. I secured a state rank of 87 in the Tamil Nadu MBA entrance exam and joined SSN College of Engineering.

ACG: There's a lesson there for students about the power of analytical skills.

Raja: Absolutely. Math and logic are universal. Whether it's a bank exam, a software job, or an MBA entrance, those analytical skills are your greatest asset. If you practice them early, they can take you anywhere.

Breaking into Data Science

ACG: After your MBA, you joined Global Analytics. How did that happen, especially coming from a physics and management background?

Raja: I didn't want a traditional management role; I wanted something that involved math. A friend referred me to Global Analytics for an internship. I started in digital marketing, but because I could handle the analytical side, I was moved to the Marketing Analytics team within a few months.

ACG: Global Analytics was one of the pioneers of data science in India.

Raja: It was an incredible environment. Out of nearly 300 employees, about 100 were in data science, and 80 of them were from the IITs. It was 2009, and we were doing consumer behavior modeling using classical machine learning long before "Data Science" became a buzzword.

ACG: You stayed there for six years. What kept you motivated?

Raja: The peer group was phenomenal. I learned that your pedigree—where you come from—only matters for the first door you open. Once you're inside, you have to prove yourself every day. I also started taking MOOCs (Massive Open Online Courses). When Coursera and Udacity launched around 2011, I was sometimes taking three courses in parallel. By the time I left, I had earned over ten certificates in advanced machine learning, statistics and programming.

The Road to Leadership and Research

ACG: You eventually moved into leadership roles, heading data science teams at companies like Funds India and at a startup. What helped you climb that ladder?

Raja: I had both a deep interest in technical rigor and a problem-solving mindset. More importantly, I was willing to step into unfamiliar domains without fear and learn whatever was needed. At FundsIndia, I had the privilege of being mentored by Krish Seshadri, a Stanford engineering graduate, London Business School alumnus, and former Vice President at Facebook—who encouraged me to build my personal brand and think far beyond the goals I had set for myself. He urged me to apply to MIT. I applied only to MIT and was

ultimately rejected, largely because of my undergraduate grades. But the experience wasn't a setback. His mentorship taught me to aim much bigger, pursue ambitious goals, and challenge the limits I had placed on myself.

ACG: You eventually returned to academia, but this time at the IIT Madras AI department. How did that come full circle?

Raja: After taking a break to spend time with my family while occasionally doing AI consulting, I knew I wanted to return to AI full-time—this time on the research side. Around that time, I met Professor B. Ravindran at IIT Madras. He was looking for someone with industry experience who could bridge the gap between AI research and AI product development for a government project. While working on that project, I accidentally came across the AI program offered by the IIT Madras AI Department and decided to apply. It was a unique joint M.Sc. in Data Science and Artificial Intelligence offered by IIT Madras and the University of Birmingham. Although it had been nearly 20 years since I completed my undergraduate degree, my conceptual understanding of mathematics had remained strong. I cleared the entrance examination and interviews, successfully completed the program, and graduated. Today, I work as a Research Scientist in the AI Department at IIT Madras, where I continue to bridge cutting-edge AI research with real-world applications.

Advice for the Next Generation

ACG: In this era of AI anxiety, what is your message to students?

Raja: Don't rely solely on your degree certificate. A degree is just a piece of paper for the first job. What matters is your ability to learn independently. If you can't find a job, offer to work for free for six months to learn and contribute. Once you prove your value, your past doesn't matter.

ACG: Does fundamental knowledge still matter when AI can answer almost anything?

Raja: It matters more than ever. To make better decisions than AI, you need a strong foundation in programming, probability, and statistics. While AI can generate answers, humans still need to stay in the loop to solve fundamental problems, reason through complex situations, and understand the "why" behind the data. Those fundamentals will remain essential for the foreseeable future.

ACG: Any final thoughts on the importance of networking?

Raja: Networking and mentorship are invaluable. Don't be afraid to ask for help, seek advice, or learn from the people around you. You will consciously—

and often subconsciously—absorb their habits, values, and ways of thinking. Surround yourself with people you look up to—people whose character, curiosity, and approach to life inspire you to grow.

Many of my career transitions—from Global Analytics to IIT Madras—happened because I reached out to people, built meaningful relationships, and I wasn't hesitant to ask questions, seek guidance, or ask for help along the way.

One person who wasn't directly part of my professional career, but who profoundly shaped my journey over the last 15 years, is Professor Venkatesh Raman. I had the opportunity to work with him outside my profession, and that experience taught me far more than technical skills. His genuine interest in nurturing people has had a lasting impact on me. Through his generosity, humility, discipline and time management, I learned lessons that have stayed with me throughout my career. In many ways, he has been a long-term mentor.

Be open to learning from those around you, invest in genuine relationships, and don't hesitate to ask for guidance. As you continue to learn, evolve, and expand your horizons, you'll find opportunities—and your own path—that you might never have imagined.

N. Raja's story is a testament to the fact that a career is not a straight line, but a series of evolutions fueled by curiosity and a commitment to lifelong learning.

Is AI actually Helping us Learn, or Just Helping us Finish?

Vignesh S (5th year Integrated MSc. Theoretical Computer Science, PSG College of Technology, Coimbatore)



I've been thinking about this a lot lately, mostly because I catch myself doing it too, opening ChatGPT or Claude before I've even tried to solve something on my own. I don't think I'm the only one. Nearly every student I know keeps some AI tool open in a tab, right next to their notes and lecture slides. So I wanted to actually sit with this question instead of brushing past it: is AI helping us as students, or is it quietly making us worse learners while making our lives easier?

Honestly, I think it's both, and that's exactly what makes it hard to talk about. Pretending AI is either a miracle or a menace doesn't get anyone closer to the truth.

The Perks Are Real, Not Just Hype

Let's start with what's actually good, because there's a lot of it.

It feels like having a patient tutor at 2 a.m. When I'm stuck on something, say, why back-propagation works the way it does, or why a certain proof holds, I don't have to wait for office hours or feel embarrassed asking a basic question. I can ask it five different ways until something clicks. That kind of judgment-free, endlessly patient explanation just didn't exist before.

It's also great at unblocking, not just answering. A lot of the time I'm not stuck because I don't understand the topic, I'm stuck because of one syntax error, or one confusing line in a paper. AI clears that kind of friction fast, so I can get back to the part that actually requires thinking instead of losing an hour to a semicolon.

It speeds up how I explore ideas. If I want to compare a few optimization algorithms, or get a quick sense of whether a dense paper is worth reading in full, AI gives me a rough map first. I still have to walk the territory myself, but at least I'm not starting blind.

And it's a genuinely useful study partner. Asking it to quiz me, throw practice problems at me, or explain something the way I'd explain it to a five-year-old that stuff actually helps things stick.

So no, I'm not about to say AI is bad. Used well, it might be one of the most powerful learning tools we've ever had.

But Here's What Worries Me

This is the part I keep circling back to, and it bothers me more the longer I sit with it.

We're outsourcing the struggle, and the struggle is kind of the whole point. Learning was never just about landing on the right answer, it's the getting stuck, the sitting with confusion, the trying-and-failing that slowly builds real intuition. When AI hands you the answer right away, you skip all of that. And that's exactly where understanding used to come from.

I've noticed it in my own attention span, honestly. I used to sit with a hard problem for a solid thirty minutes before giving up. Now if I haven't cracked it in five, my hand is already reaching for the AI tab. That's not a discipline problem I had before, it's one that showed up *because* the friction that used to force me to think just isn't there anymore.

Fundamentals matter, no matter what you're studying. Every field has that bottom layer everything else gets built on - grammar for a language student, core theorems for a math student, basic anatomy for a med student, foundational accounting for a commerce student, etc.. Skip that layer and everything above it gets shaky. I study computer science, so I notice this most clearly there: if you don't really understand basic logic and structure, something like machine learning stops being reasoned through and starts being a black box you're copying steps from. I doubt this is unique to CS, it's just easier for me to catch in my own subject. Ask someone in almost any field to explain a "basic" concept from scratch, without the AI-generated version they've memorized, and you'll usually find the same gap. If the foundation's shaky, you're not really building anything, you're just getting temporarily unstuck, over and over, without ever getting stronger.

There's a quieter effect too: a kind of intellectual laziness. Not because we're lazy people, but because the option to *not think* is always sitting right there. Even when I know I should work through something myself, the pull to just ask is strong. Over time, that trains your brain to default to "ask" instead of "attempt", and that's a hard habit to walk back once it sets in.

So How Do We Actually Use It Well?

I don't think the answer is ditching these tools, that's neither realistic nor really necessary. The answer is being more deliberate about how we use them. Here's what's been working for me:

Attempt first, always. Before I open AI, I give myself a real shot, even just fifteen minutes of genuine struggle. If I still don't get it after that, I ask. The struggle before the answer is what actually builds understanding.

Ask "why," not just "what." Instead of asking AI to solve the problem, I ask it to explain the reasoning, or to check my own attempt and point out where my thinking went sideways. That keeps me in the driver's seat.

Use it to test yourself, not replace yourself. Once I think I understand something, I have it quiz me or poke holes in my explanation. If I can't defend my understanding against its questions, I don't actually understand it yet.

Treat fundamentals as non-negotiable. Whatever the subject, there's a core layer everything else depends on. For that layer, I try to work through problems completely on my own first, no notes, no help. It's uncomfortable, but that discomfort is exactly what builds real competence.

Use AI to go deeper, not just faster. Rather than "explain X," I ask it to connect X to things I already know, or to show me the edge cases where my current understanding would break. That turns it into a tool for depth instead of a shortcut.

Close the tab sometimes, on purpose. Some days I study with zero AI access, just books, notes, and my own head. It's a good gut check for how much I actually know versus how much I've been leaning on a tool.

The Real Takeaway

AI isn't the problem. How we use it is. Treated as a shortcut around thinking, it quietly hollows out the exact skills we're supposed to be building, especially the fundamentals everything else rests on. But treated as something that pushes our thinking further, checks our understanding, and clears away the busywork so we can focus on what's actually hard, it might be one of the best resources students have ever had.

The line between those two uses is thinner than we'd like to admit. I don't think the real skill for our generation is going to be "how do I use AI", everyone will figure that out eventually. It's going to be "how do I make sure I still know how to think without it." That's the thing actually worth protecting.

Old Puzzle Solution

There are 10 big buckets (each capable of holding up to 10 litres of water). Each day, I pour 1 litre of water (overall) in the buckets in an arbitrary way (i.e. I can pour the entire 1l water in a chosen bucket, or distribute it equally or in any other way), and you pick any one bucket and empty it. This goes on for 9 days. On the 10th day, after I pour the 1litre water in a similar arbitrary way and then I pick one bucket of water for my consumption. If I want to maximize the capacity of the bucket I get to choose on the 10th day, what should be my strategy each day to distribute the water and what is the maximum capacity I can get?

For example, if I pour my 1litre in any ONE empty bucket each day, then you might empty that each day. So I am just guaranteed the 1litre of the water I pour in a bucket on the last day.

Alternatively, if I distribute the water equally every day, then since you can empty only 9 buckets, at least one bucket will have $1/10$ litre from each of the days (this ratio is slightly less on the second day, third day so on), and so on overall I can get roughly $1 + 9/10$ litres, i.e. slightly less than 2 Litres.

Is there a strategy by which you can guarantee more than 2 litres in a bucket on the final day?

Solution:

Here is a strategy that works.

On day 1, I will pour the 1litre water equally among all buckets, so each bucket has $1/10$ Litre.

On day 2, I will pour the 1litre water equally among the non-empty buckets, so each non-empty bucket gets $1/10 + 1/9$.

On day 3, similarly I will pour the 1litre water equally among the non-empty buckets, so each non- empty bucket gets $1/10 + 1/9 + 1/8$ etc ...

Finally, one bucket will have, after day 10, $1 + 1/2 + 1/3 + \dots + 1/10$, this is already $> 1 + 1/2 + 1/3 + 1/4 = 25/12 > 2$.

**Congratulations to Adya of Marutham Farm School,
Thiruvannamalai who wins a 1000Rs voucher for solving the puzzle.**



Puzzle Corner

Kamala and Vimala meet after several years and their conversation goes like this:

Kamala: Hey, how are you doing?

Vimala: Nice, got married and I have three wonderful kids. How about you?

Kamala: I have a son and a daughter with a difference of two years. (She secretly tells their ages to Vimala). How old are your kids?

Vimala: The product of their age is 72, and their sum is the same as the sum of the ages of your children.

Kamala: Really, I still can't guess their ages.

Vimala: My eldest one started Violin class recently.

Kamala: Now I know their ages.

How old are Vimala's kids?

Rush your answers to newsletter@allcareerguru.org - The best answer sent by August 20th will be eligible for a prize worth ₹1000.

Send your comments and suggestions to:
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