* What is the most significant challenge that society faces today? (50 words max)
  + **Our biggest challenge is societal lethargy. While the loud minority of ‘bad-guys’ and ‘good-guys’ shout misinformation and tell lies, we apathetically consume that rubbish until accidentally falling to a side. If we break free from our lethargy, we’ll see that the true solution is neither side, but somewhere in between.**
* How did you spend your last two summers? (50 words max)
  + **2023: customary family-trip to India, learned convolutional-neural-networks, ION Prototyping Lab internship, scholarship to tech-camp**

**2022: visited Singapore to handle visas + urgent errands, introduced to combat robotics, taught debate & robotics summer camps.**

**Both: looked after younger-brother, Pedal Power project development; contests: Debate Nationals, Texas Robotics Invitational, Vex Robotics Competition.**

* + Out of a flurry of explorations, the two biggest activities of my last two summers were visiting India and Singapore. My family makes a customary summer trip to India to meet our extended family, as we did in the past summer. Last-last summer, however, the trip to India had to be replaced with a visit to Singapore in order to renew our visas and handle maintaining our government-housing.
* What historical moment or event do you wish you could have witnessed? (50 words max)
  + **My Hindu upbringing emphasizes God's divine teachings from our timeless holy texts. But that doesn't make scientific sense, I can’t accept it blindly! Are the Vedas really God-given or are they ancient-human-written? Were all those stories real? I wish to find the truths by witnessing the enigmatic birth of Hinduism.**
  + Moon landing but I am on the moon
  + Answering unanswered questions:
    - MH370
    - Stonehenge
    - Where did my religion come from (writing of vedas)
* Briefly elaborate on one of your extracurricular activities, a job you hold, or responsibilities you have for your family. (50 words max)
  + Theatre
    - I always appreciate the opportunity to try something new, so
  + IoN making me realize power of a community
  + At the heart of speedcubing lies the pleasure of personal growth. I marvel at competitive solvers who breeze through within 5 seconds, while my best is only 28.3. Yet, beating my records and learning new techniques fills me with gratification, reminding me to savour the journey at my own pace.
* List five things that are important to you. (50 words max)
  + An education that teaches me how to learn
  + A family of super close people I can fully trust
  + Opportunities to grow, lands to conquer
  + Collaboration with similar and differently minded people across communities
  + Flexibility by growing in all-areas and maintaining balance (both subject-wise and life-wise)
* The Stanford community is deeply curious and driven to learn in and out of the classroom. Reflect on an idea or experience that makes you genuinely excited about learning. (250 words max)
  + ION
  + Discobots
  + Empathy:
    - Putting myself in the inventor’s shoes
  + Physics in detaching myself from the view
    - Iceberg had more Q than boiling coffee
    - Constant velocity car has 0 net force
    - Website making
  + An Iceberg has more *heat energy* than a cup of boiling coffee! It takes the *same* escape velocity to launch both a pencil or a cow out of Earth! Facts like these seem counterintuitive because we imagine the scenarios from our point of view: an iceberg is much colder than a coffee, 120 mph must mean a lot of net force, or cows are much harder to throw than pencils. It's incidents like these that fascinate the teachings of science. Realising the unexpected and the idea of removing myself from the problem excites me to learn.

All the problems above were concepts learned from my physics class. Turns out that the heat energy is also proportional to the mass of the object, and icebergs have much more mass where they lack in temperature. After deriving the equation of escape velocity, I realise why the weight of the object being launched dosent matter. Realizations like these completely shifted my perspective, highlighting the importance of looking beyond personal surface-level assumptions to grasp the underlying principles of truth.

Similarly, when faced with complex design challenges in my robotics and engineering projects, I find, again that removing initial assumptions can lead to beneficia, counterintuitive solutions. For instance, when taked with optimising our robots’ driving movements, the initial approach seemed straightforward—maximize power to enhance speed and precision. However, upon reevaluating the problem, I found that reducing the rate of power consumption actually increased our general speed of completing tasks because we increased our average accuracy.

Utlimiately, encountering counterintuitive phenomena in the realm of science and problem-solving fuels my excitement for learning. The idea of removing my fundamental assumptions that leads to counterintuitive, yet effective, solution drives my curiosity to apply this mindset to all my endavours.

An iceberg contains more heat energy than a cup of boiling coffee! Both a pencil and a cow require the same escape velocity to leave Earth! Facts like these challenge our common assumptions. We're inclined to believe that the greater heat of the coffee results in more heat energy or that the larger weight of a cow would demand a far greater escape velocity. However, when detaching ourselves from these problems, we find the hidden truth. It’s this idea of uncovering counterintuitive solutions that excites my curiosity in learning further.

My journey through physics class taught me the underlying principles behind these perplexing phenomena. Understanding that an object's heat energy correlates with its mass elucidated the seemingly paradoxical iceberg scenario. Delving into the mathematics of escape velocity unveiled the surprising truth that the object's weight becomes inconsequential in the determination of escape velocity.

These realisations emphasised the necessity of probing beyond surface-level assumptions to unravel the bedrock of truth. After receiving these initial explanations, I realised that, likewise, I needed to probe beyond these surface-level reasonings and find the deeper misunderstanding/assumption that deterred me from the correct answer. Through my investigations, I learned enormous, fundamental aspects behind heat, temperature, and the concept of energy far beyond the class’ initial curriculum. Similarly, diving headfirst into the deep reasoning behind the mechanics of escape velocity taught me the concepts of gravitational fields, potentials, orbitals that I wouldn't have understood as deeply otherwise.

In this way, the idea of overturning my assumptions by uncovering counterintuitive solutions fuels my excitement for learning. Not only do I find unexpected solutions to seemingly straightforward problems, events like these also trigger a ripple effect of digging deeper until I restructure my misconceptions by gaining a much deeper understanding. Ultimately my curiosity for unexpected solutions has helped me develop a sense for spotting situations that offer out-of-box solutions. Even outside physics class, such as in engineering, programming, debates, or more, I find myself starting to sense patterns that lead to beneficial innovations. I aim to continue this habit, curiously searching for unexpected phenomena that may, one day, lead to an impactful paradigm shift.

**Both a pencil and a cow require the same escape velocity to leave Earth (~11182 m/s)! This fact challenges my intuition; typically, I'd assume that the greater weight of a cow would require a significantly higher escape velocity. However, that initial assumption proves misleading. This idea of uncovering counterintuitive solutions excites my curiosity and compels me to delve deeper into the realms of learning.**

**My fascination with uncovering these counterintuitive solutions was propelled during my exploration of physics. For instance, delving into the maths behind escape velocities unveiled the surprising truth that an object's weight has no bearing on its escape velocity. Fascinated by this result, I continued investigating to correct my underlying misunderstandings. I learned complex concepts like gravitational fields, potentials, and orbitals, enriching my understanding beyond the initial problem. Additionally, I gained deeper understandings of fundamental concepts like weight, force, and speed that rewarded me with a more natural grasp of these subjects in the future.**

**This pursuit of overturning assumptions and seeking counterintuitive solutions fuels my thirst for knowledge. It's not just about discovering unexpected answers to seemingly straightforward problems; it's about initiating a cascade of inquiry that restructures my frameworks. This curiosity extends far beyond the boundaries of physics class; it's a lens through which I view the world. Whether in engineering, programming, debates, or other domains, I find myself attuned to detecting patterns that herald novel breakthroughs and I’m committed to nurturing this habit of fervently seeking the world’s unexpected phenomena.**

***Both a pencil and a cow require the same escape velocity to leave Earth (~11182 m/s)! This fact challenges my intuition. Typically, I'd assume that the greater weight of a cow would require a significantly higher escape velocity, but this initial assumption proves misleading. In this way, the idea of uncovering counterintuitive solutions excites my curiosity and compels me to delve deeper into the realms of learning.***

***My fascination with discovering these counterintuitive solutions was propelled during my exploration of physics. For instance, delving into the maths behind escape velocities unveiled the surprising truth that an object's weight has no bearing on its escape velocity. Fascinated by this result, I continued investigating to correct my underlying misunderstandings. I learned complex concepts like gravitational fields, potentials, and orbitals, enriching my understanding beyond the initial problem. Additionally, I gained a deeper understanding of fundamental concepts like weight, force, and speed which rewarded me with a more natural grasp of these subjects in future studies.***

***This pursuit of overturning assumptions and seeking counterintuitive solutions fuels my thirst for knowledge. It's not just about discovering unexpected answers to seemingly straightforward problems, it's about initiating a cascade of inquires that restructure my frameworks. This curiosity extends far beyond the boundaries of physics class; it's a lens through which I view the world. Whether in engineering, programming, debates, or other domains, I find myself drawn towards detecting patterns that herald surprising discoveries and I’m committed to nurturing this habit of fervently seeking the world’s unexpected phenomena.***

*Surprisingly, both a pencil and a cow demand the same escape velocity to leave Earth’s gravitational pull! This fact challenges my intuition; typically, I'd assume that the greater weight of a cow would require a significantly higher escape velocity. However, this initial assumption proves misleading. It's instances like these of unveiling counterintuitive truths that ignites my curiosity and compels me to delve deeper into the realms of learning.*

*My journey into uncovering these counterintuitive phenomena began with my foray into physics. Exploring the mathematics behind escape velocities revealed the startling reality: an object’s weight holds no significance in determining its escape velocity. This realization was just the beginning; it led me to intricate concepts like gravitational fields, potentials, and orbitals, expanding my comprehension beyond the initial problem. Simultaneously, I gained profound insights into fundamental concepts like weight, force, and speed, illuminating the limitations of my initial assumptions.*

*This pursuit of challenging assumptions and unearthing counterintuitive solutions fuels my insatiable thirst for knowledge. It's not merely about discovering unexpected answers to seemingly straightforward problems; it’s about triggering a chain reaction of inquiry that dismantles misconceptions. This innate curiosity extends far beyond the confines of the physics classroom—it's my lens for observing the world. Be it in engineering, programming, debates, or any domain, I am adept at recognizing patterns that could herald groundbreaking breakthroughs. I am dedicated to nurturing this habit of ardently seeking the unexpected phenomena that shape our understanding of the world.*

* Virtually all of Stanford's undergraduates live on campus. Write a note to your future roommate that reveals something about you or that will help your roommate – and us – get to know you better. (250 words max)

Dear Roommate,

Firstly, congratulations on your acceptance and attendance at Stanford University, you must be a fascinating person with interesting stories; I am excited to meet you! I wanted to kick-start our acquaintance with a little bit about myself. You’ll easily find out all about my passions, academic interests, and whatever else later on, so here I want to tell you my most important trait, one that’s harder-said, easier-written.

A major cornerstone of my character is that I’m a very open-minded guy. I see my opinions and beliefs akin to an initial strategy in a chess game. I love playing chess so I want you to attack me! Come counter my logic and defeat my plans. If you foil my tactics, I don’t stubbornly adhere to the same approach. Instead, I adapt, learning from the experience and altering my strategy based on newfound insights. Likewise, when it comes to opinions and beliefs, I don’t doggedly cling to them if they’re challenged. I embrace the opportunity to learn, eagerly seeking to understand your alternative viewpoint and incorporating a new perspective into my thinking.

In essence, I invite you to challenge me. Argue with me if we agree, point out the gaps in my understanding, teach me about your background, beliefs, and alternative opinions. I know you have a lot to share, and I am eager to learn from you. I will be highly thankful if we can banter to make us better.

Sincerely,

*SOUMIL GOYAL*

P.S. I’m ProfessorPythagoras on chess.com

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***A major cornerstone of my character is that I’m a very open-minded guy. I see my opinions and beliefs as akin to an initial strategy in a chess game. I love playing chess, so I want you to attack me! Come counter my logic and defeat my plans. If you foil my tactics, I don’t stubbornly adhere to the same approach. Instead, I adapt, learning from the experience and altering my strategy based on newfound insights. Likewise, when it comes to opinions and beliefs, I don’t doggedly cling to them if they’re challenged. I embrace the opportunity to learn, eagerly seeking to understand your alternative viewpoint and incorporate a new perspective into my thinking.***

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***Sincerely,***

***SOUMIL GOYAL (ProfessorPythagoras on chess.com)***

Towards the end, you focus much attention on the challenges you hope to receive from your roommate. Although it's great to show your eagerness to learn from others, it would be balanced to also highlight what you can offer your roommate in return.

Dear Roommate,

Congratulations on your acceptance to Stanford University! I’m genuinely excited to meet you and embark on this shared journey. As we gear up for this experience, I wanted to kick-start our acquaintance with a few thoughts. While we’ll naturally uncover each other’s passions and academic pursuits, I wanted to share a crucial aspect of who I am—a trait that’s easier penned down than spoken.

The cornerstone of my character is an unwavering open-mindedness. I see my opinions and beliefs akin to the opening moves in a game of chess—a game I enjoy on ProfessorPythagoras on chess.com. In chess, I invite challenge and opposition. If you counter my logic or unravel my plans, I don’t stubbornly adhere to the same approach. Instead, I adapt, learning from the experience and altering my strategy based on newfound insights. Likewise, when it comes to opinions and beliefs, I don’t cling to them if they’re challenged. I embrace the opportunity to learn, eagerly seeking to understand alternative viewpoints and incorporating new perspectives into my thinking.

In essence, I invite you to engage and challenge me. Let’s debate, discuss, and explore—even on topics where we might find common ground. Highlight any gaps in my understanding, share your background beliefs, and present alternative opinions. I believe that this dialogue, this banter, will only serve to enrich our experiences and make us better versions of ourselves.

I look forward to meeting you and engaging in these conversations that will undoubtedly shape our shared journey at Stanford.

Warm regards,

Soumil Goyal

* + Congrats on getting into stanford
  + Thinking to Double-major in Mechanical Enginering and Computere science (or if, after further exploration that seems unfeasable, then a secondary major in CS)
  + Open mind/chess board/please tell me new things and challenge me
    - I love teaching, I teach at competitions, volunteering, sunday school, camps, robotics, debate, etc.
  + Bad habit of always thinking I am bothering people, so please, even if uninvited, tell me about your past background, your opinions on the future, and argue with me even if we agree.
    - Combat my traditionalist values
  + P.S. my apologies for this formal letter-writing type format, its the only way I know how to write emails as my teachers in Singapore drilled into me.
  + One of my greatest strengths is my ability to not be overly attached or polarized to my options/notions. Whenever anyone has shown me a better way, or proved my ideas wrong, I am never too stubborn to admit my shortcomings. Instead, I improve my position. Many others, on the other hand, are too ignorant/arrogant and attempt to fight on their opinion even when they know it’s not the best path. I disciplined myself to note that my notions should not restrict who I am and what I do. In some ways, I treat this like a chess game, where my opinions are my initial strategy. If another player comes up with a solid counter to my plan, I won’t stubbornly play the same move, instead, I will think of a better way to fight back from an improved and learned position.
* Please describe what aspects of your life experiences, interests and character would help you make a distinctive contribution as an undergraduate to Stanford University. (250 words max)
  + Interdisciplinary
  + Cousins’

**Amongst my extended family, my parents were the only ones to leave India, first settling in Singapore for eight years before moving to the USA.**

**These transitions exposed me to stark opportunistic differences: while my brother and I used 3D printers and high-speed internet, my cousins experienced frequent power outages. I receive a fun, project-based, and hands-on education, while their schools impose rote memorization. The contrasts especially stung when my cousins would always congratulate me on my tournament victories after my mother announced them on the family WhatsApp group-chat while I knew that my cousins didn’t have similar opportunities.**

**These experiences have taught me to recognize and contemplate the opportunistic inequalities that influence significant life-paths: I respect my cousins’ resilience in the face of their limitations; I admire my parents’ determination in transforming their destiny. Additionally, these insights have inspired me to act in ways to improve some situations. For example, as captain of the DiscoBots, I founded outreach programs to find schools without robotics resources and incorporate their students into our team. Within just 1.5 years of this initiative, we have integrated 4 schools and ~6500 students now have the opportunity to benefit from the robotics education that I have thrived from.**

**Ultimately, I’m thankful for my diverse experiences that have cultivated a wider perspective. Whether it's from the vantage point of competitions, my family's experiences, or outreach efforts, I continue to cultivate a mindset that embraces these differences in our backgrounds to grow as a community together.**

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