TEDx Talk Script

Hit Refresh: A Journey of Purposeful Pivots

Thank you all for being here today.

The theme of this TEDx event is "Tarang," symbolizing waves and the constant fluctuation of life. Building on this idea, we can observe how individuals, organizations, and even entire countries experience periods of both prosperity and adversity. These fluctuations, whether triggered externally or driven internally, carry numerous implications. How one reacts to adversity varies greatly; some may succumb to circumstances, others may struggle and persevere, while a select few not only survive but thrive. This concept, termed "anti-fragile" by Taleb, highlights that resilience isn't merely about withstanding challenges but also leveraging them to emerge stronger. Unlike a smooth sine wave, our journey through life resembles a jagged sawtooth pattern, characterized by unpredictable shifts in direction. Join us as we explore the essence of waves as a symbol of constant change.

We've all heard the cliché that "change is the only constant." But what we often fail to appreciate is just how rapidly the pace of change is accelerating around us.

In my parents' generation, the norm was to find a stable job and stick with it for life. In my generation, job-hopping became more acceptable, but there was still a stigma attached to it. HR departments would scrutinize your resume, demanding explanations for every job change and gap.

But for the next generation, the landscape will be even more fluid and unpredictable. Technology is no longer evolving over decades, but over years, rendering skills and knowledge obsolete at a dizzying pace. And with the advent of artificial intelligence, the cycle of disruption is now measured in months.

This talk is about what this new generation may have to grapple with. It's not just about job-hopping or navigating the gig economy – it's about being prepared for complete career pivots and reinventions, time and time again.

My own journey serves as a case study for this phenomenon. [Share your personal story of career changes and adaptations to illustrate the point.]

The future belongs to those who embrace lifelong learning, who remain endlessly curious and adaptable, and who see each disruption not as a threat, but as an opportunity to reinvent themselves and their paths.

Because in this age of exponential change, the most valuable skill is the ability to pivot – to shed our old identities like a chrysalis, spread our wings, and take flight in entirely new directions, again and again.

I'm going to share some real life examples with you, one that may not be extraordinary, but is certainly different than ordinary. It's a path filled with purposeful pivots and refreshes that have shaped my life and career.

Let me provide you with a bit of background. I studied mechanical engineering. I loved machine design where you design products and also see if they work in real life. With the advent of computers, nowadays, designing and testing initially happens in software. I was fascinated by that field called CAD - Computer-aided Design. You design shapes on the computer, also apply loads and see if they will sustain etc. I decided to pursue this further in my masters as well at Kansas State University, I landed a job in Boston within my domain. A year later, I returned home to Pune, working professionally in the same domain for a multinational corporation and climbing the ranks to a decent senior position.

Our first office was humble—a mere two tables and a manager's cabin in another company's office. As we assembled computers and set up shop, little did we anticipate that the CAD giant would eventually acquire us. Within the merged entity, I rose to become a group manager and site leader. Professionally, things were going well, but academically, I felt incomplete with only a master's degree. The desire for a PhD grew stronger.

Then one day, I saw an ad for a startup beginning in Pune, with no employees yet. The pull was the opportunity for more responsibility as they were working for a leading CAD giant with an office in China. Little did I know that this decision marked the beginning of a series of resets. **So, this became the first refresh**. I became the first employee, leaving all the luxuries of support teams. Our first office was humble—a mere two tables and a manager's cabin in another company's office. As we assembled computers and set up shop. The CAD giant later acquired us, and I rose to become a group manager and site leader. So within Pune's constraints, I was working for the best company in my field. Professionally, things were good.

But there was still one itch I needed to scratch - academics. I only had a master's degree, so the thought of pursuing a PhD grew stronger. I wanted "Dr." before my name. I enrolled and began research, but soon realized I couldn't balance it effectively with my job. So I made the tough decision to quit and go all-in as a full-time student, surrounded by peers half my age. **This became my second refresh**. That brought an economic and authority shift, but allowed me to eventually teach full courses in my own domain of CAD.

With decent publications under my belt, I was making solid progress in my research when I came across a paper suggesting a different approach to a problem I was working on.

Imagine you're an engineer tasked with designing a chair that can withstand a maximum load of 120 kilograms. In the past, you'd have to physically construct numerous prototypes, tweaking the shape, size, and materials, and then test each one until you found the perfect design. But thanks to the advent of computers, we can now design and test products virtually, using a process called Computer-Aided Design (CAD) and Computer-Aided Engineering (CAE).

One crucial step in this process is something called the CAD de-featuring problem. You see, when we create these intricate 3D models, they often contain tiny details – small holes, fillets, chamfers – that aren't necessarily relevant to the overall design. But these details can significantly slow down the simulations and analyses we run on the models.

So, we need to simplify the models by removing or suppressing these unnecessary features. But here's the catch: determining which features are truly unnecessary requires a deep understanding of the design intent, the manufacturing processes, and the specific requirements of the downstream applications. It's not a one-size-fits-all solution; it requires engineering judgment and expertise.

For years, researchers have grappled with this challenge, trying to develop rules and algorithms to automate the de-featuring process. But then, a groundbreaking paper changed the game entirely. Instead of coding explicit rules, the authors proposed a radical idea: let's provide the computer with examples of complex parts and their corresponding simplified versions, and let the machine learn the patterns and correlations.

This was a light bulb moment for me! It was the essence of machine learning – you feed the system enough examples of inputs and desired outputs, and it learns to generalize and make predictions on new, unseen data. Suddenly, the CAD de-featuring problem became a prime candidate for these powerful machine learning techniques.

I realized then that this approach could revolutionize the way we tackle complex engineering challenges. By harnessing the power of data and machine learning, we can unlock new levels of efficiency, accuracy, and innovation in the design and manufacturing processes.

I was amazed at this radically new approach. Actually this was an ideal stage, i.e. 20+ years in CAD and now with a PhD to go for a far more lucrative and authoritative position. But then decided to do exactly the opposite. Decide to take up an upcoming field and become, A Fresher. That was **my third refresh** and pivot into the brand new, risky field of machine learning. At 44-45 years old, I was starting from scratch, a fresher in the ML job market. I began working for startups for free, just to build my skills and portfolio in areas like natural language processing. Teaching became my way to learn, and through training and talks, I landed jobs and worked for several years.

After years in the ML field, I felt the urge for yet another change. The world of AI offered numerous opportunities, and I decided to venture out on my own—to become a consultant and

coach, **my fourth refresh**. With a solid professional network, I can now afford to be selective in taking on high-impact opportunities that truly inspire me.

Some view AI as mere hype, and indeed, it often is. However, the remarkable capabilities demonstrated by technologies like ChatGPT have ignited a fervor among many. Now, the prevailing sentiment is that those not engaged with AI are falling behind. Whether a company is small, medium-sized, or a giant, the pressure to embrace AI is palpable. Giants are engaged in fierce battles for AI supremacy, midsize companies are striving to adapt by developing products and upskilling their workforce, and startups find themselves compelled to join the fray for survival and securing investments. The pivotal question arises: Is AI truly indispensable? The answer is both yes and no. AI proves essential when dealing with vast volumes of data beyond human capacity to process, favoring those with a strategic advantage in data ownership. However, for others, reliance on external sources becomes unavoidable. While AI may render certain jobs obsolete, it also creates new opportunities. The pace at which the AI revolution unfolds is breathtaking. The ripple effect initiated by ChatGPT continues to surge, demonstrating not a weakening, but a strengthening, of its influence. These waves are resilient; they are anti-fragile. Therefore, we must not merely be passive spectators but active creators of the next wave or, at the very least, friendly riders—a "tarang mitra"—of this relentless tide.

My journey has been a series of resets, all by design—hitting refresh, embracing change, and seeking new opportunities. With each reset, I accumulated experience and skills, eventually landing the next job, not just ++ but the next Orbit. It may not be an extraordinary story, but it is certainly different than ordinary. The reason for telling this story is because of the immense possibility that such journey-of-resets is going to be more of a norm in the coming generation than an exception. You will need to mold yourself, do life-long-learning, a growth mindset and be ready to change at the drop of a dime i.e. when you smell a new orbit.

Just as I borrowed the title of this talk from a famous book, let me close with another fitting a borrowed line that sums up my journey, it’s "**Just Do It**." Wish you all, all the best. Thank you.