Interviewing By Design - Prologue

INTERVIEWING BY DESIGN - PROLOGUE - SECTION 1 OF 6: PROBLEMS WITH ENGINEERING INTERVIEWING

Over the course of my career as an engineering leader, I've personally hired more than fifty engineers. I've had remarkable success hiring great engineers over the years, but not all interviews have gone well. Interviews at some companies are well organized and supported by an effective and experienced HR department; more than a few companies have put the heavy lifting on me, the hiring manager. Even with a great HR department, interviewing engineers is deceptively hard, and different than interviewing any other profession. Technical depth and breadth, problem-solving ability, and teamwork, as well as software tools from MatLab to Office, soft skills like communications, and cultural fit, need to be measured in a short span of time while impressing the candidate that they would want to work at your company. But while engineers can measure 10 GHz signals with high-speed oscilloscopes or debug ISR race conditions, we have a harder time with people.

The characteristics that enable us to get accepted into engineering school and graduate with an engineering degree, namely being good at math and good with things, don't help us interview; if we had been talkers and on the debate team in high school, we would have been more likely to be salespeople or lawyers. Since by natural selection, most engineers don't interview easily or well on either side of the desk, the solution necessarily involves concerted effort and training. While promising high school students undergo rigorous university education and on-the-job assignments to eventually become practiced senior engineers, few senior engineers or engineering managers have ever had classes in communications or interview training. Without training and a process, engineering managers capable of shepherding complex multidisciplinary projects discard the rigor that makes them successful. The result? Missed talent, wasted time, and poor hiring decisions that ripple through a company for years. The difference between the right and wrong engineering hire can put a company out of business.

This book begins with the story of Andrei, a capable young engineer interviewing at LaPlace Transformers. His day there illustrates many of the ways an interview can go wrong. Andrei's experience is not unusual - you'll recognize elements of it.

By the end of this book, we'll have unpacked the missteps in Andrei's interview, understood why these mistakes are so common, and built an engineering-oriented framework for interviewing that is both insightful and productive. A good interview should leave both candidate and company with a clear sense of fit, mutual respect, and the right next steps. That's the process we'll design together.

Let's join Andrei as he arrives at LaPlace on a Tuesday morning around 9.

INTERVIEWING BY DESIGN - PROLOGUE – SECTION 2 OF 6 – THE INAUSPICIOUS ARRIVAL

Andrei arrived at the office park fifteen minutes early, then sat in his car for another ten before walking up to the glass doors. The lobby was locked. A young man in jeans and a t-shirt walked from his parked car, buzzed the door open, and turned to Andrei. "Here for an interview?" Andrei nodded. The man held the door open and gestured Andrei to enter

The room looked more like a storage space than a reception area, with stacks of boxes against one wall overshadowing a desk with a chair and a phone.

“With Tom?” the employee asked.

“Yes.”

“Please take a seat.” He gestured toward a chair, then disappeared behind the closing door, which clacked magnetically as it latched shut.

A minute later he poked his head through the door with a cup of coffee in hand. “Tom will be with you shortly.” The door clacked shut again.

Andrei sat. The chair was uncomfortable, and he pulled out his cellphone to skim over Tom's LinkedIn profile and the company website again.

Andrei had just finished looking at the website again when he heard talking. The door opened, and Tom entered the lobby and introduced himself with a quick handshake. “Glad you made it. We’ve got a packed schedule, so let’s get you started.” He gestured for Andrei to follow down a long corridor lined with cubicles on the left.

The first door on the right was a conference room with a narrow table, a large whiteboard, and a large projection screen with someone’s computer desktop showing. Inside sat a man with a laptop in front of him, glasses perched low on his nose.

INTERVIEWING BY DESIGN - PROLOGUE – SECTION 3 OF 6 – DEATH BY A THOUSAND CUTS

"This is Craig," Tom said. "He'll kick things off." And Tom was gone.

Andrei sat.

Craig nodded, checked his watch, and without another word brought up a PowerPoint deck without a title page. Andrei squinted – there was a multiple choice question on the projection screen and there were a lot of slides.

Craig prompted at the screen, saying "Question 1 — Buck Converter"

Andrei read quickly to himself:

> 'You are designing a buck converter for a portable system running from a single-cell lithium-ion battery (3.0–4.2 V). The output must be 1.2 V at up to 500 mA. Which topology provides the highest efficiency given these constraints?
>
> A. Boost converter with Schottky diode
> B. Synchronous buck converter with MOSFET high- and low-side switches
> C. Linear regulator from 4.2 V to 1.2 V
> D. Standard asynchronous buck converter using a diode rectifier

Andrei said: "Uh… B."

Craig had no reaction than a couple of key clicks. The screen changed.

Craig gestured at the screen.

Andrei read: **Question 2 — Hybrid Waterfall/Agile Schedules**

Four choices, none good. Andrei looked at Craig and then back at the screen. "C"

Craig's laptop clicked once more.

It looked like it was going to be a long interview.

Craig continued interviewing Andrei in the same relentless style, one question after another, covering every corner of engineering: hybrid Agile/waterfall scheduling, cryptography, capacitor derating calculations, mechanical stress of a curved beam, RF antenna matching, compiler optimizations, ROI analysis, even fluid dynamics. No explanations. No follow-ups. Each answer earned only a couple of clicks and a new slide.

Finally, finally, Andrei could see that he was on the last slide. The last slide!

Andrei read "Question 20 — Windows" out loud.
He finished reading, his lips moving as he read

> How many windows are there in San Francisco?
> A. 100,000
> B. 1 million
> C. 10 million
> D. 100 million

Andrei blinked twice, unsure if this was serious. He hesitated, then guessed, "C?" Craig made his final set of clicks.

Craig stood, closed his laptop, disconnected some cables, and said, "That's all." Then he walked out.

Andrei remained seated a moment longer, the silence heavy, before Tom reappeared. “Next is Joanne. She’ll meet you here.”

INTERVIEWING BY DESIGN - PROLOGUE – SECTION 4 OF 6 – INTERVIEW BY FEEL

A woman entered carrying a copy of Andrei's résumé. She smiled warmly, shook his hand firmly, and sat across from him.

“Sorry for the short notice,” she said. Joanne looked down at Andrei's résumé for the first time, scanning the top side and briefly flipping it over and back.

“So… let’s just talk.”

She leaned back slightly, twirling a pen between her fingers. “Tell me about a time you worked with a difficult teammate.”

Andrei began a story about a debugging crisis at FlySpy. Joanne nodded along and wrote a couple of words in the margin of the résumé. Joanne looked like she was vacantly interested, and Andrei sensed that maybe he went too technical, so he wrapped up his answer quickly with “and we just got it to work.”

Andrei had stopped abruptly, and he and Joanne now sat silently for a second.

Joanne looked up, surprised at the pause in conversation, and said "Ah, ah ... well ... ah, I didn't really get to prepare. Can you tell me about yourself?"

Without waiting for an answer, she continued, “What do you usually do on weekends? I like to hike, so I always ask people if they’re into the outdoors.”

Andrei hesitated. He mentioned biking along the beach.

She barely reacted, already moving on. “Your last name looks Eastern European. My grandparents were from Poland. Do you still have relatives abroad?”

Andrei shifted, giving a short response about his parents growing up in Seattle. Joanne scribbled, then looked thoughtful, but only for a moment before continuing.

Her questions came faster now: “Are you married?” … “Do you plan to have children?”

Andrei stiffened. He gave a short, polite response, wondering what was coming next. Joanne nodded, her pen scratching.

Tom poked his head in the door. "Ready for me?" he said. Joanne waved him off. "I just need five more minutes."

She asked about his favorite class in college, whether he kept in touch with professors, how he balanced stress, even what he thought about drones in wildlife photography. Most of the time, Joanne was looking at the résumé, looking up to ask the next question, not writing down much except brief scribbles around the edges of the paper.

Tom opened the door ten long minutes later. Joanne got up, thanked Andrei, folded his résumé in half, and put it and the pen in her purse.

Joanne said, "Thank you for your time," and shook Andrei's hand as she hurriedly exited the room.

INTERVIEWING BY DESIGN - PROLOGUE – SECTION 5 OF 6 – THE BIG PICTURE

“Let’s do something big picture,” Tom said. He grabbed a black marker from the whiteboard tray and handed it to Andrei. “Draw the product development lifecycle for a processor-based device with a mobile app. Start from requirements, go all the way to shipping.”

Andrei drew a line. The marker stuttered and left a feeble faint gray mark on the whiteboard. Tom said "Shit!" and bounded out of the room to return a minute later with a box of new markers. He handed Andrei a new black marker. Andrei drew a short dark line on the board and smiled faintly at Tom.

Tom sat down, and Andrei started drawing vertical lines with titles in between "Requirements", "Design", "Verification", "Release", and then started drawing boxes in the Requirements section. Andrei drew furiously, boxes and more boxes, lists of deliverables below each box, arrows all over the place showing dependencies, diamond phase gates – Tom smiled when he saw those. Tom watched quietly and didn't say a word. Andrei reached the Verification column just as he ran out of space on the right.

“Uh—sorry, I should have planned this better.”

Tom glanced at his watch. “We’re almost out of time anyway. I’ve got a meeting.”

Tom looked at Andrei in the eyes, then fixed his gaze on Andrei’s chair. Andrei got the hint and sat down, putting the marker uncapped on the conference table.

Tom paused briefly, looked down, then asked almost offhandedly, “By the way, have you ever been injured on the job?”

Andrei blinked, caught off guard. “No,” he said slowly.

Tom nodded, not looking up, “Any medical conditions I should know about before we move forward?”

Andrei stiffened, unsure how to respond. “No,” he said again, more curtly this time.

Tom seemed satisfied, capped the marker, stood up, and extended his hand.

Andrei sat for a second, puzzled, looking up at Tom before he stood.

Tom shook Andrei’s hand. “Good talking to you. I’ll get back to you shortly.”

Andrei forced a smile, collected his bag, and walked back through the quiet lobby. A receptionist, now rummaging through boxes, called out cheerfully, “Thanks for coming by.”

The late morning light was bright. As he stepped outside, the cool air hit him, sharp and clean. He realized he hadn’t had an opportunity to ask any questions about the product, the team, or the job. Andrei walked to his car, feeling somewhat bewildered.

He wasn’t sure if he had done well, or badly, or somewhere in between. Only that he was exhausted.

INTERVIEWING BY DESIGN - PROLOGUE – SECTION 6 OF 6– RECASTING THE ENGINEERING INTERVIEW

I am quite sure that no one reading this book has experienced all the classic interviewing errors that Andrei suffered, on either side of the desk. I've walked into more than one interview without having enough properly prepared questions or asked questions that I found years later were considered inappropriate . Andrei's interview wraps up many of these mistakes and puts a bow on them.

Andrei's interview fell short on multiple fronts. LaPlace Transformers did not get a clear insight into Andrei's true abilities, and Andrei left without learning much about the company, the team, or the role. What should have been a two-way exchange turned into a lopsided experience marked by rigid tests, improvised questions, and little genuine dialogue.

With finer focus, the mistakes in Andrei's interview cluster into familiar categories. We saw an unwelcoming environment, poor logistics, rigid multiple-choice technical screening, lack of feedback or engagement, irrelevant and personal questions, an unprepared interviewer, poor time management, abrupt exercises, no opportunity for candidate questions, and inappropriate inquiries about health and family. As bad as it seemed, Andrei was spared many other common interviewing follies, including interviewers dominating the conversation, inconsistent scoring criteria, overemphasis on irrelevant brainteasers, stereotyping or prejudicial conversation, awkward/hostile panel interviews, inappropriately casual dress or behavior, and last, but not least, what could be a whole chapter on interviewing while dining.

We as engineers are often surprised at how badly we interview, and even joke about it. We have to ask ourselves 'How can engineers be meticulous enough to design complex printed circuit boards, with processors with DDR5 and 10+GHz interfaces, and often get those designs right the first time, and yet bungle interviews?' The answer is that engineers use processes and tools after years of education and on-the-job training to design product successfully, but have no education, training, process, or experience to guide them to reach their potential as an interviewer. Engineers don't really understand their role or their context in hiring, and interviewing has never been put into language they understand.

Interview By Design recasts the interview process into a familiar context, the Product Development Life Cycle (PDLC), with the engineer taking a role in the specification, implementation, validation, and release of the desired product: a newly hired engineer. We'll look at a PDLC– based methodology for specifying, validating, and hiring an engineer. As we build the process, we'll follow Tom and his team as they train to be much better interviewers, culminating in parallel universe pass at Andrei's interview with Tom's well-prepared and coached team.