



## **Oral History of Steve Chen, part 1 of 2**

Interviewed by:  
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Recorded March 19, 2019  
Mountain View, CA

CHM Reference number: X8933.2019

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**Hancock:** Today is March 19th, 2019. I'm Marguerite Gong Hancock from the Exponential Center at the Computer History Museum and we're thrilled to be here with Steve Chen. Steve, so great to have you here, and welcome for your oral history.

**Chen:** Great. Looking forward to this. Been looking forward to it for over 10 years, 15 years since YouTube started. I've been keen about giving the entire history of what we've built.

**Hancock:** It's so important. Here at the museum we are grateful for the opportunity to capture your story and to help people understand and to receive some inspiration about where you've gone, from early influences to your idea to impact that's really changed the world. Let's start at the very beginning. If you don't mind, for the record, can you tell us your full name and where you were born? And what was life like for you in the home that you were raised in?

**Chen:** Sure. I was born outside of the U.S. in Taipei, Taiwan in 1978, and that marks me as being 40-years-old as of now.

**Hancock:** Congratulations.

**Chen:** I am actually glad that I'm finally 40 because I think that when we started YouTube, I was in my twenties and all the interviewers were in their forties. There was always a generational gap between the questions and the answers that I would give. I have a much better idea and context of what YouTube has begun. So, I was born in Taiwan. I came to the U.S., but it was not the Bay Area, it was Chicago. It wasn't a decision by me; it was a decision by my parents. I think that there was an opportunity for my father to open a branch of his office in Chicago and he took it in part as a career development decision. A large part in influencing his decision was to give his two kids, myself and my brother who's two years younger than me, the American Dream, this opportunity to be able to do something in America. At the time, no idea. At the time, it was flying on United Airlines and not knowing the English words to ask the question, "Can I have some additional water? You know, where is the bathroom?" I still remember sort of landing in O'Hare Airport there in Chicago. And even then, I don't remember much when I was 8 years old, but I do remember touching down and having just these expectations, having never been in the U.S. before about what the U.S. was going to look like, as opposed to where I grew up in Taiwan.

**Hancock:** And how had those been shaped, those expectations? From media? From stories? From your parents talking to you?

**Chen:** I want to say that when I was growing up, there were always stories and tales. I think they were exaggerated to a degree, to the point where when I landed, I was slightly disappointed <laughs> at what I saw. This whole vision of a dreamland— dreamland being equivalent to the grandest visions that you have appearing in your dreams — wasn't quite that in the northwest suburbs of Chicago. I think that it gave me the opportunity to be able to feel like I was finally sort of having a little bit more control in the direction of the steps I want to take. That's at an early age, but I think that that's where it first started and it grew over the years. In many ways, I think that is true to

the sentiments in the decision -making of my parents, and that is the first step in what led me to what I am today.

**Hancock:** Interesting. So this proactive sense of making a conscious decision for your family to move to a new place, a new land, pursue new opportunities, you feel like that led to you being a risk taker or explorer. Say a little bit more about how that early decision really shaped you, obviously not only where you lived and the school you went to, but these sort of deeper attributes. Can you say more?

**Chen:** It's difficult for an 8-year-old to understand the sort of great contextual vision of what third grade is going to do to the rest of his life. However, looking back upon it, during those days, I was putting myself into a completely different environment, not understanding even the language of what people were speaking around me. Every minute of a 24-hour day out of 7 days in a week was completely different from what I had seen 7 years prior. Starting from that moment, there's a bit of fear. Luckily, I had my brother with me, so it wasn't just me by myself alone going through this journey. I think you learn a language quickly. You adapt to new social environments very quickly at that age, and so in a very quick period, I'm going to measure it in mere months, we became sort of grounded in our new home. Home probably for the first few months was still Taiwan, but over the course of a few months, it gradually became U.S., it became Chicago. You start over that period. Instead of your favorite foods being food from Taiwan, it became Chicago-style hot dogs and deep-dish pizza. And so that very quickly became where, I would say now, where I grew up was really Chicago, Illinois.

**Hancock:** This was Prospect Heights, is that right?

**Chen:** That's right, that's right.

**Hancock:** What was that like for you, the school? What were your early passions? You're making this incredible change in language and culture and context, and what kinds of things at that age besides making a change were you interested in as you finished your elementary school?

**Chen:** I think there were two parallel sort of journeys that I was taking to be able to fully integrate myself. There was one, which is just learning English. There was a considerable part of the day that was focused on just learning English. And then there was everything else around it. And everything else around it was truly just a mystery. But over a period of time you start to understand what is going on in the other minutes, the other hours of the day, what is going on with the social environment with the other kids in the class, with the actual teachers. And so, during that period, for the first few months, it was really being able to immerse myself in the environment. Quickly thereafter, I started to —it's far before computers or anything of that sort— but there was a bit of kind of encouragement to explore a bit. School lets out, you go home. You're in the Midwest. Growing up in Taipei versus moving to the suburbs of the Midwest, there is a big difference, not just with language and social context but in just what you do: the activities that you do, or the lack of activities that you do. And so, I think that—

**Hancock:** Could you give a few examples of the context of Taipei versus Prospect Heights ? What were some of those things that were so different?

**Chen:** Growing up in Taipei, in that environment, was a little bit more rigid in terms of what is happening throughout the periods of the day. There's the school, but more importantly, it's what happens at 3:30 and 4:00 and 5:00 and 6:00. Whereas I recall, when I was growing up in Prospect Heights, once school lets out and you get off that bus, pretty much from you 3:00 PM until dinnertime was just completely open to whatever you wanted to do. Given that liberty to be able to do whatever you want, it does take a little bit of creativity to just find what there is to do. And so instead of it being a scheduled calendar where everything has already been pre-decided, and not by you, by somebody else that's already filled in your calendar, all of a sudden, you're in a situation where you are deciding what you want to do. A part of that experience led me to kind of self-educate: what are the things that I like doing, what are the things that I don't like doing, decisions that I think are good decisions, decisions that I think are bad decisions. It was everything from running around the creek that we were living in in the Midwest, jumping across with ropes and catching crayfish. There are just things that even if I had dreamed of it would not have been possible in Taipei. In a lot of ways, I do think that I benefitted from being able to see both sides of it. What I had differently in the Midwest is to have grown up and to have lived and been born in Taipei to be able to see the difference.

**Hancock:** That's so interesting to think about the before and after change. Let's move forward to the time when you moved to a new school with a focus on math. Is that right? The Illinois Mathematics and Science Academy?

**Chen:** That's right.

**Hancock:** How did that decision get made? And then what did that mean for you?

**Chen:** Sure. I think leading up to it, the confession is that being born within this umbrella of an Asian family, specifically with a very traditional Asian mother, there <laughs> was enforcing on her part, for both my brother and me, to spend extracurricular time on educating ourselves in doing math, reading, and science. Through that period, there was a lot of pressure to be doing this, not necessarily out of our own volition but my mother's. Starting from freshman year in high school, I started applying for this Illinois Mathematics and Science Academy. I was 15 years old, but because of this environment at home, it was almost without thought. I just excelled in math, in sciences. I thought that it was a fit environment for me to be able to pursue these passions in the scientific verticals.

I applied to IMSA as soon as I learned about it. And when I entered IMSA, one, it's a dormitory. I mean, it's a boarding school. It's the first time where I'm living without having parents' home and just having peers of my own age around. And I think it was the first time where, regardless of what my mother or my father wanted me to do, I was completely the decision maker. Leading up to that time, I knew what they wanted me to do. But it's the first time where I get to literally just say, "I don't want to do it," or "I want to do it." I remember that it was IMSA that really transformed my perspective on science. For the first few months at IMSA I really didn't do anything at all. I think that it was the first time where I could go home, and I could choose not to do anything that I have been doing for years

leading up to it. I didn't attend class. I didn't do homework. I didn't do any of the things that leading up to that point I was supposed to be doing. I was always the one who excelled in class and was always ranked number one when it came to the sciences. Suddenly, when you enter IMSA, you drop down to, you know, the bottom quartile right?

**Hancock:** Was it that dramatic or you're just being— ?

**Chen:** Well, partially because I didn't do anything, either.

**Hancock:** <laughs>

**Chen:** You're in an immersive environment where it's the top one, two, three students from every school in Illinois all meeting up there.

**Hancock:** Sure.

**Chen:** During those years was where I learned that I really did have a passion for the sciences, and especially when it came to computers. This was in about 1992-93, and I was lucky enough to be at IMSA where there was a strong focus on the sciences, and as part of that, they gave these 15-year-olds, these 16-year-olds, access to the internet for the first time. Being in that environment, I learned that even without the prodding of my parents, I actually enjoyed doing this. It took a few months and probably throughout my entire sophomore year, where I thought I was first just liberated from whatever my parents wanted me to do. But through that period, I found out that, you know what, I actually enjoyed doing this myself.

**Hancock:** Was it a gradual realization about this personal passion? Or was there a particular a moment, a galvanizing moment, or a person or situation where you thought, "A-ha! This is it?" What was your experience?

**Chen:** I think it differentiated across the spectrum. When it came to computers, I just had a real interest in it from the very beginning and it developed over time. And suddenly, you're handed a computer that had full access to the internet and—

**Hancock:** What computer was it? What make and model? Do you remember?

**Chen:** At the time it was one of these 386 computers, Intel 386 computers, and it was no longer parents around to say you, you know, "It's time to get off this computer. It's time to do this and that." At that time, I could decide exactly what I wanted to do. It was during that time when I started learning what the internet was, when I started interacting with other people across the world, where I started to play around with Linux for the first time. Through that period, one, was just being able to fully explore whatever I wanted and experiment around with computers. And two, I think realizing that— if I really did have the full openness to be able to do whatever I wanted — I would pursue something in this area of computers, this area of being able to create something with computers. That was the period where I started really programming for the first

time. I learned that you're able to almost create something that wasn't there hours ago and that hours later would be there, whatever you thought, whatever your imagination thought up, just through typing on a keyboard. Hours later you would have whatever your imagination conjured up, and you would have an actual real working version of that. I think throughout that period I learned that I liked doing this and then learned how to actually do it.

**Hancock:** You mentioned Linux. What languages were you using? What were some of the things that you were playing with? The programs that you were doing in those early years, sophomore or junior year at IMSA?

**Hancock:** Yes, what was that? It was Linux distribution. It was Slackware at the time. I forget what version of Linux it was. But I was lucky enough to one, have access to a computer; two, not have governing parents behind me to tell me the hours; three, have access to the internet far before it expanded to what it is today. Timing-wise, there was this explosion of open source software. During that period, you're able to see how these programs that you regularly use, how it was built and how it was built around a community of people around the world contributing to it. When you put all those pieces together, if you have an interest in computers, that was probably the ideal time, the earliest time to be able to fully have all that be able to be a tangible inside a dormitory room of a 15-year-old with just the computer.

**Hancock:** It's amazing. I'm getting a sense of this incredible liberation, this freedom of exploration that you had. At the same time as this opening, there is a honing in on something that has become a lifelong passion. So, what's next? You have this passion. Were there other important influences for you during that time at IMSA?

**Chen:** Well, I think—

**Hancock:** Or that you want to mention before we get to college?

**Chen:** Those IMSA days were helpful because it gave me the confidence to be able to go out and try something and really dive into it. Without my parents around and being able to just choose my own hours and electives at an early age in high school, and being able to do whatever I wanted to do at night, stay up however late I wanted to stay up, drink as much coffee as I wanted to drink, I was able to just do whatever I wanted with computers. I was passionate about computers. And I think the reward there, albeit on a very small level, is to be able to say, look, if I have interest in this, I can pour whatever amount of energy I want into it and then be able to see what the results of that were. The computers were just fast enough where if you really had an idea for something and if you really wanted to do it— it's not like many other disciplines and arts where if you had an idea for something— within hours, you can see whether or not that actually blossomed into something useful or something that failed with computers. And you can do that every day. You can do that anytime you wanted. Without having to answer to almost any of the other demands that usually would be enforced on a 15-year-old, I was just able to play and tinker around and learn what I thought I enjoyed and tinker around with what was out there that I could access on the entire internet at the time.

**Hancock:** So, you have this incredible world at your fingertips, and you're exploring the internet. Were there particular people or communities or programs or companies that caught your eye that you kind of experimented with during that time? Or was it just sort of a free exploration of a lot of things?

**Chen:** At that time, I wouldn't even say the internet was the Wild, Wild West. I mean, it was just—

**Hancock:** It was so early.

**Chen:** Yeah. I wouldn't even say it's—

<laughter>

**Chen:** I didn't even know if the West was wild or not back then.

**Hancock:** <laughs> That's so true.

**Chen:** It was just completely wide open. But up until that time, it was always “a personal computer was a personal computer.” There was never this idea that this personal computer could be attached to other personal computers. As much as a chat room is just text or maybe if you're lucky, it's colored text, but that's it. <laughs> There's nothing but that. There's no sound. There's no images, nothing visual. Surely no videos. But that was still more exciting than— it gave us this idea that, with this computer and with the beginnings of these protocols to be able to communicate with others, it allowed you to be able to interact with someone that's hundreds or thousands of miles away. And really, up until that time, that was not really possible. To be able to engage with 20 people that are posting, that are talking, that are chatting from all over the world. It was kind of abstractly taking away from what we were doing. The abstraction is that for the first time, you were able to interact with different people at the same time. And I think that to me, that's where it started growing and people with the vision to see what this could become as the computers became more powerful. As the processor became more powerful and especially as internet speeds became more powerful, you can just build on top of that more and more uses for that connectivity.

**Hancock:** With that exciting vision which has proven to be world changing, you had this passion that you then pursued in college.

**Chen:** Right.

**Hancock:** Can you talk about how you made the decision on your next step on where you went to college?

**Chen:** I grew up in the northwest suburbs of Illinois, and then went to the Illinois Math and Science Academy in Aurora, Illinois. It was about a 45- minute drive from where I lived. The next step for me was in the area of engineering, and the luck for me was that the University of Illinois in

Urbana, Champaign, had one of the best computer science departments and engineering departments . In fact, it one of the earliest schools that had an entire department for computer science. Putting myself back into the shoes of a senior applying for school, I just knew that I personally liked playing around and tinkering around with computers. And at IMSA, luckily, I had the ability to be able to pursue that further and to find more people than I would probably in a regular school, a school not focused on math and science, to find peers that also had the passion for computers.

But it still was not something that was seen in the actual high school curriculums. There wasn't a formal path to take if you were interested in the internet or if you were interested in interacting with others around the world. There were no classes to pursue that further. A lot of that was still done just in my own free time. When I started going to apply for Champaign Urbana, I knew there was something in engineering. There was computer engineering, computer science and electrical engineering. I didn't know what my formal major would have been. I just knew that there was a great program with a lot of resources with great professors and great peers. I want to say that I randomly chose between computer science, computer engineering and electrical engineering. I just checked the box. Looking back, that was probably a lucky check that it ended up being computer science. I just figured if the major had the word computer in it, what was the difference between computer engineering and computer science and just the entire umbrella of engineering? What is the real difference? And it was only after I got to University of Illinois when I realized the difference between the studies of engineering. Of course there's education and understanding of what's in the hardware behind it, but the focus is software, it's program, it's development, it's building something, and it's exactly in line with what I always liked to do in my own personal time.

But now, for the first time, it was formalized. For the first time, I'm able to not just explore and find this and hack this to understand it, but now they're actual real classes to be able to formally teach me what's behind a network, formally teach me what defines artificial intelligence, and everything from algorithms, how to really write the programs correctly versus incorrectly, and how to optimize for what I'm doing. Luckily, I chose computer science, and during those first few years at U of I, it really opened my eyes to what's possible and what I can create.

**Hancock:** Any professors or classmates that were particularly influential for you during those years at U of I?

**Chen:** None of the professors come to mind, but—in the talks I give I am always slow in confessing this—I never really went to class <laughter> when I was at the university. Let's say you have a programming class, and the assignment for the programming class is "write in this language an algorithm or a program that is optimized to do this task, to perform this algorithm." And you have the internet, you have books, you have a keyboard, you have a screen. You can do whatever you want, and you can play around with it. I think computer science is very different from other engineering departments, other engineering studies. <laughs> I've always sort of associated computer science to be the closest to a completely different department, a completely different college, but the literary side of creating and writing. There are multiple ways to be able to get the same results when it comes to programming. Some would be the ones that as a new programmer, it's obvious that this is what you would do. It's not optimized and there's a lot of lines of



code. But then as you gradually get better at it and as you look at —for example— the open source code that's behind Linux, that's behind Imap, that's behind some of these programs, you're befuddled when you first look at it. You see what it can do, but you have no idea what these lines of code actually do to be able to achieve and accomplish this. There are so many ways to be able to do the same thing. There are practically infinite ways to write this code to be able to achieve these results. As you get better and better, you start really appreciating how you can understand right away the easy ways to be able to accomplish that same problem with a solution, but it takes a lot more time to understand these four lines or five lines of code that's being able to do the same things as 20, 30, 40 lines of code. It takes a long time to be able to understand it. But when you do, this spark, this light bulb, goes off, and it's almost this celebrated congratulation to be able to say, "That is beautiful." That is, in a way, engineering art that you could actually do this with these lines of code. You don't learn that necessarily in class. I think that a lot of that is self-exploration, again, and you do that if you have a passion for it. You do that with your own computer. You learn that online, and, again, luckily those resources were available all from just a computer, a keyboard and an Internet connection.

**Hancock:** So many people have written or talked about this extraordinary gift or skill that you have to make elegant, artful, efficient code, and some people spend time, and that's not their particular gift. Can you describe for people who are trying to understand how that works how you get to that, as you called it, this art? Can you describe a little bit of the thought process, how that evolves for you? How would you describe that process that you go through to understand the 4 or 5 lines or to create the 4 or 5 lines versus the 20? What's going on in your mind? How are you approaching that, if we could see inside your brain?

**Chen:** The problems that you're trying to solve are typically something that you can easily understand, and there's a huge spectrum of just everything from networks and artificial intelligence, but as simple as just sorting 1,000 numbers. How do you actually sort that in a way that's optimized in the shortest amount of time possible and using the least amount of memory, least amount of CPU. There are very easy ways to do it, and then there are very elegant ways to do it. In fact, there are Ph.D. papers on how to do this. I think one of the best examples was looking at Linus Torvalds with the Linux operating system. Often you have something here, where it's different from Microsoft DOS or Windows at the time or Mac at the time. Here's an operating system that was written completely open-source by people around the world, and not just written once, but it's continually updated,

So you look at something like how this operating system interacts over the network, how it communicates with the Internet, and you see the entire version history of, "This was the first version. This is the second version." Every version, there's always a sort of commentary as to why we did this, why it was approved or why it was rejected. You see this long history of how it got to the version that it is today from what it was years ago, and, in between that period, all the different contributors and all the people that are looking over this and not looking over this. It was a very great time to be getting into the programming side of things. I think that the beginning of this golden era in computer programming, in computer science, because up until that time, there wasn't that collaboration between different software engineers around the world trying to achieve the same goal of trying to solve the same

identical problem. Now they're all helping each other. They're not competing with one another. There's no conflict of interest.

**Hancock:** I'd like to now talk about when you decided to leave school. How did you make that decision to leave school and jump to a new opportunity?

**Chen:** Yeah. So, this is in 1999, and I was a senior in college. In fact, I was a senior in my second semester, leading up to my second semester in college, so roughly six months away from receiving the diploma.

**Hancock:** So close to the formal finish of the degree.

**Chen:** ... and if I had to list one of the riskiest decisions that I've ever made... but I think that it's characteristic entrepreneurs— I mean, not just entrepreneurs starting a company, of course. I think as we move forward, the decisions that we made and the corrections that we made, the changes and what we decided to do when it comes to just about everything from the YouTube level down to every one of the features that we were writing for YouTube. I made this decision that, look, I think from the outside it looks like it was a complete rash decision, because it really was made in three days that I decided to leave school and leave the state and fly across on a one-way ticket to the Bay Area. But at the time, it was you take this leave of absence from school, of which any time you can return back to school. — After receiving the diploma, it was going to be working in the Midwest, and in the Midwest there are many large companies out there. Motorola would've been one of the primary choices if I were to graduate from U of I in the year 2000. At the time, it was always, "I can always do this at any time," from a chronological perspective on things. If anything failed, I could always return to this, whether that's in 1999, a month after I depart, 2000, or 2001. But this opportunity came along, where a couple friends of mine from the Math and Science Academy, from Champaign-Urbana that also was in the computer-science department.

They reached out to me and said, "We're in Silicon Valley, and we have started working on a startup called Confinity ." The cofounder of this company, Max Levchin, is also from Champaign-Urbana, is also from Illinois, and he's looking for new engineers for this startup, and being from Illinois and having almost newly moved out. Max didn't know the sort of engineers and computer science out here in the Bay Area, and so he made the connection back to where he had a lot of connections with the school back in the Midwest, and so I got this.

**Hancock:** When you say he reached out, how did he contact you?

**Chen:** I was first called by one of the engineers that was there, but I remember doing this interview with Max over ICQ. This was in 1999. ICQ was, I think, the instant-messaging app at the time, and so I never even heard his voice during this interview. It was just typing questions and answers and questions and answers, and the interview was concluded by, "When can you come out here?" — There was really no hesitation on my part to be able to do this. I really did calculate that if this didn't work out, I would be able to return to whatever I was doing, but it's hitting a pause on that and saying, "If this opportunity exists, it's not going to always exist, and so if this window— I don't take it now, it's going to

close at some point. " I just thought it is the logical, reasonable thing to do to be able to hit a pause, drop everything that I'm doing here as quickly as I can, fly out to Silicon Valley and pursue this and see what happens. Within three days after that ICQ chat session ended, I was on a one-way flight out to Silicon Valley from Chicago.

**Hancock:** So, you had this chat session with Max. What was so compelling to you? What was so enticing about Confinity or about working with Max or the team? What did you perceive at that time that you were pursuing?

**Chen:** I think it's akin to when I was moving out to Chicago for the first time and this land of opportunity, and when I was looking at Silicon Valley, it was Silicon Valley. I've only read about it, so I really thought somehow the valleys were made of silicon. I knew that it was the birthplace for everything, all the technologies that I used and had heard of. But I didn't really know what it was like here, and what brought me out was to be able to see this firsthand, and I thought it was the right decision. I thought it was the logical thing to do to be able to see this, but I really didn't know what was going to be here.

I remember landing in SFO and driving down 101 at the time and just seeing Oracle or Sun Microsystems, and to be able to see that number of companies all compressed into that short 30-minute drive from San Francisco to Palo Alto, that was unheard of. All the software that I used, it just happened to be in this 30-minute drive. I didn't really know what to expect, but it was eye-opening to be able to make that drive and to be able to see all of the headquarters of all these companies in that short period.

**Hancock:** That's an amazing illustration of your first arrival. Day One on the job, do you remember, or the first month, let's say? First, what was your role? What were you working on? Who were you working with?

**Chen:** It was November 22<sup>nd</sup> of 1999, although I think that the first day on the job was actually on a Sunday, and I think that's a good introduction. Sundays and Saturdays, and weekdays don't make any difference in Silicon Valley, and it wasn't so much work. It was, one, an introduction to the rest of the team, but, two, you walk in, and at the time, it was four engineers, but it seemed like they were playing video games. They were playing board games, talking, eating, and I knew that I went to the office that I was supposed to be working at. I walked in. There were desks. There were offices, but it's not in the traditional style of an office, where you go in, and it's 9:00 A.M. You start working, and 5:00 P.M., you leave. It was almost all the hobbies of the engineers and the staff. They were doing it at the office rather than at home.

But it was on a Sunday, and that was also the first day where I was in the building of Confinity, where I met who eventually became the cofounder of YouTube, Chad Hurley. At the time, he was the designer for everything under Confinity and what eventually became PayPal, and so he worked with all the engineers that were at PayPal. It was a big change from what I expected. I had done internships at larger companies in the Midwest, and they're just large teams, and you are one member that's reporting to maybe a manager that reports to a director that reports into a VP and so on. It never felt like— sure, you have the responsibilities. You are held accountable if you don't deliver on those. But when you're working with a much smaller team of just a company that's less than 20 people, with an engineering team that's less than 6 people, you realize that it requires all 6 people

working to be able to build, to launch, to maintain and to update this product. If there's not enough collaboration, if there's not a lot of communication or if one person drops the ball, there's not a reliable backup to be able to take his place. I don't think there were sick days. I don't think there were really weekends. There was no 5:00 P.M. checkout period, and I think that that was a big difference between what it was like to be working for a larger company with longer timelines and a much larger engineering team than a startup here in Silicon Valley.

But it was a great experience for me. I think that I was learning a lot of things that I hadn't learned before. PayPal at the time was an application for the Palm Pilot, and there was a Web version of the product. PayPal was a way to be able to transfer cash between a person to another person, and it's a complicated enough product that there's all the layers that's required to build an application, an Internet application where applicable, to having to build PayPal. —There's what's actually shown, the presentation tiered to the actual users, and so what that process is like to register, to type in somebody else's e-mail address, to be able to add your bank account, your credit-card account to be able to transmit the cash and to do it in a way that it's easy to be able to sign up. It's easy to be able to type in an e-mail address, and then all the way down to, what if this e-mail address isn't an e-mail address that's valid? What if this bank account is an invalid ACH number, and so there's a lot of checks that go all the way in and then all the way down to the database layer, where when a transaction goes through, be able to insert that row in the database? All of that was just completely new to me. We never learned how to do that in the computer science at U of I, and so it was a very educational experience for me to be able to do that. You're basically put on the ground with a full, live version of the product, and you're working with people's cash, of all things.

**Hancock:** Of all things. There's something real at stake here.

**Chen:** Yeah, yeah. What was I, 20 years old at the time? I couldn't have asked for anything better. I was probably spending 80, 90 hours there in the office. I think it was breakfast, lunch, dinner always at the office, and just at that time there were so many things. I think I didn't have any money in my bank account. I think I had a credit card that had a limit of \$600. I only could get paid for the first two weeks, so I was having Roundtable pizza every day. I was very much still a college student at that time.

**Hancock:** What was your living situation, just having arrived?

**Chen:** It was on the floor with a sleeping bag. I didn't have change of clothes, because I flew out so quickly that I asked my roommates back in Champaign-Urbana to pack up the suitcase to ship it out. I don't remember how long that took to ship out, but there were certainly days where there was no change of clothes. The only thing I had was credit cards. I had a sleeping bag, and it almost didn't matter because all my time was spent in the office. — The sleeping bag served what it needed to serve. I just needed to sleep in it. Otherwise, I never spent time home.

I remember it was a large living-room area, but it didn't even have furniture. All it was, was a sleeping bag in the middle of that room, and I couldn't afford living in my own apartment at the time. I had to live with two of my friends that came from the Math and Science Academy, that came from Champaign-Urbana. I think I was still smoking cigarettes all the time back then. It's a bunch of 20-year-olds trying to build

this payments service that's supposed to be the global payments service of the world. Yet they're 20-year-olds at heart, so you're playing computer games after you're done just two hours earlier interacting with global payments services. You are doing these things of making sure that the transactions and the database is always written, and there's no flaw in the transactions. But then you're drinking and smoking in between this work. It was so different from anything that I had ever done before, and I think that it's also different from just about anywhere else in the world -- to be in this startup experience, being directly from college or a 20-year-old at the time.

**Hancock:** You've mentioned a few of them, but what were some of the thorniest problems that you were dealing with during those early days for PayPal? You had the technical part. You had the customers. You had scaling and growth. What were the things that were really pressing for you that you were working on?

**Chen:** I think that any small company, and PayPal at the time— there's a QA department, which is comprised of one person. There's a design department that's comprised of one person. The largest department there was the engineering, and it had six people in it. Throughout that time, it was everyone that was accountable for the entire product in a lot of ways. You're looking at different things, you're just making sure that everything works out, and you have to be kind of responsible for making sure that what you're building is going to work, and you are going to be the one that fixes everything. You're going to be the one that monitors everything that goes out. During those early days, there was a lot of building out a lot of these features and building out the core of what became PayPal. There's a lot of collaboration involved.

I think that probably the biggest thing learned during that period was that in order to build out a startup when you have just a few engineers on board, there's no formal title attached to each of the engineers to say that you're responsible and only responsible for this part of the application, the website. Everybody's kind of responsible for looking at everything. Everything grew in a synchronized fashion, and so the company grew larger. The QA department grew larger. The design department grew larger, and the features became more complicated, but at the same time it was still maybe—I think an example of that would be maybe the shopping cart that we created for PayPal, or ultimately a big thing was sort of localization, internationalizing the actual product. It's not just U.S. dollars anymore, but you can send transactions using Euros and just translating the actual product so it can be rendered in different languages, and still these products are much more complicated than what we had started in 1999. It was still always a very lean—especially going through this dot-com crash in '99, 2000, 2001, it was still a very lean company, such that it always still felt like you were responsible for this entire feature, this entire development.

So, I had a great time there at PayPal in the early days of being able to work on this entire spectrum of sort of features for this website. As the years wore on, so from '99, 2000, 2001 to even 2004, 2005, when I ultimately left PayPal, the company itself went through a number of very transforming phases. It was fairly easy to raise capital back in 1999, but starting from 2000 and especially 2001, there was dot-com crash. At the time, PayPal was giving anybody that signed up. --you just had to type in your e-mail address and password, confirm your e-mail address, and it would write you a \$10 check. You would have \$10. If whoever you sent a referral email to signed up and registered, they would get \$10,

and you would get \$10. In a way, it was great for getting new users, but it was just burning up. You were paying \$10 and potentially \$20 for everyone.

**Hancock:** Acquisition for new customers, yeah.

**Chen:** And once you stopped that, you're not going to get any new users, and of course when it came to 2000, 2001, that had to be suspended. What eventually ended up happening was, sure, you still get that \$10, but in order to receive those \$10, you have to add a credit card. You have to add your bank account. You have to confirm your bank account. Then you started getting the \$10, and so it was no longer just in the confirmed e-mail address, but it was getting somebody's financial information to be able to transfer cash. As the company grew both through that phase and then ultimately going IPO itself, getting acquired by eBay— there was a large phase of it, where it was competing with eBay. I think the obvious use for PayPal at the time was for an eBay transaction. After the auction closed, the buyer had to send the seller cash, and PayPal was the ideal case for that. It was the best P2P payment service out there, and after the auction closed, the buyer would log into PayPal and send this cash out. PayPal tried to create features that made it easier for that, so when you actually posted an eBay listing, there would be a button at the bottom just say, "Pay this." There would be a little link that would be the payment link, and it was always this kind of battle between eBay because they wanted to take that off and to find a way to be able to create their own payments service. eBay tried to prevent PayPal from putting in these payment buttons, and PayPal was always trying to find another way to be able to get around that, and there were so many things that we learned. There are so many parallels between what we did at PayPal related to eBay and how that's similar to what ultimately was experienced at YouTube.

**Hancock:** Can you numerate some of those other ones? You've mentioned a few, but these lessons that you pulled out of those experiences, some of them were hard-won lessons over these years. Say more about those from the PayPal era.

**Chen:** I was so lucky to have worked at PayPal for many reasons, but I think one of them that ended up being so important to me when I started YouTube and growing from a one-person engineer to an engineering team and to continue to grow to multiple levels of a team was that I was able to see what it was like to be a company with less than a staff of 20, with a very small engineering team.

I was able to see that grow, and you started seeing customer service. You started seeing people complaining that certain things weren't working. You started having QA. You started having live issues. You started seeing that all this ease in fundraising suddenly became— it just starved, and you have to find ways to be able to get around that. In order for PayPal to succeed, it needed to be able to emit itself on eBay. — eBay doesn't want this. So there's this conflict between survival of PayPal and almost using the users as the backup to be the support to say, "Look, we are eBay users, buyers and sellers, but we like and we prefer the service, and so, eBay, if you want us to continue to list auctions and purchase and execute auctions, please permit PayPal to operate on eBay."

That was the same thing years later with YouTube and MySpace, and through that process

of going public, the acquisition by eBay— and I think more importantly is this massive growth of the company. It got to the point where I think in the later phases of 2003, '04, '05, but it gradually crawled up there, was that the stages in the pipeline to be able to have an idea— again, an idea in your head to be able to have that be something that's felt, seen, used by users. From there, there would be phases where the business-development team would have this idea about being able to enter into certain markets, into being able to monetize into certain areas that the service was not in. They would work with a product-development team. The product-development team would have to write these product specs. The product specs would have to have user interface and mockups with the user-interface department. Then the engineers would be coming in to be able to estimate how long this would potentially take, and because the engineers would be at fault if they don't make those dates, they would generally add an extra 20 percent, 25 percent buffer to those dates.

Then after that is done, it gets sent to a QA department. QA department goes through all the testing, sends it back to the engineers. If there's a bug and it goes into the cycle, eventually it gets released by these release engineers. What it used to be was a single engineer with an idea that would be able to get it out and there's a chance that there may be mistakes. There's a chance that there may be a bug out there, but I think in creating this pipeline— especially in a pipeline where each of the stages along this pipeline are not really communicating—was that by the time it gets to this QA phase, they don't really understand why they were doing this in the first place. How does this benefit PayPal or eBay?

I think that that just gradually over time. I was always kind of mentally keeping notes as to : if I were to ever start a company, I would just kill this QA department. I think it was a great thing when it was just the engineers that had to almost be their self-QA. Once they release something, they're responsible for it, and if it doesn't work, they have to be held accountable, not this QA department that's held accountable. There was a lot of finger-pointing if every one of the groups were not collaborating and working together in unison, because something goes wrong, and it's the QA department saying it's the engineers. The engineers are saying, "But that's what was written. "

There's so much with the time commitment. I t was about making those dates, rather than getting something out quickly, that it almost became a conflict. What the company really wanted is to be able to release these features in a quick way, because nobody really wanted to be at blame for being late on their estimates. So all these estimates just ended up being far larger than what they would've been , even years ago with a far smaller team. As we went through this phase of growth, there was a lot of mental notes that I started making as to "this definitely works," and if I were to do something, "this definitely would not work, and I would want to change it."

Even fast-forwarding to the YouTube days when we started the company, I'm sure I had staff that was thinking the same thing about what I did, which is to say if I were to start a company, I would not do what Steve did, and I would do this differently. In a way, that's the culture and the evolution of Silicon Valley itself, and that's how it differentiates itself from maybe some of the other parts of the world that's trying to see what's different about Silicon Valley versus what they're doing. It 's that through this evolutionary process. I still think that many of the folks that are starting companies, they're wearing different hats and different key cards, but they are using the same skills that they've learned from all the

previous companies that they've worked at to be able to apply it to their new jobs. I think that was important for me to have spent those years at PayPal. Through that entire spectrum of time, and I think that without that, even if I had the idea for YouTube, I never would've been able to take that first step into building it.

**Hancock:** Just while we're talking about a few other lessons, there's something else I want to ask you about, which is: you had this sort of unprecedented experience of having the dot-com boom and then bust also in the middle of all this. How did you make sense of all of that?

**Chen:** I think the dot com boom was a little bit outside of the context of what I was doing day to day, at least in the early phases. At the level of an engineering team lead, it's hard for me to know how that board meeting went yesterday. It's hard for me to know how that presentation went with the venture capital firms, to know whether the check was written, if the check was smaller than expected, if it was larger than expected. Through that phase, I definitely saw that, as my responsibilities grew, it seemed like there was a correlation with the ambition for the company.

One of the largest projects, and probably one of the most educational projects that I had at PayPal, was the last project that I worked on. It was trying to launch PayPal inside China. Involved with that was translating the product, and, at the time, you could not transmit cash from outside, from USD, into China, and so it almost had to be a different product altogether. I know that because — again, this helped when we were creating YouTube— the servers were all in data centers in the US. And so imagine if somebody inside China wanted to send cash to somebody else in China, it would have to make a transaction that would talk to the servers here in the US, go back, and because it wasn't a single transaction, that would happen. It would be going back and forth all the time, and we were looking at over 30 seconds to make one simple transaction. And then I think for my part, just—

**Hancock:** What year was that?

**Chen:** This was 2005. And for me, what was helpful to me was to be able to, for the first time, run an engineering team that was over 20 people. — It wasn't just an engineering team working on one specific feature. Sure, there's China, but it encompasses many aspects of this larger project, so it would be payment services. It would be making sure the translation was working. In China, there are a lot more restrictions on what you can do with payments, and so we had to make sure that the product was different to adhere to the rules of transactions within China. And I'm happy to have had that experience, because up until that period, I hadn't really had the opportunity to be able to run a team of that size. I learned a lot of things during that time that I later applied when we started YouTube, and as YouTube grew to be multiple engineers.

**Hancock:** , So, these lessons that you were able to pull and look at the threads is very interesting. Were there any lessons around the IPO and acquisition? You mentioned a little bit about the acquisition. What about the IPO process?

**Chen:** <sighs> I think the IPO process was just crossing a line in the labs that we were running. It was business as usual. I think the large one was the acquisition by eBay.



**Hancock:** Say more, please.

**Chen:** I think when you're going IPO, yes, it's a significant change for the actual company, but it's business as usual for the engineers and for the product. Nothing is changing. When there's an acquisition, then things can change. The acquisition happened, and immediately, I think just weeks after, the leaders of the team, Peter Thiel and Max Levchin, left the company. All of a sudden, the governing decisions were being made by people that we had never worked with from eBay. I want to say that that was also another lesson learned through an acquisition. You check off boxes. If we were to go through an acquisition, if we were to analyze whether the acquiring party is the right fit for YouTube eventually, we'd learned some of those key lessons during that eBay-PayPal acquisition. In a lot of ways, I don't think that that acquisition was optimized for PayPal. It was optimized maybe from a sort of business perspective for the individuals. It was not the right thing to do. I don't know how far I should get into how much I disliked <laughs> the acquisition.

**Hancock:** You are free to say whatever you would like to talk about. I think pulling back some of the layers and helping tease out lessons is really helpful, so whatever you would like to talk about.

**Chen:** Sure. So, eBay's model was about getting features out, and it was about looking at it from the face of "We are eBay, and eBay is comprised of these teams, and these teams are doing this." All that's really measured is that the engineering that designed the product department is creating and meeting the demands of this business development team, to the point where it almost anonymizes the individual contributors.

They had this metaphor for how their sort of product model would work, and it was modeled around these trains. Every train would be a version number, and it almost didn't matter which engineer was working in which train. So all that really mattered was that the products that were supposed to be slotted to be on this train release. As long as we have the resources to do it, it almost didn't matter as to who was doing the work as long as this train was released on time. It surfaced as well when it came to this integration between PayPal and eBay. All of PayPal was responsible for meeting these numbers. These key metrics are determined before, and it's kind of the gauge on whether PayPal was accomplishing what it's supposed to do. It's just: meet these numbers. Through that acquisition period, as sort of an individual contributor, as an engineer, I didn't feel really inspired to be working for eBay and PayPal at the time, and I wasn't the only one that felt that way. Many of the other engineers, many of the other product team, they were a little bit disappointed that, between these two forces, the sum could be greater than the parts. It just felt like it wasn't a correct, good fit between the two. During the YouTube time, most of the engineers that we hired were from PayPal, and so when it came to the acquisition with Google, a lot of them were clamoring, "Let's not do another PayPal-eBay acquisition."

**Hancock:** Yeah, let's not do that again, right? It's so painful. Before we leave the PayPal time, it's so important as entrepreneurs, thinking about the team, the people that are going to be collaborating. That's so important, choosing who you're going to work with, and I know the chemistry and complementary schools. Do you want to describe a little bit about the other people you were working with? You've mentioned Max and Peter briefly, but can you say more?

**Chen:** I think the engineering department specifically within PayPal was amazing.

**Hancock:** What made it that way?

**Chen:** I think it was amazing because of the era that it was built. It was one of the very few companies that, during that dot com crash, was able to transform and to make the sort of morphing changes to be able to continue to survive. It was one of the very few companies that were still doing a lot of hiring during that phase. And so some of the best engineers that came out of this entire area, came out of Stanford, Berkeley, Champaign-Urbana or Carnegie Mellon and some of the best computer science schools all across the nation. If they wanted to come work in Silicon Valley, PayPal was one of the few destinations that they could land at that they would still be able to work in a startup at the time.

**Hancock:** Sorry to interrupt there, but for context, what were the other ones? Just kind of take us back in time. What were other firms that really had that deep engineering expertise, that were other magnets, just so we can have a sense of that era?

**Chen:** <sighs> I think that during that time, it was really a coin toss whether or not that company that seemed to be doing so well in 1999, that was receiving so much funding, would make it through year 2000, 2001 and still be alive at the end of 2001. I can't really recall many of the companies that started in 1999 that are still alive today. There's the Yahoos and the Googles and the eBays, but a real company that was really started in that 1999 time, that was able to make it through and continue to survive with the fundraising that it did —there's only a few of them. In some ways, that was the fortune of PayPal at the time to have started in '99, and to be able to make the engineering and the product decisions to have survived that period. But I think the award for that was being able to get some of the best engineers that were available to be working that time.

**Hancock:** You ultimately made the decision to leave PayPal. You want to talk about that decision and then how you decided when and why, then how you made the decision to go to Facebook?

**Chen:** Yeah, so because I was an early engineer <sighs> at PayPal, when it eventually went public, the stock options for someone that started in 1999, with the stock price that it went public at, it was about a million dollars. And as a 20-year-old coming from the Midwest, to have become a millionaire in the 20s was—

**Hancock:** Wow.

**Chen:** Was <laughs> beyond my furthest dreams. <laughs> At that time, and thinking back upon it now, I cannot say I was silly during my mid-20s. But at that time, I had stopped doing everything that I liked doing. I had stopped playing computer games. I had stopped just spending any time doing anything other than working and programming. I was always thinking that, once I leave PayPal, I would just be able to do all the things that I'd sort of suspended doing. I remember at the PayPal in 2005, I was thinking that you start getting checks for your 401k when you're 59 and a half years old. I don't know if that's the case still now, but in my 20s it was. I was thinking, "I'm on a

good trajectory here at PayPal.” I could become the director of engineering, keep going up, and in another 30 years I don’t know what it could’ve become, but I was on a good trajectory and making six figures and having a million dollars in the bank account.

That pretty much fulfilled a dream about coming out to Silicon Valley and having been behind this company that almost transformed the payment services. <sighs> But I think lingering in the back of my mind was always: I have these ideas, and if I don’t do it now, I don’t know when I would do it. It’s almost similar to, in a way, coming out to Silicon Valley in the first place. It was that, “Look, if I don’t do it now, that opportunity, that window of opportunity may close.” I can always go back to school. I could always go maybe find another career job in the Midwest. And that was a similar thought in 2005 was that, look, if I had an idea, and if I don’t do it now, if I don’t do it before I get married, if I have kids, I don’t think there’s going to be another time that I’m going to be able to do it, and that time window was closing.

And at the time, starting from ‘99 to 2005, I had already been at PayPal for a long period. I felt that I learned just about everything that I could really learn from the startup phase, the investment phase, acquisition and then, as the company expanded, to be able to see the costs of what it takes to expand the company. Starting from about 2005, especially after finishing launching this massive China project, I was thinking, “I don’t think there’s going to be another project that’s going to be bigger than China. I don’t think that there’s anything else that is amiss in working for a startup. So, I think now is the time to start exploring and doing something else.” Similar to moving out to Silicon Valley in the first place, I started re-engaging with Chad to talk about what we wanted to do next, and that started in late 2004 that we started having these meetings.

**Hancock:** Are there any others involved with you at those early conversations?

**Chen:** There was another engineer, Jawed, who also came from Champaign-Urbana at the time. We had collaborated on a few projects back at PayPal. We would get together either at Chad’s house, have dinners in Palo Alto, and just talk about what we wanted to do next. I think that all of us wanted to do something else, something together. Chad had left PayPal already a few years ago, and we were all kind of around that same age, about 24, 25, 26, and we had all been part of that whole PayPal experience from the very beginning. In a way, it provided some confidence as to say, “Look, if we can build this global payment service from a group of 10, 20 people, let’s talk about something else that we want to do.”

I think that some of that confidence is probably artificial in that it’s always going to be difficult to start a company that succeeds, but I think the confidence just ends up building, purely because we went through it once with PayPal. I think that for a lot of folks out there that have a great idea, they don’t have that confidence to be able to act upon that idea, to be able to say, “I know this is a startup idea, but I have a great job right now. I have insurance. I have a great sort of career that’s ahead of me. I’m not willing to stop all that to create a startup.” But having gone through PayPal once where all of us through different stories somehow ended up in Palo Alto—and not having gone to school here, not having grown up here, all of us ended up here—started on PayPal and then going through all the different turns. We ended up in 2005 to have been the beginning crew that built PayPal. So, we started just talking all the time about the different things that we wanted to work on, and at the time, YouTube was still

far down the line in terms of the idea. But that was when we first started getting together, this initial group of three cofounders of YouTube.

**Hancock:** And what kind of ideas were you considering? As you said, YouTube was far down the line. You were kind of trying on for size a lot of different ideas?

**Chen:** I think that we talked across just about everything that we could think of. It was a lot of spontaneity. For me, I think the ideas are from being more observant about what could be maybe enhanced or optimized <laughs> if technology was a part of it. I think maybe just having a shorter amount of patience <laughs> with everything that you're doing and everything that you get irritated by, seeing if there's a way that technology can be able to make it better. <clears throat> Given the limited amount of time that we had to be able to read news or read what we're interested in, I always thought that it'd be great to be able to create a better sort of information news reader that would be customized for your interests.

I remember building something like that as a mock-up, and it was working for a while. There was another idea that was about looking at real estate properties and being able to do a virtual tour of different homes without being physically there to walk through of the homes. But it's stuff that I would use. It's stuff where I only have a limited amount of time to review, so this would make it easier to be able to not be having to personally go through and say, "I'm not interested in this article; I'm not interested in this. What are the ways that you can just show me, <clears throat> if I have 15 minutes, the 15 articles that I would want to read?" I was buying a home, and I was looking at some of the properties up in San Francisco at the time. And I thought, "It would be great if I could just be able to see all the homes in the area, in the Bay Area, without having to make an appointment and be there in that time window." And so, during that time when we were meeting, it was a lot about these discussions, and it was still high level as to "What do you think about this idea?" and everybody would contribute.

**Hancock:** If we could sort of teleport back in time, can you just describe one of those conversations? Where were you, and how did it go? You said you were in Palo Alto at a restaurant or somebody's home? This fertile brainstorming where people are trying is kind of like opening a black box of helping people who are trying to learn from you understand how do you explore ideas, and how do you select them? So, if you could just say a little bit more about what one of those conversations might've been like, and how did you then later decide on what you decided to develop?

**Chen:** It was important to get the three of us always in one room, and just spending the three hours just throwing out ideas and somewhat being really respectful of one another. There's a list of things, but it was more about working together to kind of evolve or talk about, "Look, here's an idea that I have about finding homes. Chad, would you ever use this?" And I think that whole process, and as we started getting better at it, was trying to figure out what we wanted to do. Was this problem just something that I was having? Was this something that the group would also see as being useful for them? But a lot of it was we never built anything at that time. It was just purely conversations. And I think that's it. That wasn't completely new to us in 2005. We've always gotten together and talked — even when we were full employees at PayPal, and we still were at the time. It was just talking about "Is there something else that technology could be able to fix?" Was there something

else that we shared in a belief that, if there was something like this, we would be able to all use it and to be able to see just other friends and other people using it?

**Hancock:** That's so helpful to hear a little bit more detail. Can you point to a time where the sort of germ for YouTube came from this conversation? What was that?

**Chen:** We started having these meetings in late 2004. Actually, to rewind the clock a little bit was that PayPal, during that period, was in Mountain View. As part of the day, all of us would be building different features, different products, and then we would always go out for coffee during the afternoon. And during that afternoon in Mountain View, we would also meet just not fellow coworkers and friends from PayPal, but we would be meeting some of the other entrepreneurs in the area, and there were many that were in Mountain View at the time.

There's a coffee shop, this Dana Street coffee shop, that we would pretty much be at every day, and while we were waiting for coffee, we would be talking with others. And somebody that we had met there was Jim Young, who was the cofounder of this website called Hot or Not. <laughs> And the idea of Hot or Not was you would upload photos of yourself, but as a user, what you would do is you would gauge, based on every photo that you would see, whether or not the photo represented someone that was hot or not. And so within about 10 minutes, you could go through -- with just clicking "hot" or "not," you would be able to go through hundreds of these photos. <clears throat>

And so having talked to Jim at the time, I think it gave us the idea whether we could do something maybe similar to it using videos instead. We started talking about using videos for something, and in the beginning, we never thought the application for videos, for what YouTube is today, to be a general place to upload any type of content. It was trying to figure out a specific purpose, and so that specific purpose, we started using Hot or Not as an example of can you create Hot or Not using videos instead of photos? So, from these meetings, we started talking more about this. I remember it was February 14 in 2005, so that was Valentine's Day, and all three of us were in Chad's garage. His dog was there, and the three of us, Jawed, Chad and I, were there in that room talking about whether we can create a video version of Hot or Not.

**Hancock:** Perfect Valentine's activity.

**Chen:** <laughs> Yeah. There are a few memories from that night. I think that, one, we did a Google search after we came up with the name "YouTube," "You" being as a sort of you, user-generated content, and "Tube" representing a TV. It was kind of you, user-generated, to be the person that's creating this content, and you to be on the other side of it, to be the viewer of this content, and the viewing and the creation is for the TV or something representative of the TV. And when we came up with that name, we did a quick search on Google, and it's hard to believe today, but in 2005, if you did that search for YouTube on Google, zero results came up. So that night we registered the domain name "YouTube." You can still go back and find when the domain was registered. And we started talking about how we were going to build this out. Well, in about three months, we ended up building the initial version of YouTube, but it was always under this idea that it was going to be a dating video site, not what YouTube is today.

**Hancock:** So this initial idea that you had for Hot or Not —we’ve been talking a lot about the business idea and your initial cofounders, but technically, when you say you built it out, walk us through that, those first few months. How did you decide the features and the UI? Say a little bit more about how you decided to sort of start for your users.

**Chen:** I think with the first version of YouTube, there was always the shared needs for the mandatory requirements for all websites or all apps out there, right? And so that’s everything from registration and forgotten password and being able to send emails out when you share content. But the biggest change with YouTube at the time, and even at the point of release, was, any videos viewed in 2005, you needed to have QuickTime player or you needed to have Real Player; you needed something.

**Hancock:** We were talking about that evening, February 14. Do you mind just telling that story again?

**Chen:** So that night, February 14, inside Chad’s garage, a few key things: I think other than it being a dating site, everything else that became of YouTube when we launched— and I think in some ways what it is today— we talked about, discussed and came up in that room. So the domain name I said was that we made sure that what we came up as the name for the actual site app was two words, “You” and “Tube,” “Tube” just being sort of synonymous with television, and so it’s sort of a way to be able to watch content online. And then the “You” has two stances. One of them is you being you, the creator of the content, and you being the viewer of the content. It meets in the middle, but YouTube is user-generated content for other users. Then we made sure that the domain wasn’t taken at the time, and we registered the domain on February 14 in 2005. Days after that evening was when we started looking at the technology that became YouTube today.

It’s hard to believe that before 2005 these things were not possible. It was not possible to watch a video inside a browser across the various operating systems, from Mac to Windows and different version of Windows. Because of that, it was not possible to be able to embed one of these videos onto your own website, onto a MyS pace at the time. And I think the last key thing that we did at YouTube was this natural ability that, without human interaction, any video that you would upload —whether it’s from your webcam, your digital camera, as soon as you upload it — would be viewable to anyone that you want to share that with. What that involved was this transcoder that was written, which would understand all the different video codecs out there and all the audio codecs out there and the combinations of the two and being able to transcode that video into a video that was viewable inside the browser.

All three of those were key to the success of YouTube. The idea itself was an innovative idea, but to be able to streamline that process, to be able to take any video that you can create from any source, and to be able to have that be immediately available for you to share and also to embed on websites, web pages and profile pages that you use on other websites, nobody else was doing that at the time in 2005.

**Hancock:** As you describe them, we really realize how significant that proved to be. Was it just so straightforward? It sounds as if it’s straightforward, these three things coming together sort of seamlessly

integrated for the user. Was it? How did you experiment or evolve quickly in that early period to pull those features together, its capabilities?

**Chen:** There was definitely a lot of all-nighters that were pulled to be able to have this all put together in a matter of months. But the real key thing was the technology, being able to just work with videos. Again, to be able to register for a user, we've done that all the time with databases, with the ability to be able to do a registration, to be able to share the emails that go out. That's pretty much standard stuff. The real change that we did was with videos, and so that was deep diving for months into how we can embed these videos.

The video codec that we ended up using was the only one that was already inside the majority, over 95 percent of the browsers at the time. That was using Flash video, and so any video that would be uploaded, we would be able to re-transcode that into Flash. And because it's in Flash and because it's embeddable inside a browser, that made things a lot easier for all the other features that we wanted, so as soon as that was uploaded, then we would transcode that video. We would create image stills that you can embed onto other sites. You can embed this Flash player onto other sites, and as long as it's on any other site out there, anytime you press the play button, it would be streaming from YouTube. All of that was making sure that we could get videos that were uploaded from different devices to be transcoded into a video that was in the Flash codec, and that was it, but that probably took the longest amount of time. There's just a lot of back-end requirements for it: the amount of computational power that's required to be able to do it, the amount of storage that's required to be able to host this, to be able to generate a lot of this on the fly, and just to be able to understand all the different audio codecs and video codecs out there to be able to transcode it to one codec that was usable across all the browsers.

**Hancock:** It's really huge, right? — You have this small, tight team. Who was doing what for those times of intense development?

**Chen:** I think same with probably most startups, certainly us at the time, there was no talking of titles. It was just bringing together the different sort of specialties and experiences of what we've done before. I think with Chad, I knew it was a good combination, because we had worked together for so many years before that. He was the only designer at PayPal; I was mainly responsible for a lot of the user facing features, and so we had collaborated and sort of had a long experience working together already, and so this was more or less just a new product, but we had that relationship.

And then coming from Jawed and my background, it was mostly on the engineering side; coming from Chad's background is the design side, and where we met up was what the product was going to become, and definition of what YouTube is and what YouTube was. A key component to building it was that it was possible to work for three days, four days almost by ourselves, and then we would meet to be able to talk about, or we would email, we would call to talk about what the actual product was. But then as soon as we talked about what we wanted this product to look like and various parts of what became YouTube, we could always all go home and do our work. During that time, with such a small team, we were able to be very efficient with our productivity and still be synchronized on what we were trying to build.

**Hancock:** It's really amazing. So, you chose a name. You got the domain. When did you incorporate? When did the site go live? What were some of those kind of benchmarks along the way?

**Chen:** I know that it was from February to May. May was when we launched the video dating site. In between that time, Google Video had come out as well, and I remember it was around April of 2005 where we had a meeting discussing whether or not we should give up, because we would be competing —not directly, but competing— with Google Video. We were so close to releasing it, so we decided, "Let's just get this out there, and we'll see how it does."

**Hancock:** What were your biggest concerns as you were thinking about giving up?

**Chen:** I think doing anything to compete in a space that Google has focused its engineering team and its product team into was intimidating. Here's a group of three people that's building something that had such high requirements for just the back-end side of things, and had to be able to pay for all the storage and all the machines, the data centers, the networking, the computation power on our own credit cards versus what Google was doing. Even if we were to build that same exact product, and if it came down just to resources, there would be no way to compete. I think that we just said, "We're mere weeks away from launching this thing. Even if we're going to be competing with Google, it doesn't make sense if we don't at least get this out there." That was in April that we decided to do that, and then in May we launched the first version of the YouTube.com. For the first time you would actually see the YouTube website.

**Hancock:** First video, was it about a trip to the zoo? Or was that an earlier one?

**Chen:** If you were to look at the database of all the videos, there were hundreds and hundreds of videos that were created prior to the first public video. I think the hardest part about launching YouTube during those days was trying to get the videos to be synchronized with the video and the audio from all the different codecs out there.

**Hancock:** So hard.

**Chen:** <laughs> I remember creating so many four-second, five-second videos of just talking in front of the camera and trying and testing all the different codecs out there. I don't remember when that first video that Jawed uploaded was, but I think that was one of the first videos that we would want to share <laughs> with the users of YouTube. But at the time, it was really still supposed to be a dating site. It wasn't supposed to receive videos like that. And when we released this video dating site as YouTube, we literally got zero users, zero videos uploaded during that whole week.

Looking back, it should've just been a general video site. It's hard to believe that some prospective dater <laughs> would sit in front of a webcam and just, for a minute, talk about who they are and what they're looking for. And I would say that all the videos would be the same more or less. It would just be a different person creating and introducing themselves. All the backend was working. Anytime you wanted to upload a video, it would be able to transcode or create the image stills. You can fast forward; you can reverse; you can share the videos; you can embed them. But we weren't getting any videos.



**Hancock:** So how did that feel? All this work, all this anticipation, and then no users, nothing uploaded. First day, right? That anticipation, your launch, nobody?

**Chen:** I think that was almost—

**Hancock:** Day two, nobody. Day three, nobody.

**Chen:** Nobody knew about the site at the time. We didn't have marketing dollars. We didn't have money to give everybody that signed up 10 dollars to sign up or 10 dollars to share the accounts. It was relatively difficult to even create a video back then and almost impossible to edit, put the sound effects, and take the time to upload. Sharing the video takes an awful lot of bandwidth to upload and view this content, and only broadband users could be the ones actually contributing to the site.

The expectation was pretty low that we were going to be getting a lot of content in, and even in those early few months, we were just happy that we were getting 100 views a day, 500 views a day. Looking at the actual numbers and looking at the percentage of growth now, every week it was doubling in terms of views, in terms of the uploaded videos. But doubling back then was from 100 views to 200 views. They always looked, in the absolute sense, pretty small numbers. But if you were to graph that out, it would be something that could easily be looked at now as a success from the very, very beginning. We ended up taking everything on the backend side of YouTube from its first days as a dating site and rebuilding it on only the presentation tier. It was no longer hearts; it became stars. And then it was just, "Let's take the same concept and generalize it," and that's what YouTube became a week after the launch.

**Hancock:** You had this new insight, the general video instead of dating, and then this incredible journey starts. Walk us through what happened next. — You talked about pivoting and continuing to add features to test and try. . Can you say more about that?

**Chen:** I think different from many of the other startups out there, YouTube was not necessarily competing or trying to create a better version of a solution to a problem that already existed at the time of launch or by competitors. YouTube didn't really have competition at that point. YouTube was more about whether it was even possible to use the Internet as the distribution platform for videos. At the time, bandwidth was astronomically priced compared to what it is today. And with YouTube, every time you wanted to watch a video, it was fine for the viewer, because they're already paying for broadband on a monthly basis, and they're able to stream this content. It's positive on one side for YouTube, because people are using the website, people are using the app, and people are using it to share and to watch videos. But every time somebody viewed the video, we had to pay for it, and there was no benefit to the growth of the website. It wasn't getting optimized. We just always had to pay the same bills.

As the website grew as the number of views grew, we were just spending more and more money. In those days, it was just trying to see if it was even possible to be able to use the Internet as the distribution rather than using sort of a cable to your house. During those early days, it was more about trying to optimize for everything, for the computational power it takes to transcode a video, the amount of power to store and the storage of these videos. Videos are sizable, and every time

a video gets uploaded, we would have to find storage for it; we would have to find backups for it; we would have to stream this content anytime somebody wants to view it. We didn't have funding at the time, so I think the big thing in those early days was just trying to see if the Internet could be the backend for videos.

**Hancock:** You were linked at the time, as I recall, with Myspace. Is that right? A lot of the users were using Myspace, right?

**Chen:** Yeah, yeah.

**Hancock:** What was a general profile of your early users? Because this was new. This was all new and discovering who was going to use it was part of this brand-new phenomenon.

**Chen:** When YouTube started, it was always trying to find, "What is the real use here?" There's kind of video bloggers out there that were trying to create blogs using video. There is the case where you have a birthday party, and the grandfather takes a video and wants to share it with the family, yes, but what about a more general use case where you're uploading the video without intention of exactly who's going to be viewing this? It's the whole concept of a more public, potentially viral video. Similar to those days at PayPal and eBay, again where PayPal was a service. It provided the ability to be able to send money from one person to the other, but how often do you need to use that service on a day-to-day basis? Not often from my day-to-day routines. But on eBay, they need to do that every time a buyer and a seller needs a transaction, every time the auction ended.

So, with YouTube, it found that the users on Myspace, a social networking platform, would be the ideal audience for YouTube. They already shared a lot of photos, and they had the same devices to take videos that took those photos. Once Myspace users found out that YouTube existed, and it was able to embed these videos that they created on their devices, upload it to YouTube and be able to embed them—we would have a little copy-and-paste code that you can copy and put it into your Facebook profile or your Myspace profile and to be able to see that video playing. It would look like whatever your photo is, and then there's a video that's seamlessly integrated. The only thing that we would put in there would be a YouTube logo when the video is embedded in there before you hit the play, and as you clicked on that, if you tapped on the video itself, it would bring you back to YouTube.

And so that was sort of viral marketing. We didn't have money to be able to do any marketing, but I still think the best form of marketing is this viral marketing, this organic marketing, because it means in a way the users are responsible for the marketing. I think it's a lot more authentic that it's not an advertisement; it's someone that you actually trust, a friend, a family member that's using this service, and you, too, would use it. But just like the days with eBay-PayPal, Myspace was not happy with YouTube. In fact, Myspace probably would've never let YouTube on, but we found a way with the embedded code to get around what Myspace permitted. For a number of months there, YouTube was being used by more and more and growing its number of users, and it was this constant battle between the two. Myspace would try to do something that would make it harder, and YouTube would change it, and we would adapt to it. For days it would not be possible to embed or watch a video, and then for days it was fine again. And I do remember it was December 26, 27, 28, somewhere

right after Christmas in 2005, Myspace completely banned YouTube from being used for that period of time, no matter what, including the old videos that you had already uploaded to YouTube. And no new videos could be uploaded to YouTube that could be seen on Myspace. Again, it was similar to PayPal and eBay, because it was calling out to the users that were using the service. It's not just for the benefit of YouTube as a company, but it was almost calling out to the users, and the reason they used Myspace was to be able to showcase and to be able to communicate and to be able to interact with their friends. Videos became a core part of that, and so we essentially just said "Look, users, contact Myspace." And there was nothing. If Myspace decided that they're not going to listen to what their users wanted, if they just completely went with their own decision and stuck with it, there's nothing that we could've done.

**Hancock:** Huge risk, right?

**Chen:** I remember that deeply nested in their support pages, I think as you keep winding through the typical support links with the frequently asked questions, there's a phone number and an email that they finally reveal to you. If none of these ever help, call this number. We dug through all of that and put it on the front page of YouTube, saying "If you have any problems with your Myspace videos, contact this number." And I don't know how many phone calls and how many emails they received, but that was turned around. And not just for the benefit of the users, but it did say that Myspace permitted YouTube to be used in their website.

**Hancock:** How long in total was that moratorium roughly speaking?

**Chen:** <sighs> Say about two days, three days? I know that there were a lot of emails that were sent by me that were never responded to on the Myspace side, so we finally put out that phone number <laughs>, and that made the decision. That made the change.

**Hancock:** Thank you for sharing those details. While YouTube was attracting attention because of this incredible growth, up and to the right, this exponential growth, not only for Myspace but from "Saturday Night Light," the media. Tell us about that. And then also investors, too, right? Pretty quickly. Time Warner, Sequoia and others.

**Chen:** <laughs> I had money in my bank account, and I'd just moved to San Francisco, and that was a large mortgage on my house at the time, and at the same time, paying for my first mortgage is also paying for YouTube out of my own credit card for the first time. I told myself that I'm going to give myself two options. One of them is, if in two years, if whatever I'm working on doesn't work out, then I'm maybe going to go back to eBay-PayPal again. The other thing was, if I burn through my cash in my bank account, and I set that to be \$100,000, but if I burn through this, then I have no choice; <laughs> I have to go back. Those days were before that financial round that we closed with the series A with Sequoia. For some reason Chad and Jawed didn't contribute. For some reason I was the only one that was paying—

**Hancock:** How did that happen?

**Chen:** Looking back, I never really thought about it, but <laughs> that was my credit card. I remember that I just kept asking for increases in that credit card limit. I didn't know you could pay for credit cards. Even if your limit is 6000 dollars, you could pay it multiple times through the month, and so even with a 6000-dollar-- I learned a lot about credit cards <laughs> during those days at YouTube, but I didn't know that. <laughs> I t was raised from two, three, four, five, six dollars, and then they refused to <laughs> raise my limit any more.

But YouTube was still doing well, and we just had to pay for the servers that we were using, so I ended up paying multiple times through the month. But really, it was coming down to the last month where, no matter how well the service was doing, no matter how well YouTube was doing, I just couldn't afford keeping it up. We were starting to bring in some of our old friends from PayPal, and luckily, because of the PayPal and the eBay and the IPO, they had a little bit in their bank account to be able to work for six months, to work for a year without having to demand a salary. We were lucky in that area, because we were able to grab some of the best engineers that we knew from the PayPal days to come together to work at YouTube.

But we needed that funding round desperately. There's only so much that you can do on a credit card. There's only so much to do without an office where everybody's kind of working remotely. That funding round came from Sequoia Capital, and we knew the partner at Sequoia, Roelof, who was the CFO at PayPal, and then after PayPal, he left to go become a partner at Sequoia. We talked to a number of VCs in the area, but we were most excited that Sequoia made the offer just given their past record and given our relationship with Roelof that we wanted that to be the lead, the VC for the series A for YouTube.

**Hancock:** Was it easy or hard for you to make that decision?

**Chen:** <sighs> I would say that the advice would always be to at least talk to one or two other venture capitalists or investors just to hear what their advice is, what they foresee as the market, but I think more importantly, just to get on that sort of competitive spectrum. Where do these investors feel like what our valuation should be? The other thing is, if you get a bid from one VC, you can always go to the other one to say, "Are you sure you don't want to raise what you're bidding?" We did get a few. We talked to a few other VCs here in Sand Hill Road, but I think in the back of our minds we always wanted to move forward with Sequoia.

**Hancock:** Your pitch. You were a known quantity to Roelof. You had personal connections and had a lot of confidence in the capacity of the team and this vision, which was already attracting an incredible amount of users. But do you remember what the elements of the pitch were for you at the time, and how you portrayed the vision, the market? It's easy to look back and say, "Of course it turned out this way," but at the time, how did you make the pitch?

**Chen:** I think most startups, if they have the opportunity to be able to pitch someone like Sequoia with its history— it's the sort of heritage behind Sequoia. They would spend a lot of time iterating through the slide deck and making sure that you talk about the potential market, the monetization opportunities, the growth, the product, the team. And it was just such a small team at that time that we spent one day, half a day, to prepare that deck. There were just so many things that, if we didn't take care of the product,

YouTube was going to go down. There were no graphics in it. There was nothing in that deck other than YouTube's idea about being able to share videos, to be able to transcode videos, to be able to upload user-generated content, and the key thing was, "These are our metrics. This is the growth." And there's no question that there was some potential there. There's no question that this idea of YouTube was something that users wanted. I think the bigger question was, again, coming back to YouTube didn't really have competitors other than itself. It was whether this concept would work using the technologies that were current at the time. I remember that deck was just, "Here's a few metrics; here are a few numbers," and when it came to monetization, it was almost TBD. It was almost, "We'll figure this part out later." The opportunities for monetization are always going to be there. We can always put ads, pre-rolls, whatever we wanted in these videos, but we just have to make sure that we can continue to grow as a company with the growth of YouTube itself.

**Hancock:** So, the pitch was successful. For the record, can you just summarize sort of the amount of investment that was made in that first series?

**Chen:** Pretty quickly it became, "You need to come visit again." Sequoia doesn't make the deal unless all the partners agree to it. We went back twice more to give the same presentation, and pretty quickly came the offer for a 3.5 million dollar investment in YouTube. We also sought out Excel Ventures and talked to them as well, and they came back with a better offer than Sequoia, but it was really compressed of a schedule. I don't remember the exact time, but it was just a very small time window to be able to do that.

**Hancock:** Was it weeks?

**Chen:** What's that?

**Hancock:** Was it weeks?

**Chen:** Yeah, yeah, yeah. We really <laughs> needed external funding, and we knew that, if it could be Sequoia, that would be our top choice. They have all the connections. They had connections with other startups. They have connections with the boards of many of the other companies that we would potentially want to partner up with. As soon as that offer came in, we took it, and we were able to work out of their offices for a while before we found our own office. We were able to get some of their help for referrals for other areas of the company; At that time we just had engineers and one designer, and so all the other areas we didn't have until the deal closed.

**Hancock:** This is a great place to end. This is just a gripping story. But did you celebrate? Did you take a pause to celebrate when you got the funding?

**Chen:** What happened then?

**Hancock:** Was there anything that marked that significant occasion?

**Chen:** That's a good question. Either we didn't, or maybe we did too much and I don't remember. I don't remember when that deal closed. But I do know that, when that deal closes, you don't get the money right away <laughs> or for a while or for weeks. And so as happy as we were that we had a bank account that was going to get populated with millions of dollars, I was still paying servers on my own credit card for another month or so. People were still working very hard without a salary, without any paycheck. But I don't remember <laughs> any party being thrown. <laughs>

**Hancock:** And did you keep your deck, your original pitch deck?

**Chen:** I think that's somewhere out there.

**Hancock:** Is it somewhere?

**Chen:** Yeah. I don't have a copy of it, but I know that it's somewhere out there, because there are some services that collect the first draft or V1s of decks, and I remember seeing that a few years ago.

END OF THE INTERVIEW