

URL: <https://ecorner.stanford.edu/videos/how-instagram-scaled/>

Kevin Systrom, co-founder of Instagram, first spoke at ETL in 2011, just seven months after Instagram launched. Here, he returns to ETL nine years later to draw some new insights about the the startup's rocket-like growth. In an interview with Stanford professor of the practice and STVP faculty director Tina Seelig, Systrom reflects on the lessons he's learned during the course of that journey, and also talks about his work on Rt.live, a new platform that aims to model the COVID-19 pandemic.



Transcript

(electronic music) - Who you are defines how you build.. Hi, I'm Tina Seelig, and I'd like to welcome you to the Entrepreneurial Thought Leaders series, which is presented by STVP, the entrepreneurship center at Stanford School of Engineering, and also by BASES, the Business Association of Stanford Entrepreneurial Students.. Today we are super excited to welcome Kevin Systrom back to our ETL stage.. When Kevin was here first in May of 2011, Instagram had just launched the previous October, and he and his co-founder Mike Krieger spoke about how as two young Stanford alums, they leveraged their education in engineering and entrepreneurship to create Instagram, and how they navigated the first eight months of a rocket-like growth.. It's almost a decade later, and Kevin is here to discuss what he's learned over the past 10 years.. Welcome, Kevin.. - Thank you, I'm so excited to be back, and I can't believe it's been nine years.. It feels like it was yesterday.. - Isn't it amazing? Time really does fly.. In fact, it was 15 years ago - It does..

- that I first met you, and you were remote.. (Kevin laughs) You were living in Florence, and, - I was.. - and you were interviewing for a spot in the Mayfield Fellows Program, and because you were remote, we ended up talking to you by phone, and here we are, 15 years later, meeting remotely again.. - I actually remember that, because I had to go to just the right location in the, my host family's house.. I was studying abroad in Italy, and I had to crouch down just right with the antenna out the window to make sure that I had signal, and I was super nervous, so I don't know what I did that day, but thank you for letting me do the program.. I'm not sure this all would've happened without it, so, but here we are, 15 years later.. That's awesome.. - So you know what's super funny, you probably don't know this.. After your interview, we all looked at each other and said, that is a real entrepreneur.. So you proved us right..

(Kevin laughs) So today we're gonna have an opportunity to do something we haven't done before.. We're gonna play some short clips from your 2011 talk, and we're gonna be able to let you reflect on them and see if your attitudes and your thoughts have changed after the last 10 years of experience.. So we're gonna take our ETL time machine back nine years, and the first thing - I love this.. - I wanna play is a short clip of, you're talking about, I think, I love this, talking about the fact that there's always a great time to start a venture, so I want you to watch this and see if you still agree, especially during this really crazy time right now.. - And I think really there's no better time to start than now, whether you want to join a startup or whether you wanna do something yourself, I think the best thing you can do is to start.. I remember, and I'll tell this story just because we're at San Fran and Tina's here, I remember studying abroad and applying for the Mayfield Fellows Program, and I was so amped about learning how to make websites that I made this thing called The Tree List which was a terrible knockoff of Craigslist for Stanford, and I was studying abroad in this little room, and I was making the website in that room with no internet connectivity, but in order to push code out, I had to go in the snow, like it was snowing in Florence at the time, across to the library that just eked free wifi out of their window, then push the code, and it went up, and I still remember, people started using it at Stanford, and I was over there in Italy, and this, there was this awesome connection with people, and what I realized then was just, the hunger to build stuff and put it in front of people is really valuable as you get moving in entrepreneurship, and there's no reason you can't start.. - Okay, what do you think? - Well, what I think is I chose a great shirt to wear today, because I was pretty sure it was close to the shirt that I was wearing nine years ago, so if anything's involved, evolved, it's not my fashion choices.. But in terms of the, in terms of what I said, I think, for any individual, there's a right time to start for them, but there's no right time to start in the world.. I mean there were so many examples of companies that've been started in downturns, in bubbles.. You think of Google getting started, I think it was the late '90s, right? Right before

everything came crashing down..

There's no time, there's no right time to start in the broadest macro sense, but there is a right time to start for you.. So for instance, one thing that I think really helped me was not starting a company immediately out of college.. And that was just for me.. For some people I think it's perfect to start right out of college, but what I needed was a set of technical skills, a network, right, a group of people that would help me get this thing off the ground.. While I had met Mike, my co-founder at Stanford, I met my first investors basically while I was working at Google, and I learned how to build a service while I was working at a company called Nextstop, so it actually took a bunch of those chapters together to create the opportunity that allowed us to go start Instagram.. But there's no right time in the world, there's just a right time for you.. But I will say, in general, it will never feel like the right time, 'cause you'll always feel like you can learn more, that you'll always feel like maybe it's not safe.. I remember my mother, when I called her saying, "Hey, I'm leaving my job and I'm gonna start this thing." She said, "But what about your health insurance?" And I remember thinking for the next two days about health insurance, and what would I do, and I mean the other reflection is man, I now have a gray beard, and I looked a lot younger in that video.. (laughs) But back then, I felt a little bit more like anything goes, and it was fine, but I guess my point is, there's no right time, but you have to make sure you're set up with the right skillset to get started.. But I still think today, we were an underdog..

We were not the most trained, we were not the best computer scientists, we were not the best managers, but somehow, either through luck or perseverance, we were able to start this thing called Instagram, and I'm thankful I did start that time, because there's an opposite world where maybe, maybe this all hadn't happened and we wouldn't be here reflecting on Instagram, but I still think it would've been an amazing experience.. I mean imagine the thrill of starting a company, getting something off the ground, giving it to people, seeing if they like it or not.. That's the reward.. Forget about everything else.. The reward of starting something and creating is one of the best rewards in the world.. - Now, it's a really unusual time right now.. What about people, is this a great time or a scary time for people to think about starting something? - Well can I say both? Which is, it's scary because we just don't have a prior on where we are right now, we don't know if we're in recovery, we don't know if the next five years are gonna be just Zoom calls, so we don't have a prior on what business looks like, but what we do have a prior on is that most of the time, these things happen in the world, and we get through them eventually.. They're often painful or often long and drawn out, but someone once said to me, and I really agree with them, that while business may be cyclical, innovation is not cyclical.. Good ideas don't just come when the market's up.. Good ideas might come all the time, and in fact, good ideas might come when there's a lull in the market because no one's attacking a greenfield area where there's plenty of opportunity, but people are worried about starting a business and maybe a little more hesitant, but you with your ambition and excitement for a given problem, might be able to go attack it and start something really spectacular..

So it might be both.. (laughs) - Well I get that, really interesting perspective.. I love the fact that when you started Instagram, you of course needed to raise some money to scale the venture, and this next clip is about the way you thought about raising venture capital, and the way you thought about the types of VCs that you were approaching and how they were gonna be on your team.. I'd love to play this for you and get your reflections on whether you still believe this, and also about how you think about building your team in general.. - In all the books I read in college, people were like, what you wanna do is you wanna build this beautiful slide deck with graphs going up and to the right, and you wanna go up and down Sand Hill Road and tell everyone that yeah, Kleiner's in on the deal, are you in on the deal? And you play everyone off each other.. And like, I just, when we were going to raise money, I said to Mike, I was like, I don't wanna meet with all these people.. What I wanna do is I wanna seek out, and if we can actually show the reality, I wanna seek out the people we really wanna work with.. I think instead of optimizing for things like valuation, you should consider optimizing for people.. There're a lot of venture capitalists out there with a lot of knowledge, and I guarantee you your idea matches really well with a select group of those folks.. In a way, you have to think about bringing on venture capital as you're hiring part of your team, and who are the people you wanna hire? And I think far too many people we talk to, even at an angel stage, are like, we need to optimize for getting some ridiculous valuation right out of the door, and then they end up with some VC firm they don't have a lot in common with, and they don't get along, and bad things happen..

It's all about the people.. - Okay.. So we-- - It is all about the people.. - We hear that all the time, it's all about the people.. How has this worked for you? I mean, can you talk a little bit about the team that you built, and how you choose the people that you have join your team? - So first I'll say, I think, I was spot on with the idea that it's all about the people, because that was my experience throughout building all parts of my team, whether it was the group of venture capitalists we went with, whether it was our first employees, whether it was scaling out our teams, whether it was eventually choosing to work with folks at Facebook and partnering with folks there, I think somewhere in this, and I'm not sure if we're gonna go over this clip, I say you often think about, you're building a product, but actually you're building a company, and a company, one little slice of it is a product, and the rest is a lot of stuff, and a big part of that is team.. It turns out that people are the reason that you either succeed or fail.. People, it's not always the product.. You can have a great product idea, but if you don't have a great team surrounding you, you can, you'll stumble and you won't recover.. And that recovery comes from having A-plus stars around you.. But as I reflect on whether it was raising money, or hiring our first employees, I think your greatest challenges as a leader often come from people as well, and if you don't have the right team that gels, you're less likely to recover like I said, you're less likely to come up with the next great idea when maybe your first idea fails, because let's remember, Instagram wasn't our first idea..

We had ideas before that didn't work.. And it was only because we had people with a wide aperture on what was happening in tech, like Mike, my co-founder, like Shayne, our first engineer, that we were able to pivot quickly into something that actually ended up working.. But in, upon reflection I will say, this is one that I feel twice as strongly about now than I did at that time.. And, maybe, my last comment on this is, I think, you need to consider the incentive system that's set up in the world too as you bring on your team, because while people, while you want everyone to join your team because they believe in your mission, that is the ideal.. So make sure that you're building a team of both venture capitalists, co-workers, co-founders, that believe in the thing you're trying to build.. But also remember, everyone has someone to answer to.. Venture capitalists have to answer to LPs, and public companies, CEOs and directors have to answer to shareholders, and just understand that there's this push and pull of everyone's incentives, and I think the thing that makes that push and pull work in the long run is when you have a team who believes in the mission together.. All of that stuff kind of washes away.. So, yeah, if I reflect on what made Instagram work, I mean, one, the partnership between me and Mike, but also those first core employees that helped us get off the ground.. (laughs) There's really nothing more important than team..

- So I love that fact that you refer to the fact that the product is only a small piece of what you're building.. You're building this organization.. In one of the clips we're gonna play, you talk about this, that only 50% is the product, and all the other things that go into essentially building this whole venture.. I'd love for you to reflect on this clip after we show it, and help us understand how the balance of the things that you had to do shifted over time as the company grew.. So let's watch this next clip.. - I remember getting so excited when we were starting Burbn that we had all these feature ideas, we had all these product ideas to work on.. But it turns out that starting a company is like 50% building a product and 50% a lot of other stuff.. Bank accounts, insurance, taxes that you didn't know existed, right? Filing for things in the city of San Francisco and forms in the basement of City Hall to make sure that your founder from Brazil can get a job with you, right? There's all this other stuff that isn't about having brilliant product ideas that takes a lot of work.. And I think when people decide whether or not they're gonna go into entrepreneurship, you need to remember that building a product is great, but there's a lot of legwork involved in getting a team off the ground.. - Okay, so I love this, (Kevin laughs) and I'd love you to paint a picture of how the balance of your responsibilities shifted as the company grew..

- Yeah.. At my heart, I'm a creator.. I like to build things.. And after leaving Instagram, I've spent most of my time getting back into the details of how you build things.. Coding, again, spinning up servers to do things, right, crunching data, and that was my role at the beginning.. Mike and I were able to create the service effectively from scratch, because we paired on it, we sat down and we would code late into the night.. But it quickly became apparent that in order to take care of the other 50% of stuff, that I needed to do less of that, and find people to scale up.. So replace myself.. A mentor of mine likes to say, you have to fire yourself out of the job.. How do you fire yourself and find someone to replace yourself who's better, and there's this financial concept called leverage, right? We all talk about leverage, but let's think for a second about how we get leverage numerically, right, how can you with one hour of your time produce 50 hours of work? Because when you're starting a company, it's one hour of your time is one hour of work..

And your whole job as you scale is to find people to bring in, and make it so that one hour becomes five hours.. And if they're not so good, maybe it's one hour goes to three hours, or in the worst-case scenario, it's one hour goes to a half an hour 'cause you spend time debugging things and managing things, but in the ideal state, you increase your ratio of my hours worked to the output of the company of hours worked as much as possible.. And I think by the end, I would look around at our executive team, and I would say, I'd work for any one of these people.. And I think that's the type of role you wanna have as you grow, you always wanna feel like you would work for the people that you hire, because you're learning so much from them.. And I found it, it was a treat for me, to be able to hire people that I could learn from, that wanted to do these jobs and wanted to be experts in these areas, and that was so fascinating, and so fun, and that's the type of thing you should be thinking about as you scale a company, is that you're not gonna have the same job.. In fact, my job, I felt like every day I showed up, I wish someone would just make a new business card and change the title, because that's what it felt like.. It was every day, I had a new job, and it's like, forget about what you learned in the old job, now you have a new job.. And you just have to become comfortable with that.. I mean, maybe the last thing I'll say on this is, I was recently watching a lecture by a statistician and a scientist on some unrelated stuff that I'm studying, and he said, "You have to get used "to feeling really uncomfortable.. "Because if you didn't feel uncomfortable, "it would've been solved by someone else by now." Right, like you have to live in this world of ambiguity and realize that you're gonna have to work really hard, and it's totally normal not to know what you're doing exactly at the moment..

But you have to work through that, and that's what I mean by your job changes every single day and you have to evolve and you have to evolve and you have to evolve, but man, I don't think I can explain the vast difference of my job from day one to the end, without explaining both this leverage idea and also, this kind of like, feeling comfort in discomfort idea.. Those are the two main themes I'd say I took away from my growth in my role.. - That's so great, I'm gonna use that example.. I love it, it's just so insightful.. You clearly hit on a problem that was really important to people to solve, and that's why the venture took off so quickly.. I love this last clip I'm gonna play about the fact that the hard part is finding the right problem.. It's actually not the solution, it's actually figuring out what problem to solve, so let's play this clip, and I'd love for you to then reflect on what sort of problems you're now thinking about, and the types of problems you're trying to solve.. - I think what you need to do in a co-founder relationship is not necessarily decide who's good at what, but realize that like any relationship, right, your goal is to figure out the other person and figure out your relationship with them, and through I think the last year or so, we've really gotten into the groove of like, we own different parts of the day-to-day stuff, but at the same time, we use

each other to kind of bounce ideas off.. You do a lot of the iPhone client stuff, I do a lot of the CEO stuff of like accounting, et cetera, and do a lot of the backend coding as well, but what happens is, because we both have our own specialties but also overlap into each other's areas, it really provides for this nice relationship where you can bounce ideas off of other people.. - Oh so that was actually the clip about working as a team, but it's a perfectly good segue, because you're working with Mike now on a brand new project, so maybe you could talk about the problem that you and Mike are trying to solve now..

- So I'll cover I think both, which is, first, it's funny, (laughs) it's funny for me to be talking to Mike on stage about our relationship.. I didn't realize that was, that we did that back then, but it's funny how much it hasn't changed.. What I wanted to say in that clip, and it wasn't exactly clear, is that you have to find a balance, and a yin and a yang, right, because later on at Instagram, we ended up taking some personality tests.. It was a variant of Myers-Briggs.. And what was really interesting is that my personality and Mike's personality were not the same at all, in fact, he's a divergent thinker, creative, I'm more convergent and analytical, and that's just one example of how we were kind of a yin and a yang.. And if you dive down in the results, you realize that actually, that pair couldn't have worked any better unless they had those types of balancing traits.. If we had just been the same person, interested in the same things, I don't think the relationship would've worked as well as it did.. But the one, the interesting thing is where we start to agree, okay? So here are the parts that we really agree on.. One is, you always wanna solve a problem.. Forget about the skills you have, so Mike was very technical, I was semi-technical but more business-minded, and we came together, had this yin and a yang, but the fundamental truth was that we were both there to solve a problem in people's lives..

And if I could, if I were to write a book on entrepreneurship, it would be called "Solve a Problem." Because too many people either solve their problem, right, and only their problem, or only a specific group's problem without thinking about the larger context, or they just find something really neat that doesn't actually solve a problem, or it could solve a problem, but it's just a fun thing to work on, and it turns out if you don't solve a problem for a lot of people, you don't have a lot of customers, because, one of the people I really liked to read was Clay Christensen, he passed recently, but he wrote a book called "Competing Against Luck." And in that book, he talks about how you have to think about every product as being hired to perform a job in someone's life.. So why do you hire something like Zoom or Skype or GoToMeeting or whatever, right? You hire these things to connect remotely and efficiently and collaborate effectively, right? You hire it as, almost as if you have a bunch of employees in your life, but they're products, they're not people, and what you realize very quickly is each of those pieces solve a really important problem for you.. Because we wouldn't be able to do this without something like Zoom, right? So if you're gonna solve something that matters to people, it might be a really big company.. But if you just wanna build something fancy that looks cool and has a nice demo, it doesn't actually solve people's problems, I think you end up with a much smaller company or maybe no company at all, and the number of, now that Mike and I are doing more angel investing, the number of companies that just start something because they wanna start something, or just start something 'cause they think it's kinda neat, without having really done that deep analysis on, hey, what is the problem I'm solving in people's lives, and how broad does that problem exist, like is it everyone in the world? Is it half the number of people in the world, is it just Silicon Valley? And if you could do that analysis, what is the magnitude of the problem I'm solving in people's lives? How big of a relief will it be when my product exists? And for how many people does that apply? Those are the two axes I look at when looking at opportunities to build things myself, and when I look at opportunities to invest in.. Because those are the things that end up impacting the world the most.. - I wanna just ask you a question, a follow-up here, because, - Yeah, please.. - I remember in the early days when you were experimenting with Burbn and had lots of things that I thought, I remember, I don't know if I've ever told you this Kevin, when you were really kind of struggling to get product/market fit, I thought boy, that Kevin, he's gonna have to get a real job.. And, (laughs) (Kevin laughs) And-- - By the way, everyone felt that way, I felt that way too, so.. - I know, but 'til you hit that, then so how much is analysis versus experimentation, right? And I think that there was obviously a very bold thing you did is when you did hit that product/market fit, then you saw that there was traction, that you were willing to sort of throw out the old part of the product and triple down on the piece that worked, but how much is that analysis versus experimentation? - So, like many people who are now stuck at home, I'm looking to kill time.. My friends and I have started to play a little friendly poker together..

And what I learned in reading up on poker, and by the way, people that really understand poker are gonna think this is really dumb, but everyone else might think this is interesting.. I didn't realize that part of playing poker is not defined by playing every hand, but rather, almost folding everything that you get until you get something good.. Now that's a gross overgeneralization, but in general, I think entrepreneurship's a lot like that too, which is, you try to put yourself in an area, which you can't really do in poker, but you try to put yourself in an area, and you get dealt some cards.. And the question is, how many hands can you play until your chips run out, right? Either you raise money or you have some time before you have to get a real job or whatever, right? How many hands can you be dealt until one of them, you don't fold, and you say you know what? I've got pocket aces, and that's pretty awesome, and we feel like we've caught something here.. And by the way, you've, at least in Texas Hold 'Em, you have three more cards to come, so you don't really know how it's gonna play out, but it feels pretty good.. That's how entrepreneurship feels to me, and I remember playin', by the way, I lose terribly to my friends, so maybe my poker advice is not great, but this is what happens when your friends are PhDs from Caltech, right, you just don't play poker against them.. But you learn valuable lessons about how important it is to be dealt lots of hands in life, and to try to maximize your experimentation, because as much as you wanna plan, I'm a pilot as well, you always have a plan, right? You always have a plan, and nothing ever goes according to plan during a flight.. There's always some kind of diversion, there's always some weather, there's always some wind, there's always something.. Maybe I'll end on this, which is, I can't remember who said it, but I love the phrase, I wanna say it's like Churchill or something, I should've researched this before saying it, but

it's, "Plans are useless, but planning is everything." And it's like, it is so true that you need to do your analysis, but then you gotta get out there and play your hand, and figure it out, and see if it works, and if it doesn't work, fold really quickly and go onto the next one.. Because it's the companies that I think hold onto their hands too long and try to eke out their luck that end up crashing pretty hard..

So I agree with the phrase, "Planning is everything, plans are worthless." (laughs) - Okay, so I'm gonna put down my hand right now, I've got a few more things in my pocket, but I'm gonna turn to some questions from the audience now, because they've got some really interesting things they wanna know.. Many of them have to do with, well, several people wanna know, how did you possibly get so many users so quickly on Instagram? What was the secret (Kevin laughs) to this incredible, explosive growth at the beginning? What, how did you do that? - Okay, so I'm gonna be really honest and say, I wish I knew, but I've had a lot of time to reflect.. So, caveat with I'm not sure I have the answer, here's what I believe.. What I believe is, one, we started off with the phrase, what problem are we solving? And in fact we said what problems? And Mike and I sat down in front of a white board, and we said what are the three problems, we knew we wanted to work on digital photography because we knew people would be using these phones.. Everyone takes it for granted now, but at the time, having a phone with a camera was a really neat, new thing.. And no one had really taken advantage of it.. So we said, what are the biggest problems that people have? Well, number one, it's really slow.. So we figured out how to make it faster.. I won't go into the details, but we figured out how to make it faster.. Number two is people really wanted to share photos to lots of networks all at once..

So we built in a bunch of default sharing that was just super smooth and super seamless.. That also, by the way, helped us grow, and I'll get to that in a second.. And then third was, no one liked how their photos looked, so no one wanted to share them.. So we were like okay, well filters seem to be a way to make your photos look more beautiful, or at least more shareable.. Celebrate in how they're blurry, celebrate in how they look kinda grungy, right? Once we had solved those three problems in a product, that by the way, when it's shared out to all these other sites, basically linked back saying hey, if you wanna take photos like this, come download this app, that created effectively a viral loop where it was super useful for people because it solved their core problems.. It's kind of like, what is the game show, Tina, is it Family Feud where they go up and they have to name the things that come up on the, and if they get it wrong it goes ah, right? - Gosh, your guess is as good as mine.. (laughs) - I think it's Family Feud, okay.. I'm pretty sure it's Family Feud.. Anyway, it's, entrepreneurship's kinda like that, 'cause you're sitting there saying, I gotta guess what the biggest problems are that people have in this area, and I don't wanna get three X's in a row, 'cause then the company fails to exist, right? We gotta figure out what the three problems are, solve them, and then if you do that, people will use it, and if you also figure out to have some kind of marketing, for us it was just links back on other social networks like Twitter and Facebook, et cetera, but figure out a way to have it spread virally, that was the way we got Instagram to work initially, but I will say, I think 90% of it was that it solved the core problems people had with digital photography, and like 10%, the fancy growth, the growth hacking stuff.. I think it was very very much, did it solve a problem for people? - I think it's an interesting point, because right now we're all living on Zoom..

Right, Zoom was a product before, but all of a sudden the world changed, and we all now needed it, and I think you hit on a problem, a need that people had that was very very real, and as a result, it took off.. Now, the most popular question here is one, you can decide if you wanna answer it, okay? (Kevin laughs) Is, why did you essentially decide to sell the company? What was that decision-making process? I'm gonna guess that it was non-trivial for you to think about, do I grow this myself organically, or do we sell the company to Facebook? - Yeah, you asked a question earlier about building team, and I had worked in corporate development at Google, and not a lot of people know this, but I get to see companies being bought at Google, and I got to understand the dynamic, and what I realized very quickly is that you can either be a rocket yourself, or you can decide to strap on rocket boosters onto the side of your rocket, and fly even faster.. And there are trade-offs, right, sometimes the rocket you strap yourself onto wants to go a different direction, you kinda have to compromise, right, but in general, the thought to me of combining forces with one of the best social companies at the time and arguably still now, made a lot of sense if I wanted Instagram to be in every single household in the United States, or in everyone's pocket I guess on their phone, right? That it supercharged our mission and our vision, and recall that we had 13 people on our team.. So I don't know how many people are watching the livestream now, but a lot more by the way are watching the livestream now than worked at our company.. That's a very, and by the way, I think when we talked to detail last, that was probably true, we probably had like 13-ish people at the company.. And being able to supercharge that mission to get to where we were going even faster, that was a really exciting prospect.. And everyone always asks, oh, well what if you guys were independent, wouldn't it have been as big? And it's honestly, it's possible.. It's just, we will never know.. We have no way of knowing the counterfactual.. But I stayed doing my job at Facebook for six years, and someone said to me the other day, "I think you might've set the record for entrepreneur "that stayed at the company post-acquisition," and I, and by the way it's not just me, Mike stayed exactly, started and ended on the same day..

That to me speaks volumes to, I think, our commitment, our joint commitment to seeing the mission through, and when we crossed a billion users, that was a big moment for both of us and we realized, we had gotten it to a place where we could, it's almost, to get back to the rocket metaphor, you're launching something into orbit, you're getting there, and you're letting it ride in orbit, and then the question is, where's your passion? Is your passion to go start something new? And for Mike and I, the answer was yes.. So, now we haven't done that yet, but that's where our passion is, so that's why we decided to do what we did at the time.. And by the way, I can't answer this without mentioning that it's all with the benefit of hindsight, right? I was, I don't know, 27 years old.. How much did I know at that time, about exactly what we were doing, and it all makes sense

in retrospect, but at the time, we just, we were wrestling with the question, how do we supersize and supercharge our mission, and it felt like that was the right direction.. - Great.. Super answer, and I think it's really important, you point out that you're looking at it hindsight now.. It's difficult to go back to what you were thinking then, because you had no idea where things would go, and fortunately for you-- - But I'm, I'm so thankful for, I look back on this all, and I'm so thankful for the people I got to work with, and the things I got to see and do, and I mean I remember traveling to the Vatican to onboard the pope onto Instagram.. (Tina laughs) And just thinking, how surreal is this? - I thought you were gonna say you got to onboard me on Instagram.. (laughs) - Well of course, that as well, that as well, that was a peak.. You're right, you're right..

But my point is, there were moments in that journey that you look around and you ask yourself, how is it that we went from two guys who really shouldn't have been the ones founding this company, we weren't as technical as we should've been, we didn't really know what we were doing, to a company that really ran super well, and I think built, crafted beautiful products for the world, and I'm really proud of that journey.. So how can you have any misgiving about that journey if it was so wonderful, and now I get the chance, and not many people do, to try to do something again, and it's unclear exactly what, but that's a really fun thing too.. - So I know you're working with Mike on some really interesting projects related to the COVID-19 pandemic.. Can you tell us a little bit about what you're doing and how that problem surfaced for you? - Sure, absolutely.. So, first I'll say, what we're building is not our next company, or at least I don't think it's our next company.. It was a joint project among a handful of passionate engineers, designers, statisticians, to solve the problem that there was no one clear metric that allowed us to understand how things were going.. If you looked at just case counts, how many people have the virus, forget about whether it's state or country or nation, right, if you look at that, it's biased by a bunch of reporting lags and testing volume, so you can't use that easily alone, and it's too complex and there's no comparison between states because some states are larger in terms of population than others, and when we sat down and we said hey, if we were managing a state, or a country, what dashboard would we want to understand how things were going? And that's where it started, it started from how do you manage this situation the best, and what kind of dashboard would I as the CEO of, I guess you're not the CEO, I guess you're mayor, governor, or whatever, president of different municipalities, what dashboard would you need to effectively manage your crisis? And then we set off on this really interesting journey to discover the way to model the data in such a way that takes into account all the biases and all the noise and all the crud that makes all the data feel not right to people right now, and they're I think rightfully skeptical.. How do we take that and put it into a model that corrects for those things, and then shows you what we believe is the truth underlying all of this indirection? And out comes one number, this number called R.. It's the effective reproduction number, so if one person is sick, how many people do they make sick in the course of their illness? It's like the reproduction number, right? If it's one to one, then the infection doesn't spread.. If it's less than one, then the infection goes away..

If it's more than one, it grows exponentially to some limit eventually.. And you wanna get your number below one, so we were like guess what, let's do the simple thing first, let's focus people on a single metric, and that's why we built this site called Rt Live, Rt.live.. And if you go there, you can see for every state the R value that we believe exists today, and we're making improvements and it's interesting and we're learning, and the fun side effect of all this is that Mike and I used to run staff meetings, and now we're debugging JavaScript, and it's super fun.. It's like it's getting back to our roots, and so I'm proud of the work we've done so far, that's the problem we've been solving, and we'll see where it goes.. - Wonderful, well I've read the analysis that you guys have put online, and it's incredibly sophisticated.. I thought wow, I didn't know these guys were scientists.. It was super impressive.. So there's a question that is particularly interesting to me, which is, what things did you learn in school when you were in college that, whether it was content or mindset shifts or, what did you learn that set you up for success in your entrepreneurial ventures? - I think, aside from taking classes with Tom and Tina, I think the best knowledge area that I spent time on was the idea of decision-making.. So I don't know, I assume the major still exists, management and science in engineering still exists, but I focused on something called finance and decision analysis, but the decision analysis was the part that I found most interesting, 'cause it was with a set of data, under uncertainty, how do you make an optimal decision? And I stress about this on everything from cooking dinner to choosing where to go out with friends to managing the company, everything in my life.. And what was really valuable to me was not necessarily applying equations to, are we eating steak or chicken tonight, right, but instead, understanding the concept of expected value, and understanding the concept of variance, right? How much risk am I taking, and what do I get paid to take that risk? And understanding that you always wanna pick a path in life that maximizes your expected, your probability-weighted expected value..

That to me, if I were to teach one course or one class, let's imagine we had one session with college students, I would just spend an hour on the fundamentals of making decisions based on expected value.. And that has changed my life, and I've noticed how many people don't necessarily think like that, and I think, if you spent 30 minutes just looking up online expected value, and just understanding how you incorporate that into your decisions of whether you're taking a new job, right, you're choosing between three new jobs, which one do you take, right? And by the way, expected value is not always money.. Expected value is utility, it's happiness, it's a bunch of things, and that's one of the harder things to model in your life.. But that's what I'd focus on, and that's number two compared to all the classes I took with Tom and Tina.. - Okay, that's very nice.. I'll be happy all day hearing that.. (laughs) So one of my, one of the questions I always like to ask speakers is about, what sort of advice would they give their 20-year-old self, and this is a question that someone in the audience also asked, and if you went back and thought of yourself when you were in school, what sort of advice would you give them, and/or give yourself? - I have two, if that's okay.. One is, remember that you are here to enjoy the journey.. What do I mean when I say that? Imagine life is a game, okay? It's not about how many points you score, it's not about what level you get to.. It is about whether or not

you enjoy the process of getting better..

I often like to think, the best, I'm a big cyclist, or at least I used to be.. I'm trying to now, with two kids it's harder, but the thing I learned from cycling is that the best cyclists in the world are the cyclists that truly enjoy training, truly enjoy the pain of training a lot.. And what I like to think of is you have to choose an area in life where you enjoy the practice, you enjoy the pain, 'cause you won't escape the pain anywhere, right? No matter whether you become a doctor, a teacher, a pilot, a whatever, there is, there are tough times ahead, and you have to enjoy the journey, because no matter what level you get to, no matter what your bank account says, no matter what your title is on your business card, it all doesn't mean anything.. You have to enjoy the journey along the way.. That leads me to the second and I think more important part.. If I were to give myself advice, my 20-year-old self, it was have a little bit more fun.. Because work is really, really hard.. And although you should take yourself super seriously 95% of the time and work really hard 95% of the time, just make a little room to enjoy life, right? And to realize that at any moment, a pandemic could shut down the world, and you could be sitting at home, and you question everything.. You question how you've spent your time, you question how you've spent your priorities, and the one thing that keeps coming back to me is like, maybe we just should've been okay with just a little bit more fun, a little bit more relaxation, a little bit more fun, and together time, even as a company.. So, to summarize, enjoy the journey, because it's hard no matter what you choose, so you gotta choose a journey that you like, right, where the hard part is the fun part..

If you like programming, then it's debugging, 'cause you're gonna do a lot of it, right? That's what I like to say.. And then on the other side, as much as you wanna be a hard charger and work 24 hours a day, give yourself a little room to enjoy life.. Because, if you don't, you'll look back on it and say where did all those years go? (electronic music)..