So yeah, my name is professor Robert Smith. Thank you for coming to this event.

First I wanna explain why I referred to this as a shameless sales pitch. You know, I teach mostly the junior and senior level courses, mostly the advanced courses. I'm developing some graduate level courses and by the time students get to me, right.

And they show up and they're in a class called marketing analytics, they've got kind of preconceived notions on what statistics is, what analytics is, on what data science or math is, right? And most of them, they're marketing students and they're like, I'm creative, right. I really didn't choose this field because of numbers.

And I kinda refer to my area as the dark side of marketing. I very rarely get to talk to sophomores and freshmen, let alone high schoolers. So this is kind of a rare opportunity for me, the tables have kinda turned quite a bit and I wanna take this opportunity to provide you guys with a blatantly shameless sales pitch on why you should come over to this dark side of marketing, right?

So this presentation is going to be orchestrated around eight reasons that I've come up with for why you should come to the dark side of marketing, the marketing analytics side.

So reason number one, data science is the math of our generation, right? And I am aware that I'm being very generous to myself when are referred to us as members of the same generation, but indulge me for a second.

To properly introduce data science, I need to contextualize it with the other maths that you guys are aware of. So I know I have people from all over the world, for this, I will focus on the American math education curriculum, right, as a case study to kinda prove my point.

So if you came through the American high school system, your experience with math is likely to be very similar for all of you, right? Most likely you learned algebra, you have learned geometry, you've learned trigonometry, and you've learned calculus, right? Unless if you went to a very strange university.

And by the strange university I mean a very strange high school,
02:48 it kind of all of them teach the same four maths.
02:51 So anytime something is that standardized,
02:54 you sort of have to ask yourself, like, why?
02:56 Like what's the historical context here?
02:59 Why are all the highest schools in America all agreed
03:04 that these are the four maths that everybody should learn?
03:07 Well, I've done a lot of reading on this
03:10 and the explanation actually goes back 200 years.
03:14 200 years ago Harvard was like, all right,
03:19 we're Harvard, we're one of like, I don't know
03:22 10 universities in the world.
03:23 If you wanna come to Harvard,
03:25 then you have to pass this test.
03:27 And on this test they tested algebra,
03:31 and they tested geometry.
03:33 And that test became the SAT test, by the way.
03:36 So all the high schools were like, Oh, okay, crap,
03:40 I guess we need to teach algebra and geometry.
03:43 And that created, what's called the geometry sandwich
03:46 where you've got algebra one, then geometry and algebra two
03:49 and all the high schools followed suit,
03:51 it became a standardized approach to teaching maths
03:55 that started in 1820.
03:58 That was not updated for over a hundred years.
04:03 And then in the 1950s, there was the Sputnik crisis.
04:07 There were tensions with Soviet union and they said,
04:11 okay you know, maybe Americans are falling behind
04:14 in the maths and sciences.
04:16 So they added trigonometry and they added calculus.
04:20 So most of the high schools really trigger what,
04:23 okay I guess we need to teach trigonometry and calculus.
04:26 And that was in the 1950s,
04:28 and it has not been updated since.
04:32 So we're talking about 200 years span
04:35 and we've updated the American high school math
04:38 curriculum one time right.
04:41 Now just because it's old doesn't necessarily mean
04:44 that it's outdated, maybe these are the four maths
04:46 that define the current world.
04:49 So we've looked into this, right.
04:52 There have been surveys done
04:54 where they looked at a sample of people
04:57 that earn a hundred thousand dollars or more per year.
05:02 I actually think it was $70,000 or more per year.
05:04 And they asked them,
05:06 which of these maths do you use on a daily basis?
05:10 So 4% of the sample said algebra, 4% said geometry,
05:18 trigonometry 1%, and calculus 2% right?
05:24 Notice, like in this list we don't have statistics.
05:28 So they also asked about, what about statistics?
05:30 How many of you use statistics on a daily basis?
05:33 And the answer was whopping 70%, right?
05:37 The math Wars have begun, the revolution is in place.
05:40 This is our math.
05:42 It's going to define our, your generation.
05:45 We are the data science generation, whether we like or not.
05:48 So that's reason number one.
05:51 Reason number two,
05:53 you always know why you're doing what you're doing.
05:57 So I wanna speak with you,
05:58 everybody has a different relationship with math
06:01 but when they met difficult for me, especially calculus,
06:05 is that most of the time that I was doing the math,
06:08 I really didn't know why I was doing it.
06:11 I made good grades and I had just,
06:16 the application was always outside
06:18 of the scope of the classroom.
06:20 And we were just practicing doing, doing, doing,
06:23 and we never knew what it was that we were doing.
06:26 So when I was learning derivatives and integrals
06:28 and inverse functions and logarithmic transformations
06:31 and sine and cosine, it was just like, okay,
06:34 I'll just memorize some of this stuff,
06:36 put it down on a piece of paper and hand it to my teacher.
06:39 You know, they put a little box around the answer
06:41 show my work and I'd get an A,
06:42 and I'd be like, okay I don't know what I did,
06:44 I don't know when I would ever use that,
06:46 but that's not the case in data science.
06:49 A lot of people call it data science a decision science.
06:52 We always start with a question, right?
06:56 So unlike the other maths
06:58 where the emphasis is on the calculation,
07:02 in data science, we start with the question,
07:05 this is the beauty of it.
07:06 And the true beauty of it is that question
07:08 can be anything that tickles your fancy.
07:11 Anything that you're interested in.
07:14 Honestly, I got into data science
07:17 because I was trying to answer some of these questions.
07:20 I was very into sports and I started using sports data
07:24 and I wanted to build predictive models,
07:26 that can help me predict sports outcomes
07:28 for whatever reason you could fill in those blanks.
07:31 And I started teaching myself statistics
07:34 to satisfy that interest of mine.
07:38 I was very interested in psychology
07:41 and predicting irrational consumer behaviors,
07:44 And I wanted to use statistics to explain those behaviors.
07:49 So with my students, in my advanced courses,
07:54 we are building predictive models
07:57 to answer questions that my students come up with.
08:00 So some of the things that we've answered
08:02 this is just a silly joke.
08:04 Why does Adam Sandler keep landing movies?
08:07 We built an econometrics model
08:09 to calculate the monetary value that Adam Sandler brings
08:13 to a movie production company.
And it turns out he keeps making movies, even though he's a pretty terrible actor because he has a very, very large market that he appeals to.

Why do vegetarians miss fewer flights? This is a true phenomenon. Airlines built the models to try to predict who's most likely to miss their flights, and they found that if you look at pre-ordered meals those ordering the vegetarian option were significantly less likely to miss their flight than those pre-ordering a standard meal, right.

They didn't know why, so me and my students tried to tackle that very important issue.

My class has helped many students win fantasy baseball leagues, every semester we try to predict virality of basically anything, whether it's a fashion trend, or a mean, we try to predict, or we did predict built a model to predict the quality of wine in 10 years.

So we build models that looked at weather patterns in France trying to predict the quality of a barrel of wine a decade later.

And believe it or not, there's a huge investment industry around predicting the quality of wine that is currently barrel.

So yeah, this one I'm actually lying about. I read a ridiculous paper about this guy that was doing a squirrel census in New York city.

And I was like, this sounds like the kind of nonsense that we would do in my class.

I just threw it in the slide.

So yeah, in the 1950s they were training students to become computers.
And that made sense in the 1950s, because we didn't have computers.

I am not training my students to become computers, we've got the computers to do the computing.

I'm training my students to become influencers, to become decision makers, to become difference makers and problem solvers.

So that's a big difference between this application of math and probably the maths that you are more familiar with from your high school education.

All right reason number three, statistics is the most fun math, right?

And the reason for this is that it's all built on probabilities.

If I were like the zor of Suffolk university, or if I were in charge of the world's math curriculum, the first math that you will learn right after arithmetic would probably be probabilities.

It's the foundation of a lot of data science.

And luckily learning probabilities is way more interesting
11:02 than learning most maths at least to most people.
11:05 So I wanna give you guys an example.
11:10 Basically probabilities involves or decision sciences,
11:16 involves making a prediction
11:19 under conditions of uncertainty, right?
11:21 So I make my students do this, I'm pretty evil in that way.
11:26 We, it's usually one of our first classes,
11:30 there's usually 25 or 30 of us in the room,
11:34 and most of us don't know each other.
11:36 And I ask all my students,
11:38 I give them bonus points to bet with.
11:41 And I ask them to predict whether or not two people
11:44 in that room have the same birthday,
11:47 and I let them do whatever math or just guesswork
11:50 they wanna do to make their prediction.
11:52 And I don't what the right answer is,
11:54 and presumably they don't know what the right answer is,
11:57 so there's conditions of uncertainty
12:00 and we're making a prediction
12:02 and then we're having to choose how much we're going
12:04 to invest in that prediction.
12:06 And because I'm evil, if you get the prediction wrong
12:09 you do lose the points, which surprises a lot of students
12:13 but that's the way the world works.
12:15 So I'm going to
12:16 it's kind of hard to do this in this format.
12:19 But I'm going to try to find a way
12:23 to replicate that activity for you guys.
12:26 So what else thinking today's April 1st,
12:29 that's opening day for major league baseball,
12:32 I'm a baseball fan.
12:34 So I just figured one way that we could do this,
12:37 a baseball roster is about the size of a classroom.
12:42 So what I would like for you to do right now,
12:44 is just think about any baseball team, right?
12:47 It be your favorite baseball team, or, you know
12:49 if you don't know any baseball teams,
12:51 because your generation really doesn't like baseball
12:53 very much, you just choose our local team, the Red Sox
12:56 but just pick a team.
12:58 The active roster is 25 players,
13:01 the expanded roster is 40 players.
13:04 So just make a prediction in your mind.
13:07 Do you think any two players on that team
13:10 has the same birthday?
13:13 And obviously there's nothing on the line for you guys.
13:15 I am curious though what your prediction is.
13:18 So I'm going to quickly launch a poll and yeah,
13:23 I just want you to go ahead and first think of the team
13:27 and then we're ignoring the years.
13:28 So it's just month and day, right?
13:31 I want you to predict yes or no.
13:33 Do two players have the same birthday month and day?
13:38 And go ahead and launch the poll now.
13:57 All right, everybody responded,
14:00 wow I have a lot of faith in this generation as students,
14:03 you guys are way better at this
14:06 than my current students are.
14:08 So you predicted yes right.
14:10 And now again, we don't know what the right answer is.
14:13 We just know what the best answer is, the best prediction.
14:18 And so the odds are on your side,
14:21 if you predicted yes, the odds are on your side.
14:25 Now I, with 30 students usually we have like two
14:28 or three out of 30 that predict yes.
14:31 So I'm very impressed.
14:33 So let me show you guys,
14:35 just so that you don't think I'm making this stuff up,
14:38 let me kind of show you guys
14:41 whether or not that's a good prediction.
14:43 So I obviously have no way of knowing what team you chose.
14:46 So I picked the seven most popular teams,
14:50 just in terms of like size of overall fan base.
14:53 I sorted them by birthday, right?
14:55 From the earliest birthdays in the year
14:57 to the latest birthdays in the year.
14:59 And then I highlighted it once there was a match, right?
15:02 So for the Red Sox,
15:05 I chose the Red Sox first because they're a local team.
15:08 There was a match by the time we got to 13 players.
15:12 For the Yankees we only got first four players,
15:15 there's already two players that have a match.
15:18 My favorite team, the Cubs, Nico Hoerner, Wilson Contrarez,
15:23 there's a metric there, we only got 16 players deep.
15:27 Astros we got a little further,
15:30 we had to go 26 players.
15:31 So if we were operating on a 25 man roster,
15:35 this might've been the wrong prediction.
15:40 Dodgers 25 players was the last pair on a 25 man roster.
15:46 The Cardinal's only seven players before there was a match.
15:50 The Giants, the very first two players were a match.
15:54 When I saw that, I thought that was ridiculous.
15:58 Oh wait, yeah that was it.
16:00 So yeah, you could see and then this first tab,
16:03 kind of breaks down the numbers and I already know
16:06 that I'm going to have trouble hitting my time.
16:08 So I won't go into this too much.
16:10 But the break even point is or the tipping points
16:14 when you get to a sample size of 23 people, right.
16:16 Once you're at 23 now your best money
16:19 is to predict that there would not be
16:22 or that there will be a match, right?
16:24 Once you get to 50, it's almost guaranteed,
16:27 at 40 all the way up or 40 man roster, you're at 89%.
16:32 So this is known as the birthday paradox.
16:35 And it's basically this idea that,
16:41 it's kind of counterintuitive.
16:43 You wouldn't assume that if you're sitting
16:45 in a classroom with 22 people, 23 people would not think
16:49 that two people have the same birthday.
16:51 So it's just kinda fun when we start working this out
16:56 where we calculate it, and I start to explain,
16:59 some of the cognitive biases that lead us to have this,
17:03 false notion that the likelihood,
17:06 but seems like I don't need to explain that to you guys
17:08 because you were on track.
17:11 Another activity we do called the money hall game.
17:15 And I won't force you guys to go
17:18 through the whole game with me.
17:19 But basically you predict where you think a prize might be
17:24 which door.
17:25 So I have my students pick a door,
17:28 let's just say you picked door number two.
17:33 And then I tell them, okay, all right
17:36 you got door number two.
17:38 You might be right,
17:39 but I'm gonna help you out, give you this one-time offer.
17:42 I'm going to let you know it's not behind door number three.
17:46 So then I give my students an option,
17:49 do you want to keep your door, door number two?
17:54 Or do you wanna change to door number one?
17:58 Now, almost all students stay
18:01 with the door they originally chose.
18:04 And again, there's a lot of cognitive biases
18:07 and the endowment effect,
18:09 these things that make us kind of overvalue
18:12 what we already have,
18:13 fear of making a bad decision by switching.
18:16 But if you think about the probabilities, right?
18:20 When you picked door number two,
18:22 hypothetically let's say you picked door number two,
18:24 you had a one in three chance
18:26 at making the right prediction, right.
18:29 When I told you that door three was wrong,
18:33 and then offered you a choice,
18:35 again by choosing to switch
18:38 you're now taking one in two odds, right?
18:41 You're improving your probability from one in three,
18:45 to one and two.
18:46 By staying you're keeping your original odds
18:49 of one in three.
18:51 So the right decision is to just always switch.
18:54 If you always switch,
18:55 you've got a one in two chance of being right.
18:59 And if you always stay, you are at a one in three chance.
19:04 And then obviously this made up example
19:07 the correct answer was door number one.
19:09 All right so the takeaway here is that the central math
19:15 that we talk about in marketing analytics is probabilities.
19:19 It's based on these little games like this
19:21 and obviously they get more complex from here.
19:24 But if you were learning math this way in elementary school
and junior high and high school,
I think more Americans would find math
so it is the most fun math, in my opinion.
All right, reason number four,
data science is visual, right?
So this is important because 65% of all students
are visual learners,
and most maths are the opposite of visual, right?
I think if kids first or children's first interaction
with math was something visual, stimulating, engaging
dynamic, I think more would find an interest in this field.
Data science is incredibly visual.
You know, the main skill that I work on these days
is building up my ability to communicate my findings
with data through data visualizations.
So here's a visualization that kind of shows
where energy is produced and where it's spent.
And I think this tells a story that a lot of textbooks
are trying to tell, right?
You can kind of sum up a lot of information
into one visualization that most people
from any background can follow.
Right here is a heat wave map that shows temperatures
across the globe during the time in which Texas
was experiencing their temperature crisis.
And you could see that the temperatures in Texas
and the temperatures in Alaska were the same at that time.
This is showing how Super Bowl ads
have changed over the years.
So this is around when I graduated from high school,
you could see that things were a bit more wild back then
and they've turned off.
This is showing the aging of our population
gives you a nice visualization,
on why we call a generation baby boomers.
And there are all sorts of economic implications
from looking at this data.
Some of our visualizations matter, right?
Some of them don't matter at all,
especially the ones that me and my students practice with.
So we built a program that scraped millions of words
from the English language,
and then plotted where the letters most like
so first the popularity of letters in these words,
and then where they were most likely to occur
in the word made and why we did this,
I have no idea just to basically show that we knew how to.
So yeah, some of visualizations don't matter,
but some of them matter quite a bit, right?
Data science being visual is important
beyond the reasons that it's the preferred learning style
of most people, visualizations have the power
to break down communication barriers
that have plagued the science in journalism. Like if you think about it, 
can with a good visualization, we can transcend language barriers, socioeconomic barriers, 
identity barriers, cultural barriers, class barriers. We can communicate with people in ways 
that scientists I put myself in that group of people, have really failed to do, right?
So this is how we have traditionally 
communicated climate change, right?
And this is terrible because we are failing to communicate 
with the very people that blunder science 
about topics that are incredibly important, right?
So with the good visualization you can change that, right?
It doesn't matter what your educational background is. 
It doesn't matter what your socioeconomic background is. 
It doesn't matter what language you speak. 
It doesn't matter where you're from. 
Most people can look at the graph 
that's on your screen right now, and follow. 
I mean, most people can connect with this message. 
So marketing has always been about storytelling. 
It's just data can tell an amazing story. 
So here is something that you would need entire 
books to learn, right? 
This is the relationship between the wealth and health 
or GDP and life expectancy over 220 years, right?
You can see that the size of the bubble 
represents the proportion of the world's population 
that is made up by the country. 
You could see the continent breakdown. 
You can see the slope of this relationship 
this positive slope here, 
you can see how countries are changing over the decades. 
You could see the relationship weakening, 
you can see China rising, right. 
There are entire books written on this topic 
and we can communicate this like that. 
Bring it back to marketing, 
here's an evolution of brands over time. 
We're only looking at 20 years here, 
but if you watch the whole video 
it tells a very compelling story. 
So I'm going to try to not talk too much during this one, 
because I think that the visualization can speak for itself. 
It really doesn't matter where you're from. 
It doesn't matter what your educational background is. 
I think anybody can follow the story being told 
by good visualization. 
So I believe data visualization is just 
this under-appreciated underutilized skill 
that we're finally starting to come around 
and really integrate into college curriculums. 
Okay that was reason number four, data science is visual.
26:21 Reason, number five
26:23 and this whole appeal to some of you and not others.
26:26 This is where the jobs are.
26:29 I am going to take a hard stand on this.
26:33 All right so let me put this into historical context.
26:36 First, we had the industrial revolution, right?
26:39 And then it took a little while,
26:41 but then we had the digital,
26:43 and the internet revolution and the mobile revolution.
26:47 And my contention is right now we are smack dead
26:51 in the middle of the data revolution.
26:53 Now, when I first started teaching
26:55 where I know what the next revolution is, right?
26:57 Machine learning and automation.
26:59 When I first started teaching at Suffolk university,
27:04 I had to kind of sell this point.
27:06 I had to convince my students that we were in the middle
27:10 of a true revolution that history books would write about.
27:15 I don't think that your generation will need
27:18 to be sold on this.
27:19 I think that you guys have been hearing this
27:21 for a long time, but just in case,
27:23 let me talk about it a little bit.
27:25 Every time you walk down the road with your smartphone
27:28 or you open a website or an app
27:30 or you swipe your credit card, you scan a bar code,
27:33 or you sleep with your smart watch on,
27:35 or you talk in front of Alexa, data is being harvested.
27:40 But I feel like we don't appreciate the sheer volume
27:45 of data that we're talking about.
27:48 The amount of data in the world
27:50 has more than doubled every single year since 1986.
27:55 Now, when you say that, well humans have a lot
27:59 of trouble visualizing compound growth, right?
28:02 So let's try to actually look at what I'm talking about.
28:06 I kind of came up with my own weird way of showing this.
28:09 I don't know if it'll work we'll see.
28:11 Let's say it's 1986 and you've got a penny, right?
28:15 Not a dollar, but a single penny.
28:18 And we're going to double it every year,
28:20 like that statistic shows.
28:23 All right 1987 you have two pennies, analytics,
28:28 1988 you'd have 4 cents, and 89 you had eight cents,
28:32 90 16, 91, 32, 92, 64, Whoa.
28:36 In 1993 you are over a dollar.
28:38 It's like, all right, professor Smith
28:40 this is kind of stupid.
28:42 Not very impressive, let's keep going.
28:44 Let's see what happens.
28:50 Over a thousand dollars, 10,000, 100,000,
28:54 were in the millions.
28:57 Oh boy.
28:58 Oh man so $343 million by today,
29:05 and we started with a single penny right?
You would be a millionaire by the time you were 27
a billionaire at the time you were 34,
but you see even this really undersells it
because it's not like in 1986, we had a single floppy disc
with one data point on it, right?
In 1986, we had billions and billions of data, right.
Data points.
And if you started this number in the billions
doubled it every single year,
more than billions back then,
doubled it every single year
I don't even know the number that you would call it in 2021.
That's how much data we're talking about.
We just sequence the genome, the human genome.
If you stacked each letter of one person's DNA
one millimeter apart, it would be 7,000 times taller
than the tallest building on earth.
If you look at this in a business context
you could really see the evolution.
This data is a couple of years old now,
but in 2018 it's not that 60% of companies
these are fortune 1000 companies.
It's not that 60% of companies said
they really care about data.
It's not that they said that they invest in data,
it's that they said that data is the core function
of their business, right?
It is the central function of those businesses.
So right now, you know, one really interesting statistic
that I often think about
is that two thirds of analyst positions simply go unfilled
because of a lack of talent.
There is so much data being harvested, being curated,
and there's just not enough human beings out there
to analyze it.
So that creates a ton of job security, right?
And I know that there are a lot of reasons to go to college
that have nothing to do with maximizing earnings potential.
I met my wife in college.
I met some of my best friends, I peaked in college, right?
Those were amazing years for me that,
and I wouldn't sell them for anything.
But the reason why I went to college,
and I came from a very poor background
nobody in my family had ever graduated from high school
let alone gone to college.
And it was very difficult for me to go
and I made a big sacrifice to go to college.
And the primary reason I went to school
was to use my education as a vehicle
to pull my family out of that situation,
to change the stars for my future children.
I went to college to invest in myself and in my career.
And I really wish that when I was 17 years old,
32:00 some professor had explained labor markets to me, right.
32:04 And talked about salaries
32:06 because that conversation never happened,
32:09 and if it had happened for me personally, not for everybody
32:13 but I would've made a lot of decisions differently based
32:16 on the information that I have now.
32:18 So if you're a student in that situation,
32:21 the next two minutes of this presentation is for you.
32:27 I recommend thinking about the skills
32:30 that you are looking to acquire in college
32:32 and thinking about the demand for those skills.
32:35 And I think I showed that data science is in high demand
32:40 the scarcity of those skills, right?
32:44 You wanna get good at something that's not just in demand
32:48 but that not too many people are good at.
32:50 And then the verifiability of those skills.
32:52 You wanna get good at something,
32:54 you want to build a skill that you could show people, right?
32:57 So I'm going to talk very briefly
33:00 about the Boston market for marketers, right?
33:05 And this data that I'm going to show you,
33:08 I pulled from the Bureau of Labor Statistics
33:11 the New York Federal Reserve, Indeed and Glassdoor.
33:16 So the entry-level position in Boston
33:19 for a marketing associate starting average salary
33:23 is 45,000 a year 44,745.
33:26 So let's plot that on a graph
33:29 and let's break that down by specialization, right?
33:33 So these are, I really want to emphasize this,
33:36 I did not cherry pick these specializations,
33:38 I pulled these light from Indeed.
33:41 And I just ranked, I just, this bar graph
33:44 you're about to see it goes from the lowest paid job
33:47 in marketing to the highest paid job in marketing, right?
33:51 So public relations, 40,000, 41,000,
33:56 social media 42,000 sales 42,
33:59 product coordinator almost 50,
34:02 content curation 51 ad specialist 58,966.
34:10 Alright, then you have market researcher, marketing analyst.
34:14 These are starting jobs, research consultant,
34:18 product analyst, digital analyst,
34:21 user experience researcher, and a data scientist, right?
34:26 There is a very clear natural divide
34:30 between what I will refer to as the soft marketing careers
34:34 and the more data oriented careers, right?
34:38 These skills they're in higher demand, right?
34:42 They are more rare in marketing
34:44 or less people in marketing go out and get these skills.
34:46 And they're very easy to verify on your resume.
34:50 It's very difficult to show on your resume
34:53 that you are good at some of the more soft skills, right?
34:59 But showing that you have hard skills
35:01 to something like if you,
35:03 with a data visualization class,
35:06 you could build a portfolio of visualizations
35:08 that you have done in class.
35:09 You could bring that to your interviews, it's tangible.
35:13 We can look at job growth across the six different areas
35:17 and you can see that the projected job growth
35:19 over the next 10 years in market research
35:21 is through the roof.
35:23 All right so I'll stop talking about jobs
35:25 because you know usually high school years,
35:29 freshmen, sophomores they're not really thinking
35:31 along those lines quite yet, which is understandable.
35:34 Reason number six, surviving creative destruction.
35:38 Okay I'm gonna talk a little bit more about jobs.
35:40 All right so let's talk about creative destruction is.
35:44 Industries have a lifecycle, a very predictable one.
35:48 Creative destruction is this idea that along the way,
35:52 innovations take place,
35:54 that completely disrupt industries, right?
35:57 And it can be very difficult to predict
35:59 when those innovations occur, but suddenly skills
36:02 that are in high demand, fall out of favor
36:06 and a new demand per skills comes into place.
36:10 Now, the reason why I wanna really quickly talk about this
36:14 is that there's this myth around automation
36:18 and I kinda hinted that it's kind of obvious
36:20 what the next revolution is.
36:23 And you can argue we're already smack dead
36:25 in the middle of it.
36:28 There's this myth that automation
36:30 is affecting blue collar labor more than white collar labor.
36:35 And I just wanna say
36:37 that I very strongly disagree with this sentiment.
36:42 So as somebody that started off at the bottom
36:45 of the pyramid, let me tell you the one good thing
36:47 about being at the bottom of the pyramid
36:49 is if some robot comes along and takes my job here,
36:53 while I'm at the bottom of the pyramid
36:54 there's a lot of room for lateral movement.
36:57 You know, now I'm over here,
36:58 they take this job and I'm over here, right?
37:00 You have a lot of room to move laterally.
37:03 When you were up at the top of the pyramid,
37:07 or the middle top of the pyramid,
37:09 and your position becomes automated,
37:12 there's usually not a whole lot of room to the left
37:14 or the right, and you have to go down the pyramid a bit
37:17 which can be very difficult.
37:19 And right now I think there are a lot of industries
37:22 that are under serious threat of automation, right?
37:27 So I won't go into too many specifics there,
37:30 but we've got applications that are reviewing contracts.
37:34 We literally have automation of journalism going on,
37:40 surgery and radiology is being automated.
37:43 There is a clear man versus machine situation,
37:47 and a lot of people talk about.
37:49 So they first, they beat us at checkers and that wasn't fun.
37:57 And then the robots beat us at chess.
38:00 And I was like, okay, slow down robots.
38:02 But it was when they beat us at jeopardy
38:05 they were really started to take note.
38:08 And now they're driving cars.
38:10 And as I alluded to, they are diagnosing cancer.
38:15 So this an example of Lena
38:17 which is Google's AI for detecting breast cancer,
38:21 and 90% of breast cancer deaths
38:25 are due to failure to detect metastasis.
38:28 And now I've read a lot of different estimates on this.
38:32 So I'm picking, I wanna be very clear
38:34 I'm picking the most extreme estimate
38:37 but there are estimates that come in that say,
38:39 that human doctors are as low as 30% effective
38:44 at detecting metastases for breast cancer
38:47 when they're under time pressure in that one study.
38:51 So Google claims that it's AI and is 99% effective.
38:57 Now we're getting that information from Google,
38:59 but yeah 99% effective mean it was shown to be faster
39:04 than a team of six doctors.
39:06 So automation is coming and you wanna be
39:11 in a position to where you are communicating with computers
39:15 not fighting with them.
39:17 All right.
39:18 Reason number seven, I'm almost done.
39:21 Statistics has something for everyone, right?
39:25 So it really doesn't matter
39:27 what your particular interests are or your career ambitions.
39:31 There is a way of applying statistics
39:34 to kind of get your foot in the door in that industry.
39:38 So marketing department recently had a speaker Oak Gotay
39:43 who's the global director of Nike Jordan brand.
39:46 And, you know, he kind of, I mean, you know, it's Nike
39:54 and you speaking to a bunch of students
39:57 from your generation, they're all sneaker heads.
39:59 They all want to get their foot
40:02 in the door of a company like Nike.
40:03 And we've got relationships with Adidas in Boston.
40:06 So like, you know, sneakers are very in
40:09 and this place was packed for his talk.
40:13 We had like 150 people there.
40:16 All these students that are their dream job
40:19 is to work for Nike.
40:20 So a lot of them during the Q&A they started asking him,
40:23 they were like, Hey, you know
40:25 it's my dream to work at Nike, I'm a big sneaker head.
40:29 How could I, right now, I'm a sophomore,
40:33 what can I do to kind of, you know
40:36 steer my career in that direction?
40:39 And his response was amazing.
40:42 He was just like, look, man, I'm gonna be real with you,
40:44 we know a lot about shoes, right?
40:47 We don't necessarily need somebody
40:48 who has an expertise in shoes, that's kind of our thing.
40:52 We know a lot about marketing, we're Nike.
40:55 But what we really need is that digital piece,
40:59 digital analytics, he just kept emphasizing that.
41:03 Bring the skill to the industry,
41:06 don't bring the industry to the industry.
41:08 And so if your interest is social media,
41:13 well here's Facebook analytics,
41:15 Instagram analytics, Google analytics, E-commerce.
41:21 And if you like music you've Spotify data's interactive.
41:28 Economic development, you got something going there,
41:32 trends, right.
41:35 Sort of Google Trends broken down by day and by state,
41:40 and I won't make you guys watch this whole thing
41:43 but it is actually pretty entertaining.
41:46 One of the major partnerships that we had
41:50 for a long time at Suffolk was with the Boston Red Sox.
41:53 And I had a team of students coming
41:56 into the ballpark twice a week
41:59 for the entire summer to collect data for them.
42:02 They did not care about the extent to which we knew
42:06 about sports marketing, right.
42:08 They were interested in us
42:10 because of what we could do for them
42:12 on the statistical side.
42:14 So a common reframe that I get back from students
42:17 I'll give one of my very obvious sales pitches
42:20 for my career to them, and then when I get back is often,
42:24 Hey man I just suck at math,
42:27 I don't know what to tell you.
42:28 And I take such exception to this, right?
42:31 For two reasons, reason, number one,
42:35 no you probably don't like everybody says that to me.
42:39 So if everybody thinks they're bad at math,
42:40 but first lesson that I'll teach you in math
42:44 is if everybody's bad at it then your average.
42:47 But the second thing is,
42:50 you don't need to be a natural at math, right?
42:56 Because most likely what you're thinking of
42:59 when you talk about your relationship with math
43:01 is most likely built on the beginning of this lecture,
43:05 where we're looking at algebra and geometry
43:09 and trigonometry and calculus.
43:11 But we've got the computers to do that for us now.
43:14 Most likely you're not bad at math,
43:16 you are intimidated or disinterested in math.
43:20 Okay so I know that I'm just about out of time,
43:23 so I'm going to skip these next two very strange slides.
43:27 And the very last reason
43:29 is that your generation is desperately needed, right?
43:34 So I'll be the first to admit
43:36 that data has been used to distort, to mislead and to lie.
Big data has been used for sketchy policing practices, sketchy lending practices, government overreach, right?
And honestly, I think that's why your generation is needed in this area.
A generation that's already proving itself to care about representation, class issues, the climate, social progress.
That's why I wanna be part of this movement, so that I can be involved to make sure that data science is being used for good.
So if any of this interested you, the best way to get in touch with me would be my email address.
I can talk your ear off about this stuff obviously and yeah good luck in your journey.
And I wish you the best.
Feel free to send any questions you have into the chat.
- Thank you so much Professor Smith,
that was fascinating.
And actually I have one question that came up and that maybe you've kind of already addressed it, but it was what type of internships do your students get?
Can you maybe give us a few examples of things that they were working on?
- Yeah, totally.
Good thing about like a data area is that there's so many internships surrounding data analytics, right?
So we've had internships, like I mentioned before where we've had partnerships with the Red Sox, we've got a partnership with Grub Hub right now, with Pandora.
We've got a designated faculty member in the marketing department who is the coordinator of internships.
So I would say to this area, of course again I'm credibly biased, but analytics and statistics is the area that kind of sets you up best for landing internships.
And that's honestly that's kind of a focus at Suffolk university.
We really try to leverage the fact that we're right in downtown Boston.
And I guess I'll just speak for the marketing department all the faculty go out and make partnerships with the local industry and try to get students as many internships as possible.
- Wonderful, thank you so much.
Everyone if you have any outstanding questions please feel free to send them in the next few minutes, I'm actually gonna now bring back my presentation to kinda wrap things up.
Let me just give it another minute to so see if we have any other questions.
46:11 Okey dokey well.
46:12 Okay well, you know, again, if you are interested
46:15 in all of these things are of interest to you,
46:18 please make sure that, you know your next step,
46:21 to attend Suffolk would be making your deposit,
46:24 which is we still will honor obviously the May 1st deadline.
46:27 So there's plenty of time
46:28 for you to still make that decision.
46:30 But I just wanted to make a quick reminder of that.
46:32 You you've all probably already received a lot
46:34 of different information on this,
46:36 but we have multiple opportunities
46:38 for you to be able to visit us virtually.
46:41 And if you are in the state of Massachusetts and close by,
46:44 we actually do have some opportunities
46:47 for you to come in and visit us on campus.
46:49 So please take advantage of those opportunities.
46:51 We'll still have them through the remainder of the month.
46:55 Okay I wanna be respectful of everyone's time.
46:57 I also wanna go ahead and thank professor Smith very much
47:00 for this wonderful presentation.
47:03 It is being recorded so we will be able to share this
47:05 at the end though, you know, later on
47:07 we'll be posting a lot of this on our website.
47:09 Thank you all of you for attending
47:11 this mock class today this evening.
47:13 I know that for some of you is quite late.
47:15 I know we have people from Brazil, from India,
47:18 but then also a lot of people from the US from Boston,
47:20 from New Jersey and other locations.
47:22 So this has been a wonderfully diverse audience
47:25 to be presenting to.
47:27 Thank you very much.
47:27 And this is the end of the mock class.
47:29 Than you, I guess.