Geointeresting Podcast Transcript

Episode 1: Mark Anderson

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Welcome to Geointeresting, presented by the National Geospatial-Intelligence Agency. From the ocean's depths to deep space and everything in between.

Welcome to Geointeresting, where we present conversations with innovators, explorers and pathfinders. Today, we're joined by Mark Anderson, founder and publisher of the Strategic News Service newsletter. Mark is also the founder, chair and host of Future in Review, an annual gathering for tech leaders, investors and policymakers The Economist called "the best technology conference in the world." Mark was selected by Fortune as one of the 100 smartest people they know and has earned an international reputation for his contributions in that areas as technology, education, computing, economics, genetics, physics and medicine.

Every year, Mark offers his 10 predictions for the upcoming year. For the past 10 years, he's enjoyed a 94 percent accuracy rate. To quote Fortune again, "no one does predictions like Mark Anderson."

NGA: Mark, welcome. Recently, the National Geospatial-Intelligence Agency welcomed you to give a presentation entitled "Prediction accuracy through pattern recognition and next-generation computing." Right off the bat, Mark, I have to ask about that accuracy rate — 94 percent.

MARK: I'd say two things that are on my side in terms of getting a high number. One is I get to pick what I'm going to write about. So it's not a job where I have to tell you every morning, how's Apple going to do? So I get to select the thing. That's helpful, and it's a strong bias toward having a high number. I can pick which subject I'm looking at and which things I think are about to happen. The other is; it's literally [a] gut feeling, right? So as you train yourself to look at patterns, you go through this gut thing, where you're learning; made a mistake, made a mistake, got it right, got it right. You learn — we talk about this in dropping frames, which is a way of seeing clearly and being better able to see patterns you wouldn't expect — so you learn about how are you doing on all that. And you develop an intuitive sense. Well, if my gut doesn't say Steve's going back to Apple, I'm not going to say it. So I have that advantage too. It's really got to be something that I am deeply certain that this pattern was broken and that this is going to happen. If I'm just half certain, I don't have to say a thing.

NGA: You talk about patternmakers and pattern breakers. Can you elaborate?

MARK: Most people familiar with the patternmaker part of this thing, right? And so they expect tomorrow to be like yesterday. We were talking about rearview-mirror guy. All the guys who are in market research, to us, are rearview-mirror guys. Because they're always looking at how many things sold last year and adjust it up and down by three percent. That's the worst possible way to do this work. So when you see a pattern break — when I'm looking through a source, when I'm doing a lot of reading online — I'll see a phrase like, "This is the something, something in 10 years or 50 years or ever recorded." You see statements like this all the time, which leap

out at you as pattern breakers. And I always want to know, OK, if that's true, then what? Well, global warming is what. Or then what? China's about to fire some missiles is what. So there are these different triggers that tell you something's up. There's a reason why the pattern broke, whether it's a person doing something or whether it's nature doing something. So that's what I'm looking for. And when you think about it mathematically, patternmakers are a sign of stability. So the volcano didn't go off for 500 years; every day, you get up, and it didn't go off again. A pattern breaker is when there's a sudden increase in activity; so, wait a minute, the pattern just broke. What happened? We're about to have a volcano go off.

NGA: You've already mentioned framing, but you also said that you want us to see the world "like a baby."

MARK: Imagine the human brain the day of birth or the day of conception — depends on how far back you want to go. But it's pretty interesting, right? If you were that brain, imagine you wouldn't know what a mother and father were, probably. You don't know you're speaking Russian or English. You don't know about day and night. You don't know anything. And no one's really going to teach you anything. You're really going to just have to look at patterns and figure out, oh, that's a mother, that's a day, that's a night. These things repeat again; I guess that's something that's going to happen. The bio computer at that stage, I think, is at its most adept. Now we know that there are the largest number of neurons at about age 14. Then we start cutting back on them. So, thinking about the amount of activity that has to happen in the human brain at birth and beyond, those early three years; I've got a recent theory that most of us can't remember back to two years old, three years old. There's some kind of barrier there. Why is there a barrier? I think the barrier is partly because we're restructuring the brain so fast that it's literally impossible to be also running memory later on what we did. Once it's kind of set; OK, now we start storing stuff. But I think a lot of the stuff that's happening early on is just a massive restructuring or restructuring of all the connections. So we want to get back to that place of seeing, where we had the same objectivity about what we saw.

NGA: What role does next-generation computing play in this? I'm thinking of computers like Watson or IBM's True North chip.

MARK: There are these different tracks people are taking right now. You read about predictive analysis; very hot software area. I think people are in some ways on the wrong track with some of these paths. Not that they're not working, but maybe you get a five-percent bump or a ten-percent bump. It's not a 200-percent bump. And I like Watson a lot. I think Watson's going to be a big hit. But what we really need is to take the whole compute system and redo it. Throw out the old one and put in the new one. And the new one is going to be pattern based. And we're starting to get now the chips and the tools. We'll start to see a lot of chips, either what I call PRPs, or pattern recognition processors — I believe we'll see lots of those — and/or what they call brain inspired, which go beyond PRPs. PRPs are going to be in front of those things, and there are things inside them that look like neurons or act like synapses and so on. And that kind of architecture is going to be radically different and radically better, 10,000 percent better, at finding patterns. When that happens, the good news is that the system will see a pattern. The bad news is it'll tell you, "I just saw a pattern." And you'll go, "Wow, that's amazing; a whole new discovery in physics," or whatever it is. But it won't necessarily be able to tell you how it found it or how it connects back to what you knew about physics, to the fundamentals. It'd be like string theory, where they published this thing out of nowhere. They didn't know where it came from; it

was out of a book. They won't have the connectors back to the physical constance, to the actual physical world. And to this day, for that reason, they are lousy at predicting things using that very well-accepted theory. It's kind of tragic. If you hated that, you're really going to hate the rest of this stuff. We're very, very smart about patterns but not so smart about the causality.

NGA: You talk about the scientific method, but for you, there's a part that's missing — getting the idea. So for you, how do you find or get that idea?

MARK: Well, this is what we're talking about. So imagine you have a question. I had a question which was, are all the force laws related in some mathematical way which hasn't been described before? And it's already unified. We got a lot of stuff done; the standard theory. But I didn't want to know that. I wanted to look at this, not as a student would look at it at Stanford, but look at it clean, just totally clean. And it turned out there was a mathematical formula that I don't think people had found before. So that's interesting. Well, what was the question? The question was what I said, and the answer was get some colored pens, write all these forces — there were 13 different fields of physics I was looking at — and find the things that are shared. There's something there that's shared in all these fields of physics. What is it? And then boil that down to a very short program.

NGA: Let's talk about some other predictions you have for this year. We're already talked about pattern recognition. I want to talk about your prediction that security will become a priority for CEOs. You believe that companies will reverse the downward spending trend on security as cost of poorly protected security systems outweigh the cost of building secure ones.

MARK: I should mention, I run a thing called Invent IP, which is inventing nations versus nation-sponsored theft of IP. There are countries whose business models are based on stealing ideas. We all know who those countries are. It's taken a long time for CEOs to get out of denial mode. And they're still not quite there. And during that whole period of time, they have not spent the proper amount of money to secure their companies. In their defense, neither have there been the right tools to do it. As recently as two years ago, if you said, "I'll give you any amount of money to protect me," it wouldn't matter. Basically, I couldn't do anything. We had the wrong tools. We're getting better now — tools are more dynamic and are heuristic. They tend to look for any kind of patterns inside a network or on a user, etc. So now it makes more sense to spend your money than it did before. But until this year, the chief security officers, if you surveyed them; 80 percent said we're not doing enough. You survey the CEOs; only 15 percent said that. So they weren't talking to their own guys, and they weren't spending any money. So the prediction was based on a fair certainty that the problem was getting bigger; APTs are becoming more numerous [and] there's a higher level of attacks. CEOs are going to have to turn around and increase their spending. They didn't for the last five years, but now I think they will.

NGA: Even though Facebook recently purchased Occulus, the virtual-reality headset maker, for $2 million, you believe that virtual reality will remain in the domain of entertainment this year. Furthermore, you believe that a headset that immerses a user in a 3-D world will not become a feature of everyday life.

MARK: I spent five years at a company called World Design, out of the HIT lab, out at the University of Washington. And we were the first guys to do major applications for VR, so I know VR a little bit, and I love it. But I do think it's about entertainment, at least Occulus. I mean, we

had that 20 years ago, so it's better now, but it's still the same thing. And I think that's great if you want to play video games. But what I found exciting is the augmented reality — I think something like Google Glass. However, you want to have policies around it to protect privacy and so on. There's something about Google Glass, where I can walk around New York and see a building, and it tells me about the architect. Or I can see you, and it tells me who you are because I saw you at a party five years ago, and I forgot. That kind of thing is going to break through, so that we have the cloud system, basically, at our fingertips and visually available to us, since our eyes are our primary way to take in data.

NGA: You're the founder, chair and host of the Future in Review conference, the next one coming up in October. What gave you the idea? What was the reason to start this conference? What was the catalyst?

MARK: First, I'll tell you why I didn't start it. So everybody had a conference, and I didn't do anything for 10 years, I think. Because who needs another conference, even then? And then I thought, if there's something I could do that would be really different or additive, then I'll do a conference. And finally, I realized, well, the stuff we're doing in the newsletter is really additive and different. And if I can bring that into a conference, OK, that's cool, because we were making predictions no one else was able to make. We were finding these gigantic, strategic things that people weren't seeing, which were two reasons people were paying for the newsletter. So we thought, OK, let's bring this into a conference setting and see what that's like. And that's what FiRe is. So we say Future in Review as a joke, but it's kind of what we're trying to do. And The Economist calls it the best in the world as a tech conference. But it's really not a tech conference. It's really this place where you come to learn, almost as a fact, what's going to happen three to five years from now. And then, what should we do about it? We've kind of pushed the ball down the court a little bit, not just what's going to happen, but what are we going to do about it? And that's a lot of fun. So we have initiatives that come out of that conversation that are actually problem-solving initiatives that everyone signs up for all year long.

NGA: Finally, Mark, I have to ask — even though you have that 94-percent accuracy rating, why do you make these predictions every year? Why do you publicly put yourself out there to make these predictions?

MARK: That's the game, right? It's like saying, "Why do you play football?" If you don't like football, don't play. So for me, this is NFL. It's really fun. If I didn't enjoy it, I wouldn't do it.

NGA: I want to thank Mark Anderson for being on the show today. Mark is the founder and publisher of the Strategic News Service, next week's news this week. To sign up for an annual subscription, visit www.stratnews.com. You can also learn about the SNS one-month trial, available once per individual — that's four issues for $14.95. Mark is also the founder, chair and host of the Future in Review conference. The thirteenth annual Future in Review conference will be held October 6–9 at Park City, Utah. For more information and to register, visit www.futureinreview.com. Thank you for listening to Geointeresting.