

## Chris Kluwe: How augmented reality will change sports and build empathy.

5 What do augmented reality and professional football have to do with empathy? And what is the air speed velocity of an unladen swallow? Now  
10 unfortunately, I'm only going to answer one of those questions today, so please, try and contain your disappointment.

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When most people think about augmented reality, they think about "Minority Report" and Tom Cruise waving his hands in the  
20 air, but augmented reality is not science fiction. Augmented reality is something that will happen in our lifetime, and it will happen because we have the tools to make it happen, and people need to be  
25 aware of that, because augmented reality will change our lives just as much as the Internet and the cell phone.

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30 Now how do we get to augmented reality? Step one is the step I'm wearing right now, Google Glass. I'm sure many of you are familiar with Google Glass. What  
35 you may not be familiar with is that Google Glass is a device that will allow you to see what I see. It will allow you to experience what it is like to be a professional athlete on the field. Right now, the only way you  
40 can be on the field is for me to try and describe it to you. I have to use words. I have to create a framework that you then fill in with your imagination. With Google Glass, we can put that underneath a  
45 helmet, and we can get a sense of what it's like to be running down the field at 100 miles an hour, your blood pounding in your ears. You can get a sense of what it's like to have a 250-pound man sprinting at  
50 you trying to decapitate you with every ounce of his being. And I've been on the receiving end of that, and it doesn't feel very good.

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Now, I have some footage to show you of what it's like to wear Google Glass underneath the helmet to give you a taste

60 of that. Unfortunately, it's not NFL practice footage because the NFL thinks emergent technology is what happens when a submarine surfaces, but — (Laughter) — we do what we can.

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So let's pull up some video.

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(Video) Chris Kluwe: Go. Ugh, getting tackled sucks. Hold on, let's get a little closer. All right, ready? Go!

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Chris Kluwe: So as you can see, small taste of what it's like to get tackled on the  
80 football field from the perspective of the tacklee. Now, you may have noticed there are some people missing there: the rest of the team. We have some video of that courtesy of the University of  
85 Washington.

**2:43**

(Video) Quarterback: Hey, Mice 54! Mice 54! Blue 8! Blue 8! Go! Oh!  
90 2:55

CK: So again, this takes you a little bit closer to what it's like to be on that  
95 field, but this is nowhere what it's like to be on the NFL.

**3:03**

100 Fans want that experience. Fans want to be on that field. They want to be their favorite players, and they've already talked to me on YouTube, they've talked to me on Twitter, saying, "Hey, can you get this  
105 on a quarterback? Can you get this on a running back? We want that experience."

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110 Well, once we have that experience with GoPro and Google Glass, how do we make it more immersive? How do we take that next step? Well, we take that step by going to something called the Oculus Rift, which I'm sure many of you are also  
115 familiar with. The Oculus Rift has been described as one of the most realistic virtual reality devices ever created, and that is not empty hype. I'm going to show

you why that is not empty hype with this video. (Video) Man: Oh! Oh! No! No! No! No! I don't want to play anymore! No! Oh my God! Aaaaah!

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### 3:56

CK: So that is the experience of a man on a roller coaster in fear of his life. What do you think that fan's experience is going to be when we take the video footage of an Adrian Peterson bursting through the line, shedding a tackler with a stiff-arm before sprinting in for a touchdown? What do you think that fan's experience is going to be when he's Messi sprinting down the pitch putting the ball in the back of the net, or Federer serving in Wimbledon? What do you think his experience is going to be when he is going down the side of a mountain at over 70 miles an hour as an Olympic downhill skier? I think adult diaper sales may surge. (Laughter)

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### 4:37

But this is not yet augmented reality. This is only virtual reality, V.R. How do we get to augmented reality, A.R.? We get to augmented reality when coaches and managers and owners look at this information streaming in that people want to see, and they say, "How do we use this to make our teams better? How do we use this to win games?" Because teams always use technology to win games. They like winning. It makes them money.

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### 5:02

So a brief history of technology in the NFL. In 1965, the Baltimore Colts put a wristband on their quarterback to allow him to call plays quicker. They ended up winning a Super Bowl that year. Other teams followed suit. More people watched the game because it was more exciting. It was faster.

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### 5:17

In 1994, the NFL put helmet radios into the helmets of the quarterbacks, and later the defense. More people watched games because it was faster. It was more entertaining.

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### 5:28

In 2023, imagine you're a player walking back to the huddle, and you have your next play displayed right in front of your face on your clear plastic visor that you already wear right now. No more having to worry about forgetting plays. No more worrying about having to memorize your playbook. You just go out and react. And coaches really want this, because missed assignments lose you games, and coaches hate losing games. Losing games gets you fired as a coach. They don't want that.

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### 5:57

But augmented reality is not just an enhanced playbook. Augmented reality is also a way to take all that data and use it in real time to enhance how you play the game. What would that be like? Well, a very simple setup would be a camera on each corner of the stadium looking down, giving you a bird's-eye view of all the people down there. You also have information from helmet sensors and accelerometers, technology that's being worked on right now. You take all that information, and you stream it to your players. The good teams stream it in a way that the players can use. The bad ones have information overload. That determines good teams from bad. And now, your I.T. department is just as important as your scouting department, and data-mining is not for nerds anymore. It's also for jocks. Who knew?

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### 6:43

What would that look like on the field? Well, imagine you're the quarterback. You take the snap and you drop back. You're scanning downfield for an open receiver. All of a sudden, a bright flash on the left side of your visor lets you know, blind side linebacker is blitzing in. Normally, you wouldn't be able to see him, but the augmented reality system lets you know. You step up into the pocket. Another flash alerts you to an open receiver. You throw the ball, but you're hit right as you throw. The ball comes off track. You don't know where it's going to land. However, on the receiver's visor, he sees a patch of grass light up, and he knows to readjust. He goes, catches the ball, sprints in,

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touchdown. Crowd goes wild, and the fans are with him every step of the way, watching from every perspective.

5 **7:23**

Now this is something that will create massive excitement in the game. It will make tons of people watch, because people want this experience. Fans want to be on the field. They want to be their favorite player. Augmented reality will be a part of sports, because it's too profitable not to.

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**7:41**

But the question I ask you is, is that's all that we're content to use augmented reality for? Are we going to use it solely for our panem, our circenses, our entertainment as normal? Because I believe that we can use augmented reality for something more. I believe we can use augmented reality as a way to foster more empathy within the human species itself, by literally showing someone what it looks like to walk a mile in another person's shoes. We know what this technology is worth to sports leagues. It's worth revenue, to the tune of billions of dollars a year. But what is this technology worth to a teacher in a classroom trying to show a bully just how harmful his actions are from the perspective of the victim? What is this technology worth to a gay Ugandan or Russian trying to show the world what it's like living under persecution? What is this technology worth to a Commander Hadfield or a Neil deGrasse Tyson trying to inspire a generation of children to think more about space and science instead of quarterly reports and Kardashians?

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Ladies and gentlemen, augmented reality is coming. The questions we ask, the choices we make, and the challenges we face are, as always, up to us.

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55 Thank you.

**9:02**

(Applause)

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