1. Brief overview of talk
   1. This is a brief introduction to AI, both in the present and in the future. Modern AI is a set of computational and statistical techniques for processing data, used for everything from Spotify song recommendations to Facebook ads to autonomous weapons. But first, what is it? And why did we only start hearing about it recently?
2. What is ai
   1. Most of what people are referring to when they talk about AI are neural networks. Originally invented way back in the 1950s, a neural network is a computer program designed to simulate a human brain. Basically, it’s a big pile of mathematical operations that takes in some numbers and spits out other numbers. Every time it puts out an answer, it also checks its solution against the real answer. If it was wrong, it updates the math pile until it’s right most of the time. This technique, while highly effective, requires massive amounts of computational power, which only became available recently. The AI explosion happened in 2012, when a team blew away the previous record for image recognition with an AI system.
3. Why people are scared of stupid AI
   1. So why are people so worried about a pile of math? Beyond the obvious answer of middle school algebra-phobia, neural networks can actually be pretty worrisome. They have no real understanding of meaning, nothing resembling morals, and are highly efficient at what they do. They also are only as good as the data they were trained on, and that can lead to some startlingly bad results. Just to give some examples, image recognition systems often don’t work well on minorities, with a Google image recognition system famously misidentifying a black employee as a gorilla. IBM’s healthcare AI recommended cancer treatments that were almost certain to be fatal. And an AI hiring manager actually exacerbated Amazon’s gender and racial discrimination problem, hiring white and asian men at a much greater rate than human hiring managers.
4. Why people are scared of smart AI
   1. And when these systems work well, it can be even worse. So called “deepfakes” use neural networks to generate convincing audio, images, and even video of people saying and doing things they never said or did. It’s cute when you put former president Obama dancing and singing in a music video. It’s terrifying when you realize that they could have just as easily recorded a politician saying something stupid or offensive, or a celebrity doing something illegal. Various militaries are also testing AI for defense, with some drones and other weapon systems approaching full autonomy. More broadly, there is also the fear of job loss, with AI taking over many human tasks. Especially for repetitive tasks, like sorting parts, or detail oriented tasks like classifying X-Rays, idiot savant AI systems could easily take over in the next decade or two. Many economists would of course rebut this claim, citing the fact that previous technological revolutions never produced mass unemployment. However previous revolutions never replaced mental labor, only physical. If the machines are both smarter and stronger, what’s left for people?
5. Why it’s complicated
   1. Potential to help analyze vast amounts of data (ex: medical)
   2. Field advancing quickly, flaws are corrected in remarkable time
   3. Potential to vastly increase resources for everyone.

And insert some of those sweet Hinton/Bengio quotes