

## George Hotz

George Hotz is an American software engineer that, despite being only 29 years old, has been making a lasting impact in the world of technology for over a decade. He first garnered widespread attention at only 17 years old, when he became the first person to unlock the newly-released iPhone. Less than 4 years after this, Hotz found himself in the news again as a result of his reverse-engineering prowess, however this time, he found himself in a lawsuit for his troubles, as Sony sued him and numerous people he worked alongside for the publication of data they had discovered during the process of jailbreaking the Playstation 3 games console. In the end, this lawsuit was settled out of court, however this came with the agreement that George Hotz was prohibited from reverse-engineering any Sony products in the future.

The media exposure and reputation that Hotz had built in the computer security landscape had caught the eye of major players in the technology world. Between mid-2011 and early 2015, Hotz was employed by Facebook, Google, and Vicarious, an artificial intelligence company that aims to make A.I function like the human brain. Since mid-2015, Hotz has been working for his own startup, comma.ai.

According to Hotz, “The mission of comma.ai is eliminate everyone’s jobs...”. In order to achieve a fully-automated workforce, they’re starting with transport, their reason being that it’s the largest employment sector. There are plenty of businesses, startups and researchers currently invested in the self-driving car space, and parties with far more financial backing than comma.ai, such as Tesla, but the thing that sets comma.ai apart from the others is the fact that they don’t sell cars, they sell kits. Instead of building sensors and radar and expensive technology into the car, comma.ai aims to reach level 3 autonomy, where the car can drive itself 99% of the time, using only cameras. Not only are they looking to achieve this with only cameras, they’re not selling you a pricey proprietary dashcam, they’re doing it with the camera in your phone. Another difference is that, unlike most competitors, their technology is open source. Hotz believes that “If you build a great product, people will buy it.” He focuses on and believes in quality, not marketing, or up-selling, or locking a user into an ecosystem. He feels that building a product with an incredible level of value for money is the route for comma.ai to beat out the tech giants in the self-driving car space. For example, you can purchase one of every item in the comma.ai store, including a kit to let your current car drive itself, debug kits for writing your own software that uses the kit, and even a t-shirt to show your support for the company, for a grand total of \$978. In comparison, the base price of a Tesla Model 3, their cheapest car, is \$35,000.

The achievements of Hotz and comma.ai aside, what I find to be one of the most interesting aspects of the character of George Hotz is his absolute faith and belief in the capabilities of technology. In interviews, he’s made clear his undying belief that level 4 autonomy, where cars can drive themselves, without the need for humans in the vehicle, 100% of the time, is an

inevitability. From then, comma.ai will be able to “go down the list”, Hotz claims, of the largest employment sectors, continually making the next one fully automated. To me, the most powerful thing his belief does isn’t necessarily something that is tangible in terms of hardware or code - but that he raises questions.

When I listen George Hotz speak in interviews or look into his work, I find myself constantly asking myself questions: What can’t technology improve? What can’t eventually be automated by AI? What jobs can’t be replaced? What do we do when there’s none left? Hotz doesn’t have the answers to these questions, nor does he claim to, but regardless, he strives towards comma.ai’s end goal of automating the workforce. He claims: “I build tech, whether it’s good or not, it’s somewhat inevitable”. Much like famous mathematician Augustus De Morgan, who said “Whatever can happen, will happen if we make trials enough”, Hotz believes that so long as a piece of technology can possibly be created, it eventually will be - perhaps not by him - but nevertheless, its creation is bound to happen.

From looking at the work that George Hotz has released over the years, I’ve found one strong correlation between most of his projects - they tend to encourage and benefit the personal freedom of the users. The unlocked iPhone freed iPhone users from the need to be tied to a specific mobile carrier in order to use the device; The jailbroken Playstation 3 freed users to create and run backups of the games they bought, as well as freeing them to run their own software on the device they paid for, bought, and own; Now, comma.ai is looking to bring self-driving cars to the masses, and free car owners from the steering wheel. Next, they could free the workforce from the need to work 40+ hours a week for a majority of their lives. The impact this could have is simply immeasurable. If humans no longer need to work for a living, we could potentially see a massive societal shift, the likes of which has never been documented before. With a fully-automated workforce, there is the possibility where humans are free to purely pursue their own interests and desires with the billions of man-hours that are currently being spent by the workforce every day. This would lead to a near-complete change of the current societal, economic and political structure of the world. This potential scenario of the impact of the future work of comma.ai and George Hotz only creates more questions, just like the past work does: In this scenario, how would people earn and spend money? Would money even be used? What would motivate people to create and innovate? Who would own, maintain, and improve the technology that runs this hypothetical automated workforce?

Another potential scenario that could come about as a result of an automated workforce could be that the economic and societal structure of the world doesn’t change all that much, and we simply see a massive growth in unemployment, as humans become more and more redundant in the workforce. We could then see the divide between “the 1%” and the rest of the world grow ever-larger, to the point where there are only two classes of society - “the 0.001%”, the super-rich elite owners and operators of the automated workforce, and the rest of society, the unemployed, redundant masses. This scenario poses just as many questions surrounding the

societal, economic and political impact of this reality: Would the world's capitalistic structure completely dismantle if an overwhelming majority of the world's population wasn't working, and thereby had little money to spend? Would this majority be able to survive at all like this? Could we see an eventual revolution, as a poverty-stricken majority overthrow the elite that they outnumber so largely for the sake of their own survival? What impact would that have on the technology that brought society to that point? Again, these questions, just like the rest of the ones I have laid out throughout this essay, currently have no answers.

George Hotz himself, when asked questions similar to these, simply states: "That's a political problem - I'm a technical guy". He never claims that the technology he builds will solve all of a user's problems, nor will it solve the world's problems, but he builds his products to explore the capabilities of the technology we have at our disposal today. However, still, in my opinion, the most important thing that George Hotz does, is make you think. It's not unlocking a phone, it's not making a car drive itself - other people and companies are doing that too, and as Hotz says himself, that tech is inevitable, he doesn't necessarily have to build it - it's the questions he's able to make you consider. They may be questions for which there are no answers currently, as the only way to know for sure is to live through it, but the world is potentially at a fork in the road of history currently, where changes in technology and its implementation in the next few years could have a drastic, unforeseen impact on the world for decades or centuries to come. Because of this, as developers and people that are going to be building technology for the next few years, it's important to consider this impact that our products could have, and to do that, we must think of future scenarios that could come about through developments in technology.

That's what George Hotz makes you do.