

Machine Learning and Artificial Intelligence (with Sports)

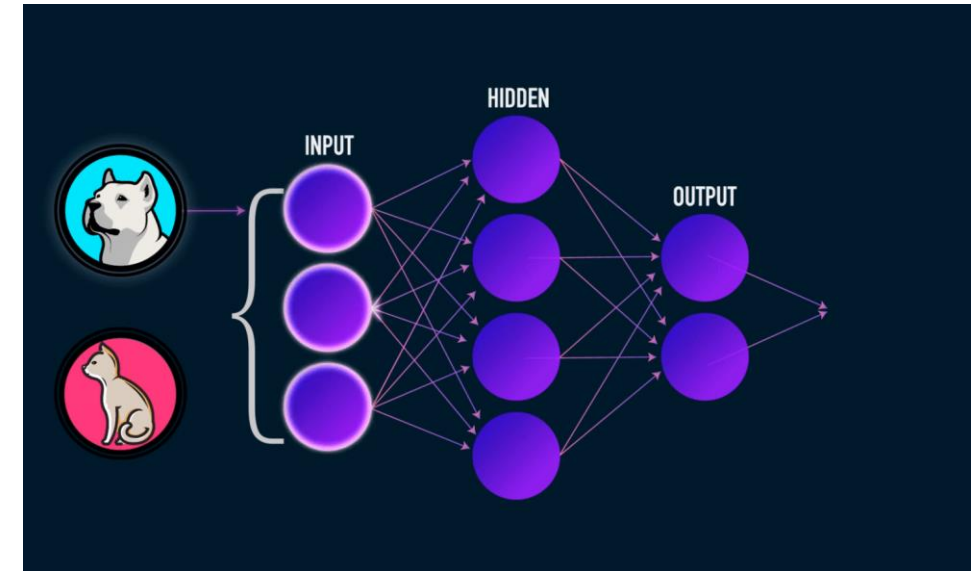
Dr. Vitaly Ford

Computer Science and Math Department



Machine Learning (ML): Knowledge

- Automate analytical model building
- Find hidden insights in data
 - Learn from historical data
 - Identify patterns
 - Maximize performance
- Auto-learn and improve from experience
- Acquire
 - Knowledge
 - Skills



Artificial Intelligence (AI): Intelligence

- Mimic human reasoning (cognitive learning)
 - Thinking
 - Learning
 - Remembering
 - Find an optimal solution
- Mimic human abilities
 - Image/audio/video/text recognition and speech
 - Robotics



<https://news.stanford.edu/2018/12/12/artificial-intelligence-report-finds-advances-working-human-language-global-reach/>

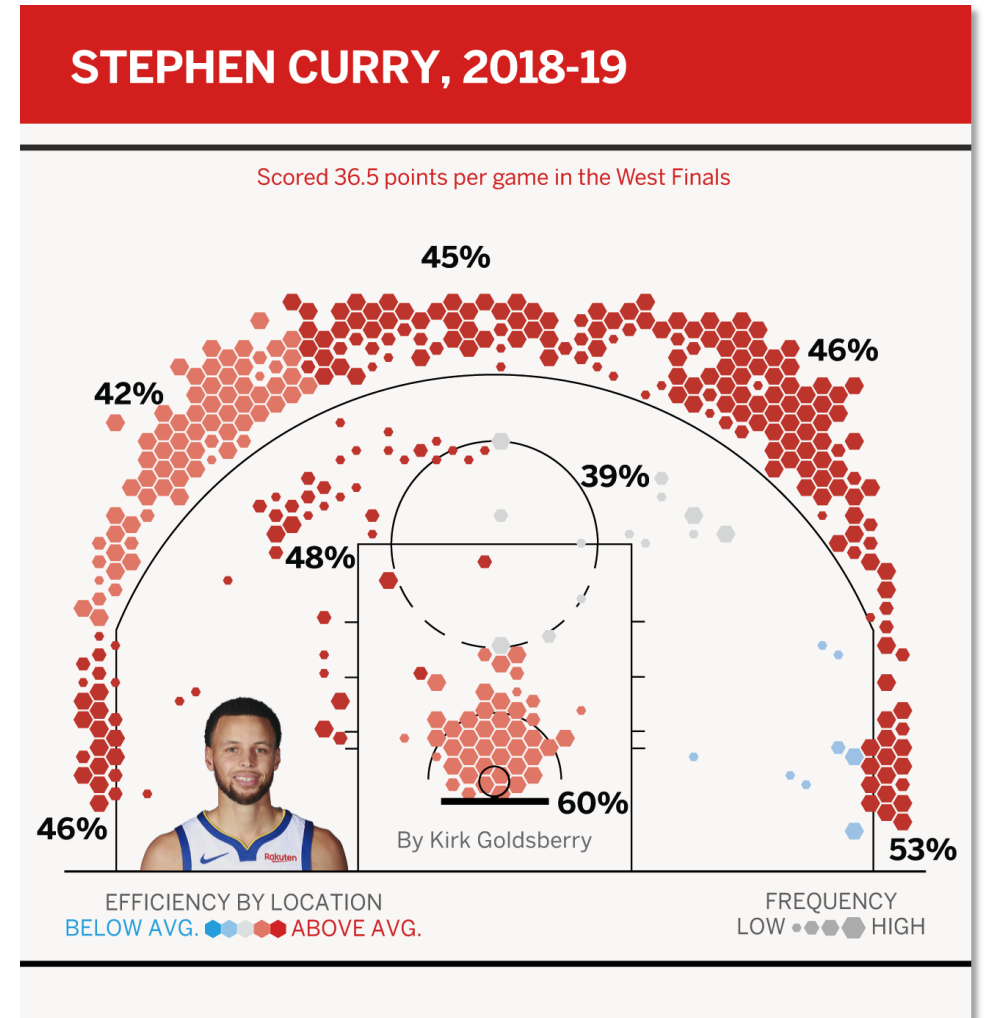


NBA Data Science 1

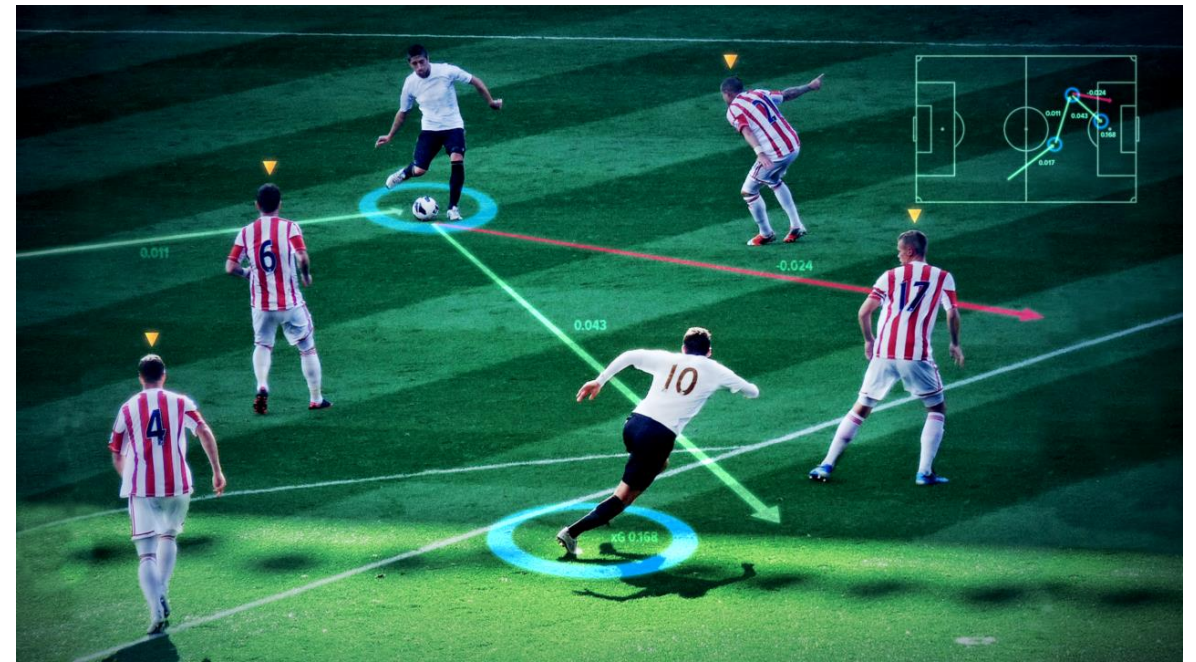
<https://youtu.be/MpLHMKTolVw?t=158>

NBA Data Science 2

<https://youtu.be/oUvvfHkXyOA?t=242>



<https://www.paxata.com/blog/parsing-big-data-json-for-nba-analytics-and-data-science/>

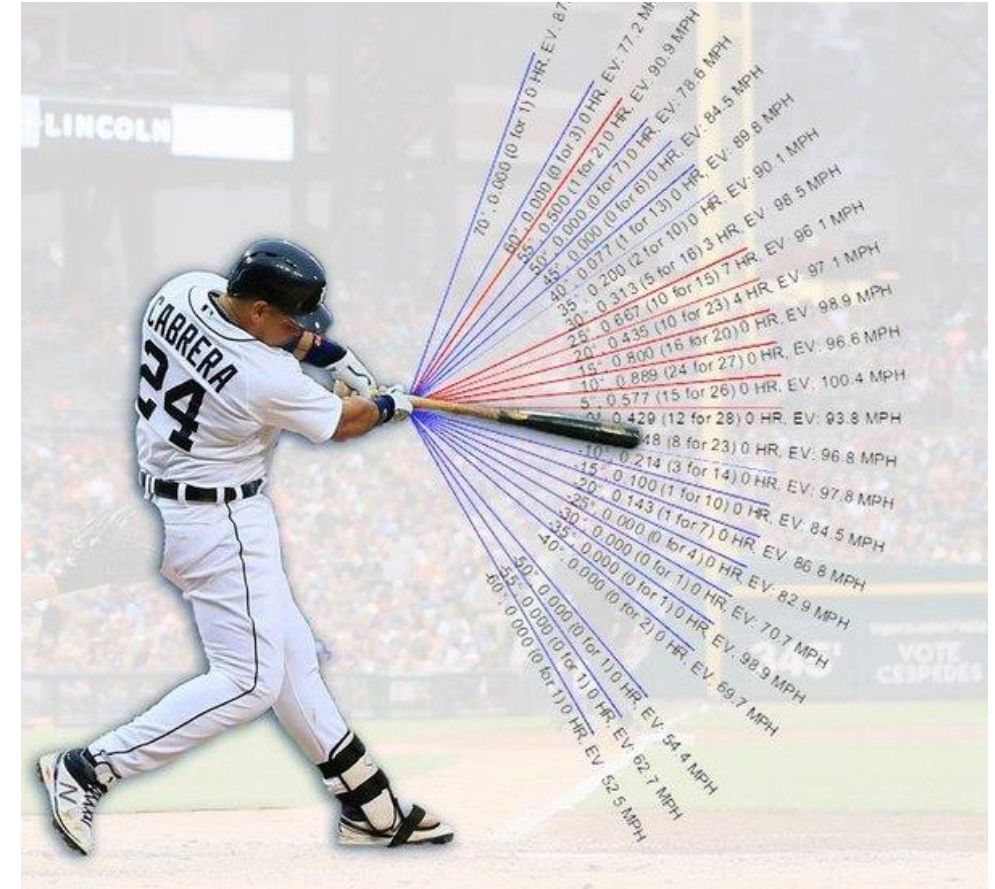


Soccer Data Science

<https://youtu.be/A3JQCsM2qfA?t=66>

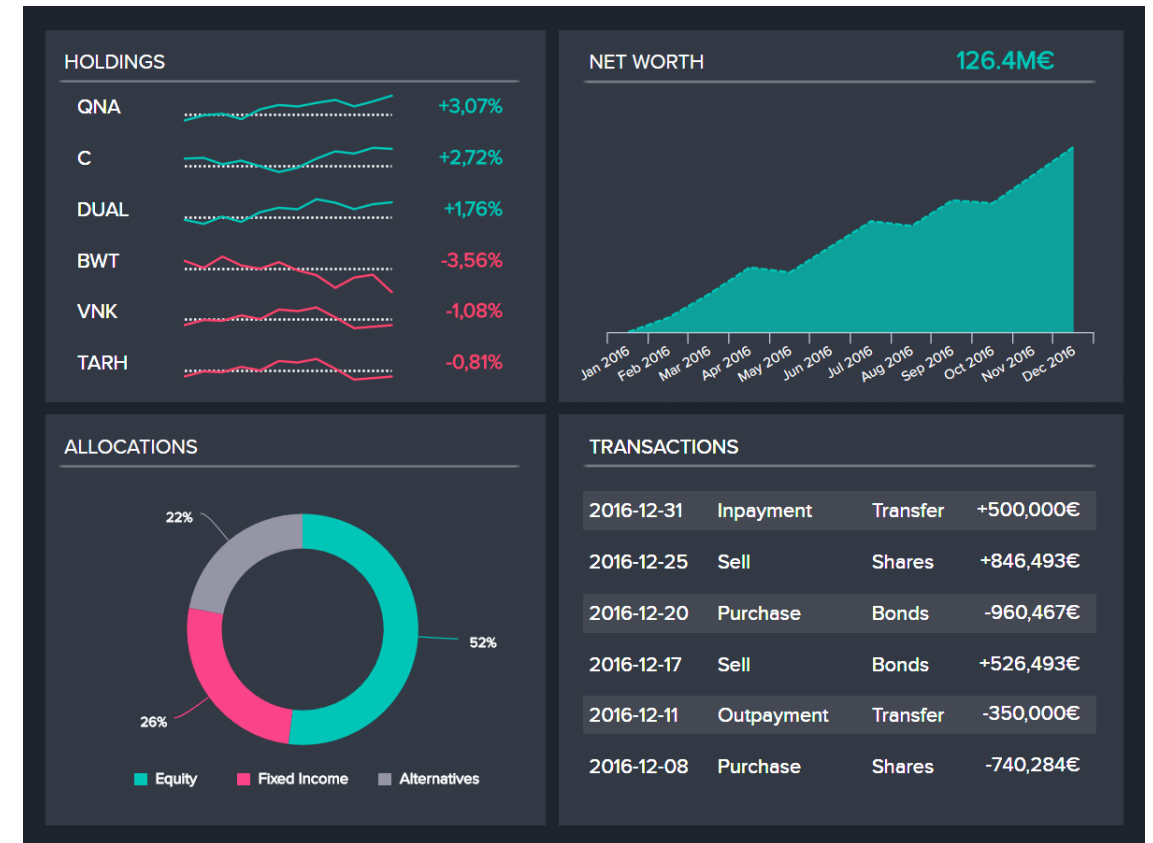
Moneyball

<https://www.youtube.com/watch?v=AiAHLZVgXjk>



AI in Accounting

<https://www.youtube.com/watch?v=v-7iZEsPWZ4>

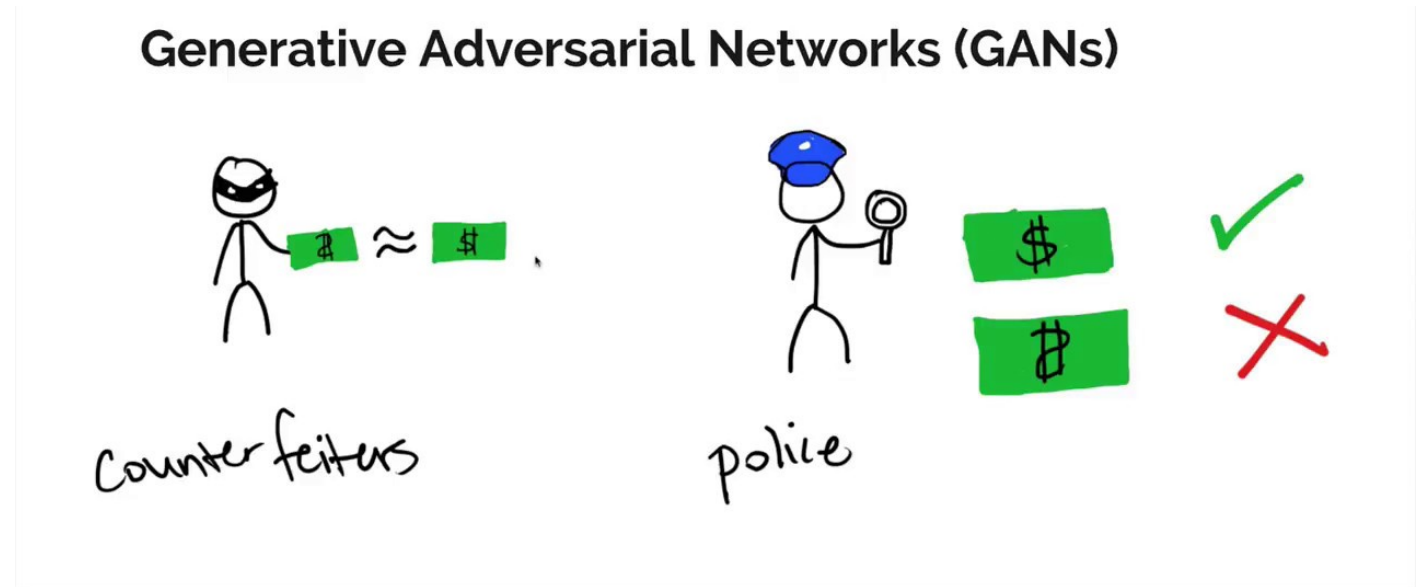


<https://deepmind.com/blog/article/alphazero-shedding-new-light-grand-games-chess-shogi-and-go>



AlphaZero and AlphaGo

<https://www.youtube.com/watch?v=7L2sUGcOgh0>



Generative Adversarial Networks

<https://thispersondoesnotexist.com/>

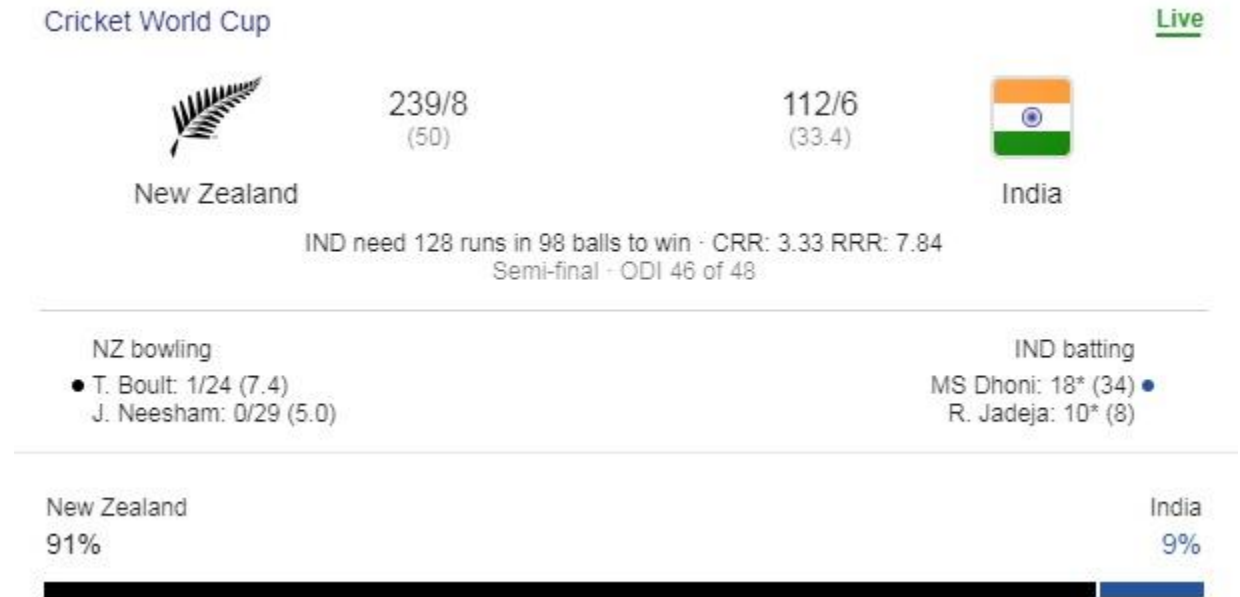
<https://youtu.be/kSLJriaOumA?t=28>

https://medium.com/@jonathan_hui/gan-some-cool-applications-of-gans-4c9ecca35900



Meme Generator

https://www.vice.com/en_us/article/gyk3dq/stanford-researchers-trained-a-neural-network-to-make-these-memes



Google Predicts Match Outcome

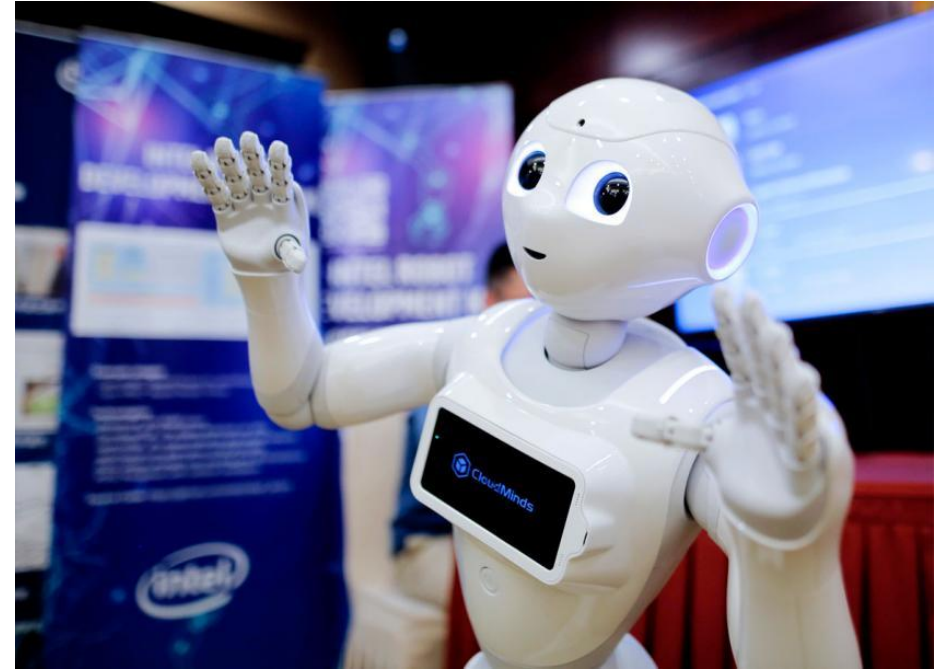
See live scores when a game starts: shows you “win probability”

<https://kyeye.com/near-or-far-what-does-20-40-vision-mean/>



Vision/Text/Speech

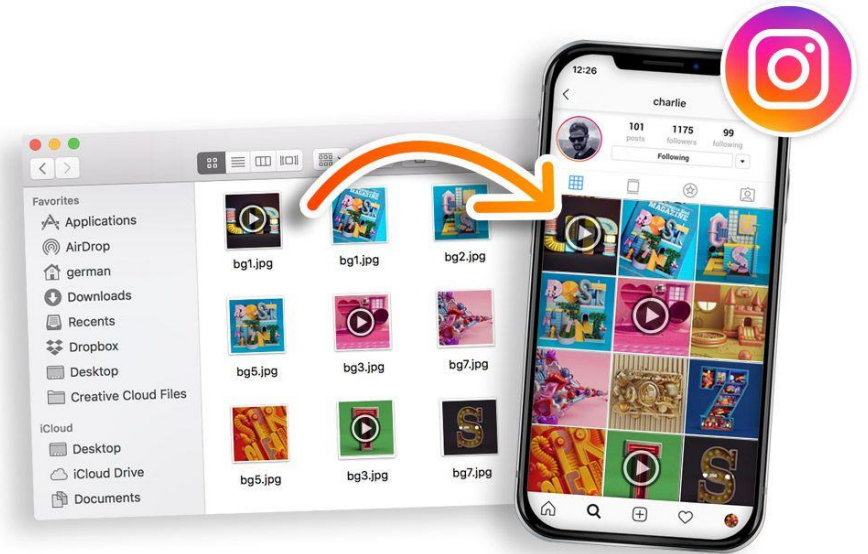
<https://cloud.google.com/vision/>



Robotics (run/parkour/jump/move)

<https://www.youtube.com/watch?v=kHBcVlqpVZ8>

<https://www.youtube.com/watch?v=aFuA50H9uek>



Automating Instagram Posts

<https://www.linkedin.com/pulse/how-i-am-earning-500-followers-weekly-instagram-using-fernandes/>



GPT-3-powered Business Ideas Generator

<https://ideasai.net/>

Lobe (AutoML) – Train Your App

<https://lobe.ai/>

Trends

- Google Trends (<https://trends.google.com>)
- Self-driving Cars
- Speech Emulation
- DeepFake
- Robotics/Automation
- Predictive Analytics (stocks, healthcare, sales, insurance, win/loss, etc.)
- Data Analytics Competitions (<https://www.kaggle.com/competitions>)
- Completely mimicking human logic/abilities/reasoning
 - Nearly impossible
- Neural Implant
- Deep Learning

Social Concerns

- Will AI take over the jobs?
- Will AI take over the world?
- Are we living in a simulation?

DIY

- Google ML: <https://ai.google/education>
- AI Playbook: <http://aiplaybook.a16z.com/docs/intro/getting-started>
- Toward Data Science: <https://towardsdatascience.com/>

