

AI for Drug Discovery

ter.ps/389iweek7

\$2.6 billion



9 out of 10 candidate drugs fail between phase I trials and regulatory approval



“McKinsey estimates that big data and machine learning in pharma and medicine could generate up to **\$100bn annually**, based on better decision-making, optimised innovation, improved efficiency of research, clinical trials, and new tool creation for all stakeholders.”



Core concept

Apply deep learning to large chemical and biological datasets to identify promising drug candidates much faster than experimentation



Interactive Map

<https://www.getscience.com/What-it-Takes-to-Discover-and-Develop-a-Medicine?inkId=51989964#intro>



Ethics

- Not a single approved AI-developed drug is out there yet
- **Many** companies in the space
- Incredibly complex field
 - Human biology
 - Acquiring good data
- AI can't solve everything
- Very easy to hype up, hard to show results



Readings + Additional Resources

- <https://www.nature.com/articles/d41586-018-05267-x>
- <https://medium.com/the-ai-lab/artificial-intelligence-in-drug-discovery-is-overhyped-examples-from-astrazeneca-harvard-315d69a7f863>

