

AI Expert Perspective

AI in Pharma Summit 2018

October 9th, Boston, MA

Industry Expert Interview:



Genentech

Kim Branson

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Kim has been involved in large scale machine learning and medical informatics initiatives for over 15 years, over a range of ventures from computational drug design to disease risk prediction. He is currently the head of Artificial Intelligence for the Informatics department of Early Clinical Development at Genentech. Recently, he served as Chief Data Scientist at Lumiata, a predictive health analytics company.

There has been a huge uptake in AI over the last twelve months but should we be managing expectations better?

Many vendors and companies have either been formed or have begun to target the pharmaceutical space. Because drug discovery and development is such a complex endeavour there are many places where AI methods will be applied. Some that are adjacent to current or existing applications will be immediately beneficial, whereas others will require several cycles of application and feedback

before successful implementation. This process might take months to years. Many of these applications should be viewed as being an experiment, with the understanding that success requires both data and the business processes around the application to be examined. Being clear that it might not work out of the box, but its an iterative process is a key message.

When coming up against “old-school” mind-sets, how do we best demonstrate the value AI can deliver?

The best path here is to understand why they think that way. Some of the scepticism is warranted, but clearly demonstrating value using their data is key. “If it works with data like mine I’m interested, but being shown it works on my data is compelling.” Also be careful not to dismiss their domain expertise. This is a key edge to success. Turning these people into members of the AI team is key. Often once they understand the

technology, and contribute to their use case application, they can become powerful advocates.

Are we still trying to figure out how AI can have a genuinely substantial impact across pharma?

I think this is very much the case at a macro-level. At a micro-level we have clear impacts, Convolutional networks, digital pathology, or high content screening. Methods for property and pharmacokinetic prediction, or generative methods for lead generation. AI applications run the gamut of being able allow us to do things we couldn’t do before, or efficiency gains in processes. Combining these methods with data sources that are not traditionally combined leads to novel and unexpected processes. I think we are in the process of seeing what sticks, but over the next few years as companies transform to being data-first companies, their applications of machine learning and AI methods will be more successful. This impact requires a

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cultural shift in addition to the IT and data requirements.

What responsibility does C-suite have for pushing the envelope and embracing emerging tech like AI more?

I think the number one responsibility is to ensure a culture of data-sharing and creating a data-first environment. When you generate data often its to answer a question, and so it's collected and stored with that in mind. Changing the mind-set to collect not only what you need, but all that you can, you are both answering a question now and setting-up to answer unknown questions in the future. The data needs to be stored, with detailed meta-data in a clean fashion. It also needs to be made available in both a discoverable and accessible manner. Other teams need to know of its existence, and also be free and encouraged to use it. A common internal practice is to hoard or restrict access to data. At Genentech we've used the phrase "Cookie Licking" (which we adopted from Microsoft) to characterize this attitude, that of "its my data,

we have been working on it for X years, and we are doing all the things you are proposing already". The culture usually arises from of a fear of lack of attribution. Culture needs to change to understand that science is becoming an increasingly a team sport, and perhaps biologists need to understand their author lists are going to look like those from large scale particle physics.

Are Pharma companies being ruthless enough when deciding how and where to invest their efforts in AI?

I think it varies across industry, but I think those who are making a parallel investment in internal capacity, in addition to evaluating external vendors and partners will be best placed to succeed. Those who deploy first and drive the change of apply model, capture prediction and new data and feed it back, will have models that are both competitive and improving over time. They will have operational capacity to fully utilize these models and will be competitive. In general with network effects and data there is a first mover advantage.

What are you most looking forward to at the AI in Pharma Summit?

I'm interested in learning about the non-technical challenges and methods for adoption. I understand the technology well, but building great tools is of no use if you can't make an operational impact. Driving the cultural and operational changes are key to seeing value from AI. When we build a model 90% of the work is in the data prep, and when we operate a model 90% of the work is integration into the organization. I'm sure this event will shed some light on this and offer some great insights.

Kim will be expanding on his views and highlighting Genentech's AI work at The 2nd Annual AI in Pharma Summit in Boston, October 9th 2018. Kim will deliver a presentation titled, "The Use of AI in Early Clinical Development" and will also feature on the closing panel titled, "How and Where should we Invest Our Efforts Moving forward?"

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