

My life in “industry”

UBC-PIMS Job Forum, October 23, 2015

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October 20, 2015

Ah, the old stomping grounds

- ▶ BSc Mathematics and Computer Science 2004
- ▶ Postdoctoral Fellow 2009-2011
- ▶ Member, slowest Storm The Wall team of period 1995-2010 (estimated)
 - ▶ Thanks to Ed Perkins for letting me reschedule my midterm
- ▶ Participant, the brief period that One More Sushi was all-you-can-eat
- ▶ Proud A-Card holder
- ▶ Hoping very strongly for no earthquake

No seriously

UBC buildings at risk of collapse in moderate earthquake: report (with video)

Analysis kept under wraps until student newspaper uncovered engineering studies

BY GORDON HOEKSTRA, VANCOUVER SUN SEPTEMBER 30, 2015



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The BC Centre for Excellence in HIV/AIDS



BRITISH COLUMBIA
CENTRE *for* EXCELLENCE
in HIV/AIDS

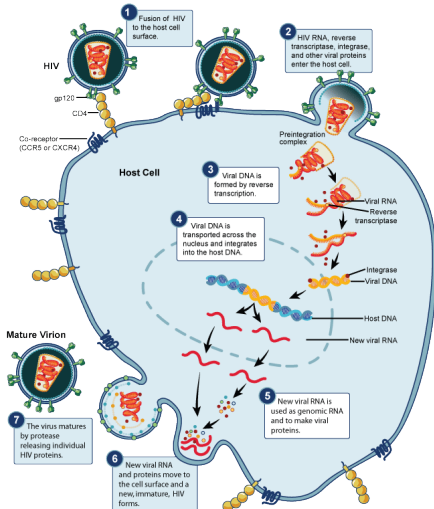


a place of mind



- ▶ Name is a funding mechanism

The BC Centre for Excellence in HIV/AIDS

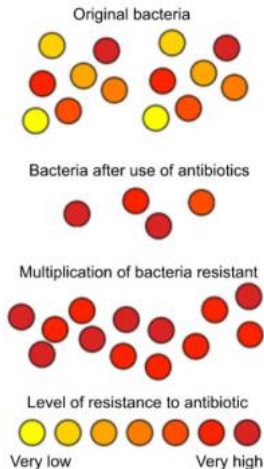


We study this

- ▶ Public health
- ▶ Advocacy
- ▶ Education
- ▶ Economics

But perhaps most crucially...

Lab provides medical diagnostic services



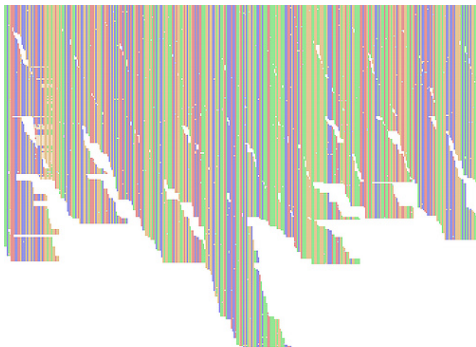
- ▶ HIV is a *population* within a host
- ▶ HIV evolves around antiretroviral drugs (ARVs)
- ▶ A “cocktail” of three drugs is effective
- ▶ In BC, ARVs are covered by MSP

Let's focus on that last part

- ▶ ARVs are expensive and the government is paying for them
- ▶ Drug regimens that don't work are bad for the patient and bad for the taxpayer
- ▶ Proper *phenotyping* is prohibitively expensive

Sequencing technology helps target drug regimens

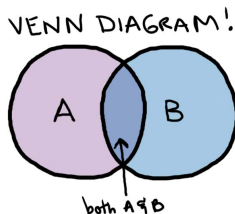
- ▶ *Genotyping* helps identify what drugs will and won't work
- ▶ Sequencers produce *lots* of data



Seems like a lot of stuff, but...

Not many people cover all bases, but *teams* can

- ▶ I didn't even take Biology 11
- ▶ My supervisor is an evolutionary biologist with background in applied math and a lifetime of computer hackery



What do we do?

- ▶ Support for clinical laboratory work
 - ▶ Writing software to perform analyses/data munging
- ▶ Contributing statistical/computer support to lab researchers
- ▶ Basically anytime someone needs to do an integral (this tends to fall mostly to me)

But there's also lots of opportunities for your own research

- ▶ Viral research is an excellent place to really use population genetics
- ▶ Where there's data there's information
- ▶ Where there's data people will need models
- ▶ Writing software tools also leads to publications

My career as a bioinformatician

- ▶ Still very much a research job but it doesn't necessarily feel that way to a mathematician
- ▶ Quite different in nature from a job as a quant (I imagine)
- ▶ Math comes up surprisingly often

How did I find the job?

- ▶ Through connections
- ▶ Openings get posted in the usual channels
- ▶ VanBUG offers interesting talks, networking, free pizza, \$1 beer



www.vanbug.org

Why did they offer the job?

- ▶ Statistics
 - ▶ I was really a probabilist
 - ▶ Still I was better positioned to learn on the job than most
 - ▶ I read Nate Silver's book
- ▶ Computer programming
 - ▶ I've never been a professional software engineer
 - ▶ Programming is a craft
 - ▶ You'd probably make a better programmer than the average biochemist

The acid test

When I had this thought:

*I don't think I'm going to cut it as a
researcher. I'd better find something else.*

I realized that it filled me with *relief*.