

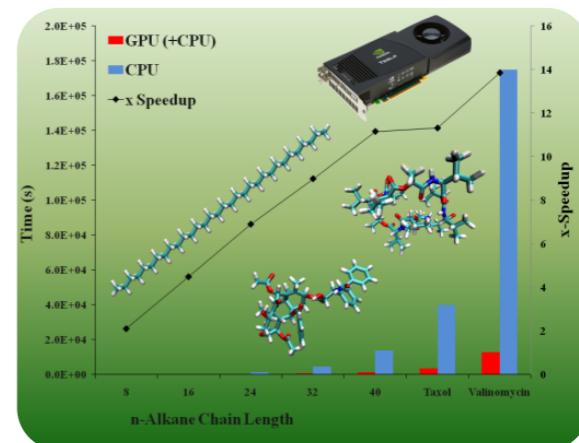
University of Buffalo  
Computational Science: An Industrial Perspective  
May 5, 2015

# Am I a Bioinformatician Yet: Transitions from Academia to Startup

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# The Road to BDB

- Ph.D. work
  - GPU acceleration of quantum chemistry methods
  - Harvard Clean Energy Project:  
Finding new materials for organic solar cells
- Postdoc work
  - Method development of density matrix renormalization group theory



$$|\Psi_{\text{DMRG}}\rangle = \langle n_1 | n_2 | n_3 | \dots | n_k \rangle$$

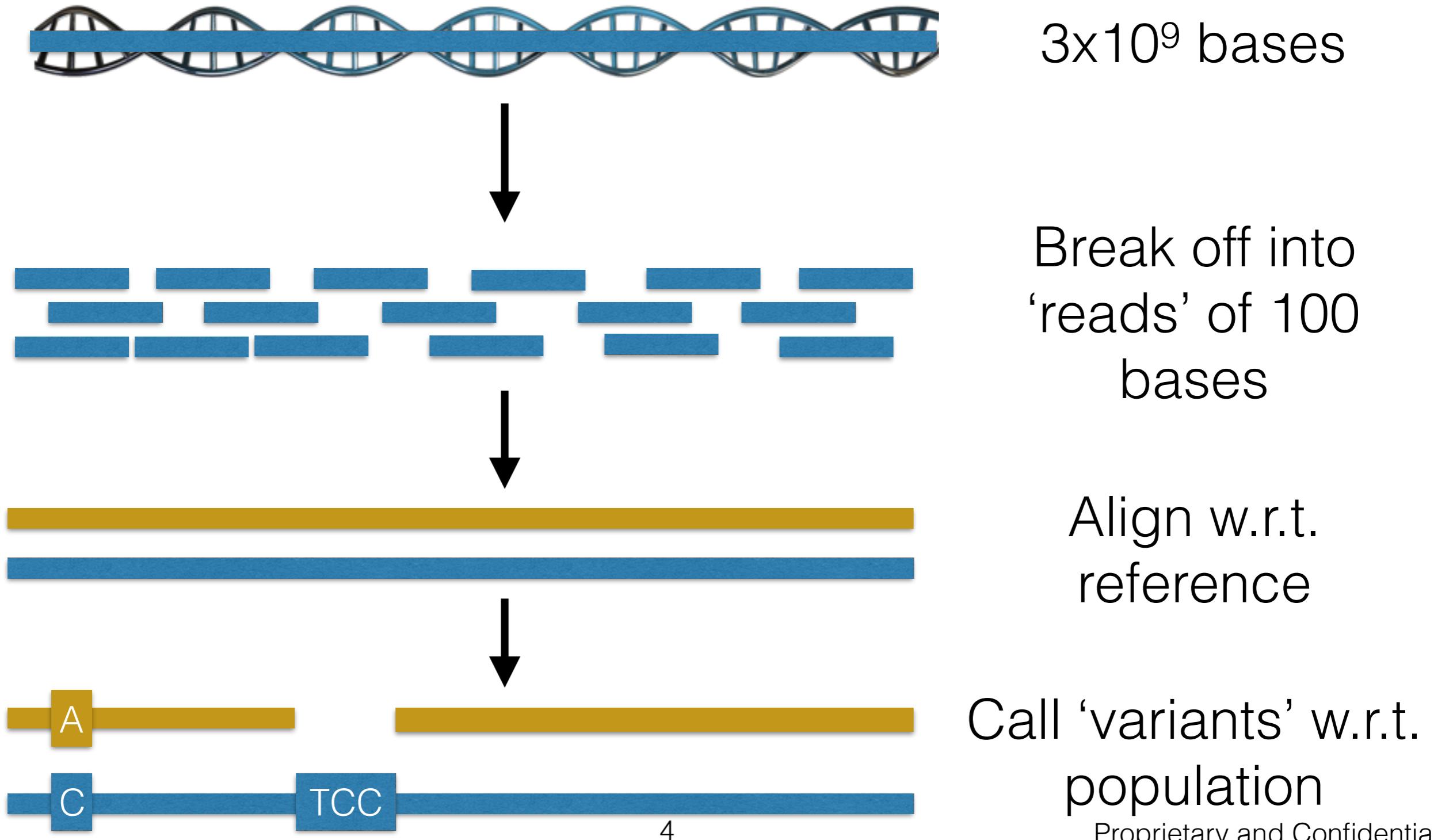
Insert mind-blowing DMRG image here

The Road to BDB

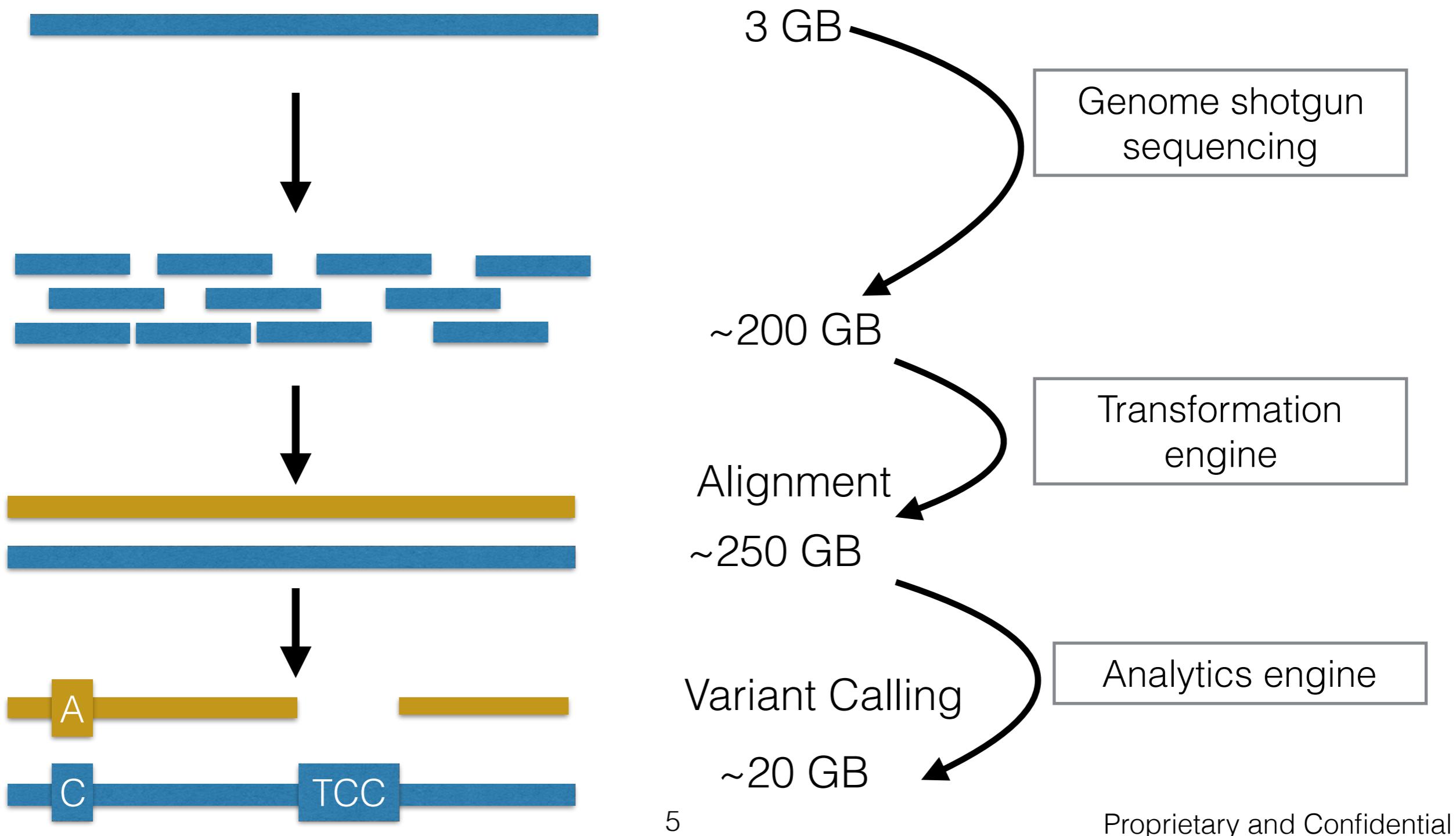
**CHANGE**

... and an offer that I could not refuse

# What do we do



# What do we do



# Am I a Bioinformatician Yet

- Joined BDB in July, 2014
- Have worked in different areas of the transformation and analytics engine

## OPINION ARTICLE

Front. Genet., 24 April 2015 | doi: 10.3389/fgene.2015.00164

## Who qualifies to be a bioinformatician?



Antony T. Vincent<sup>1,2,3\*</sup> and



Steve J. Charette<sup>1,2,3</sup>

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<sup>2</sup> Département de Biochimie, de Microbiologie et de Bio-Informatique, Faculté des Sciences et de génie, Université Laval, Quebec, QC, Canada

<sup>3</sup> Centre de Recherche de l'Institut Universitaire de Cardiologie et de Pneumologie de Québec, Quebec City, QC, Canada

# Am I a Bioinformatician Yet

- “Being a bioinformatician means jumping through a 112 hoops to compile the latest and greatest tool,...”
- “... means writing thousands of lines of glue code in [scripting language of choice]”
- “...means embarking on what seems like a simple job, only to find six weeks later you’ve written yet another short-read aligner”
- **Computational chemists have been through this for at least three decades**

# Publish or perish no more

- Once on the job, there are few circumstances when publishing is useful.
- There are other interesting alternatives
  - Patents (someone will write most of your ideas for you)
  - Secret sauce (keep it in a vault)

# Startup vs Academia

Collaboration

The Team, ca. 2014

Pressure



Adaptation

# Startup vs Academia

Communication



*"As board members, we need to speak with one voice.  
I'm suggesting Donald Duck."*

GN  
COLLECTION

Incentives



**Global Alliance**  
for Genomics & Health

# A New Gilded Age?

THE HUMAN UPGRADE

## TECH TITANS' LATEST PROJECT: DEFY DEATH

For centuries, explorers have searched the world for the fountain of youth. Today's billionaires believe they can create it, using technology and data.

- Lots of money, lots of curiosity
- Thiel, Page, Ellison,...
- How will this affect research and development?
- How will this affect academia?

# Thank You!

Questions?

[roberto@bigdatabio.com](mailto:roberto@bigdatabio.com)

- What skills (in particular) got you your job?
- What was your motive to join your company?
- What is state and scope of computational chemistry outside of graduate school/academia these days?
- How much coding do you actually do on daily basis?
- How many people do you write code with?
- What version control systems do you generally use?
- Are publications important to get a job in a company?
- What is your company looking for in an applicant?
- How can I increase my value in the job market?
- How is computational research in a company different compared to in academia?
- Do you have academic freedom in a company?
- Do you regret having left academia?
- If you had to do grad school again, what would you do differently?
- What is your dream job in the industry?
- What are the most attractive employers?
- How many people with computational background does your company employ?
- Do you get to publish in your company?