

The Road Ahead, The Evolving HPC Landscape and How Our Community Will Drive it.

# Hi, I'm Jo.



Senior Software Development Manager  
for AWS Batch and HPC



Previously, 20+ years in the video  
game industry



Avid Peloton rider - #Jolly\_Brit

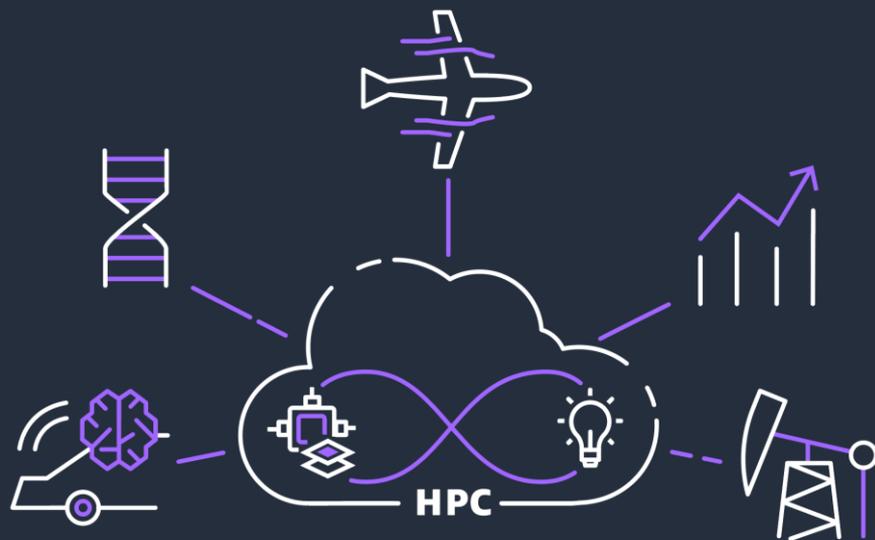
The market for HPC servers, storage, software and technical support expanded from about **\$2 billion** in 1990 to **\$24.3 billion** in 2017, en route to a Hyperion Research forecast **\$38 billion** in 2022. Make that \$44 billion when revenue from public cloud usage is added to the mix.

# Adventures of the Ballet Bun



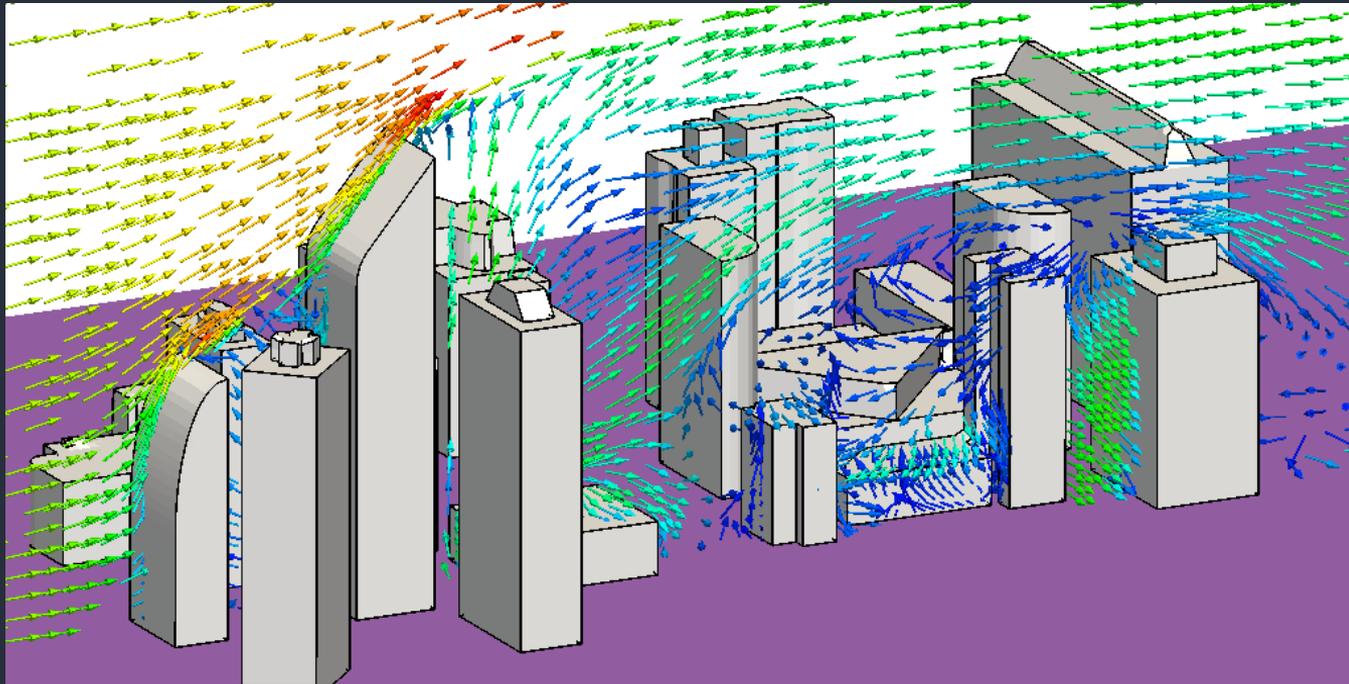
# The Future

Will be driven by companies that mostly no one has heard of and probably haven't been created yet.



Move diversity in HPC workloads than ever before

# Complex problems made tractable



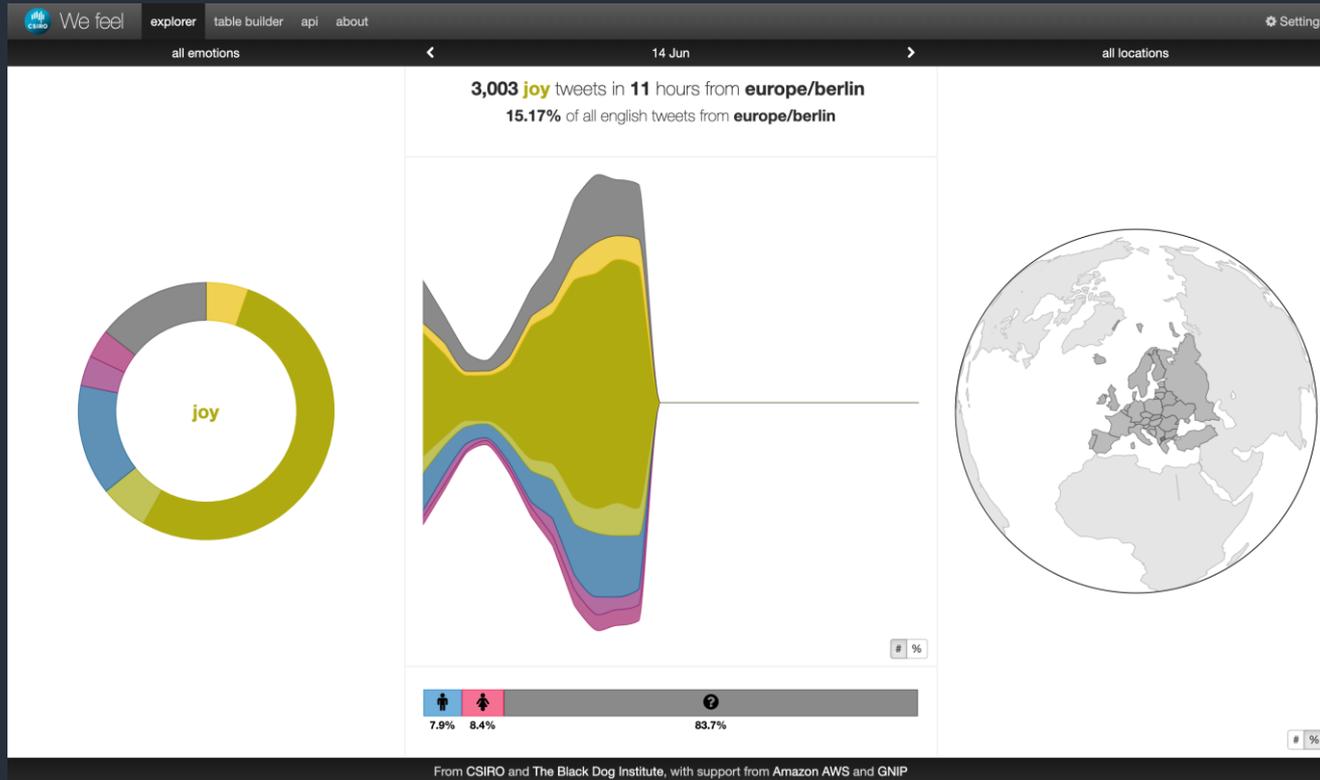
Architects simulate fluid dynamics around proposed buildings to estimate the impact on “Pedestrian Comfort” (which windy sidewalks, due to turbulence impact badly).

Previously, this was the domain of \$10M supercomputers, expensive software, and sophisticated users.

Today, it’s available for \$1.75/hr on AWS, enabling better decisions before concrete is poured and mistakes become permanent.

Credit: CFD.direct, thanks to Chris Greensheilds

# Taking HPC to more sciences



In Australia, researchers studying clinical depression use AWS to build a large-scale data analytics cluster that dynamically expands and contracts in response to global twitter-streams .

Their code conducts sentiment analysis at scale in order to create a metric describing the emotional state of a locality.

This has helped them understand how major news events impact the emotional well being of a city, or a nation, in order to uncover whether some effects are temporary, whilst others are permanent.

See for yourself: [wefeel.csiro.au](http://wefeel.csiro.au)



**THE FUTURE  
REQUIRES MORE  
EXPERIMENTS**



# Failure is essential to innovation

“Invention requires two things: the ability to try a **lot of experiments**, and not having to live with the collateral damage of **failed experiments**.”

*Andy Jassy\**

\* The guy who pays my salary.

**THE FUTURE  
DEMANDS  
EASE OF USE**



# The WHPC Peloton

In a road bicycle race, the **peloton** (from French, originally meaning 'platoon') is the main group or pack of riders. Riders in a group save energy by riding close (drafting or slipstreaming) near (particularly behind) other riders.

The reduction in drag is dramatic; riding in the middle of a well-developed group, drag can be reduced to as little as 5%-10%.<sup>[1]</sup> Exploitation of this potential energy saving leads to very complex cooperative and competitive interactions between riders and teams in race tactics.

# THANK YOU

[joadegbo@amazon.com](mailto:joadegbo@amazon.com)

