



GOVERNMENT RELATIONS SC REPORT

Kirsty Duffy

BIG NEWS

- Mark your calendars: the DC trip will (almost definitely*) be **17th-19th March 2020**
- *Confirming with other groups on Monday at the latest, but this seems to be the best (or least-bad) for everyone
- I'll send you all an email on Monday when we have the final date

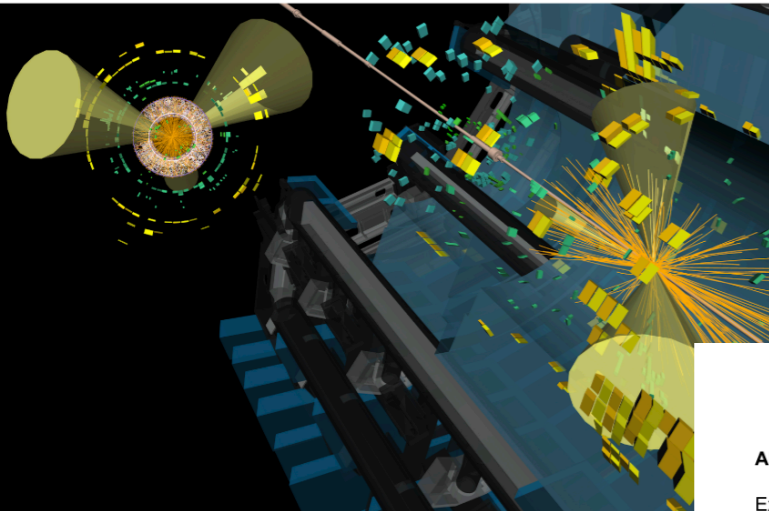
BUDGET NEGOTIATIONS

- I am meeting with Tim and Hema this afternoon to discuss the budget for our UEC contingent
- Of course, until we have a budget we can't make too many plans
- Once the budget is set we can start to plan in earnest: block out hotel rooms, book flights, start to invite people!

NEW AI/ML BROCHURE

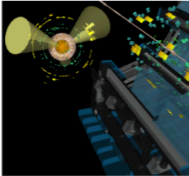
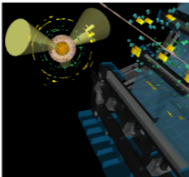
- As you know, we've been requesting input for a new brochure featuring HEP connections to AI/ML
- We are leaning towards making a new 4-page brochure covering:
 - AI/ML for particle physics
 - Contributing to AI/ML
 - Connections to industry
 - Preparing an AI-ready workforce

NEW AI/ML BROCHURE



Particle Physicists Advance AI/ML

Particle physicists push the boundaries of Artificial Intelligence and Machine Learning (AI/ML) to meet the challenges of advancing discovery science. The structure and size of data, the rate at which it is recorded, and the complex machines used to perform experiments pose unique challenges. Some of the state-of-the-art techniques developed have broad applicability to other sciences and industry.



AI/ML for Particle Physics

Examples and discussion here. Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Sit amet consectetur adipiscing elit ut aliquam.

Example 1. Theory related - build more ambitious experiments? Address new physics?

- Helped address new physics

Example 2. Improve analysis to effectively enhance science output of experiments beyond what's possible with traditional tools.

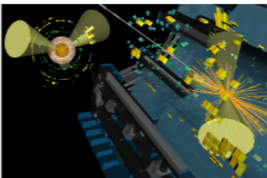
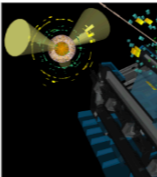
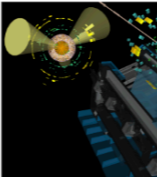
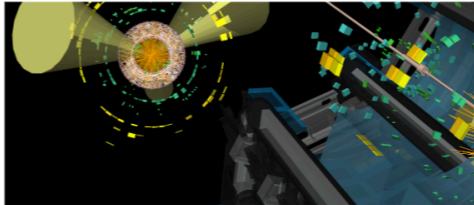
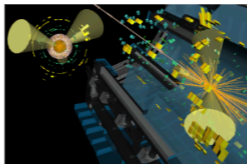
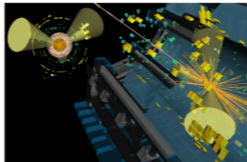
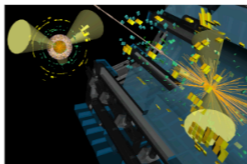
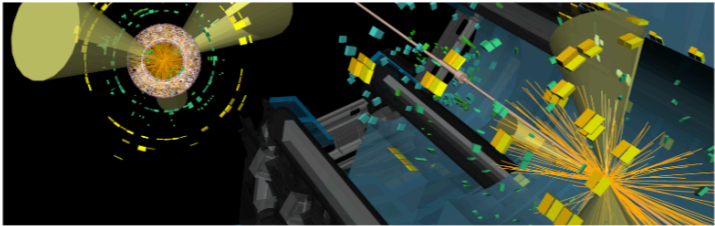
- Reconstruction AND analysis

Example 3. Improve operations of accelerators to enhance science possible from a facility.

Example 4. Edge-computing AI that provides high throughput decision making to improve scientific data collection.

- Trigger ... and Reconstruction?

Have examples of people.



Contributing to AI/ML

Safety & security

Uncertainty quantification

More?

Opportunities for particle physics to continue contributing back?

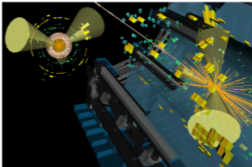
Example 1. Understanding algorithm bias and quantifying how it impacts an analysis. Robust metrics for uncertainties/biases.

Example 2. Labeled data vs. simulation; allows for testing in ways that industry/other fields would need to develop specialized machinery for.

Example 3. Embedding symmetries into ML?

Use these picture other side is focus

Outreach quotes Microsoft on this workshop"



Particle Physics Connections to AI/ML Industry

Examples and discussion here. Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Sit amet consectetur adipiscing elit ut aliquam.

Caption 1; Caption 2

Particle Physics and the AI-ready Workforce

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Person A

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Person B

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Person C

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NEW AI/ML BROCHURE

- We really need input for these two things:
 - 1) **Nice images** related to AI/ML — ideally not just people looking at a computer, but also something that anyone can relate to and/or explain
 - 2) Specific **examples of how work in particle physics contributes to the field of AI/ML** (this is hard to think of good examples for, but incredibly impactful so we need some good ones!)

VOLUNTEERS NEEDED

- Looking for volunteers to help **now** with:
 - FAQ on the wiki page
 - Finding and videoing experienced trippers doing their pitch (Breese has already agreed to do it, I just need someone to take the lead on making sure he does!)
 - Developing a format for training
- ...and a deputy (or deputies)!