



GOVERNMENT RELATIONS SC REPORT

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START ARRANGING FLIGHTS!

- The trip is coming up soon: **17th-19th March 2020**
- You should get/have got an email from Kim about booking your flights — please do it soon!
 - Book your flights before 15th February to guarantee full reimbursement (otherwise your reimbursement will be capped at \$1000 including flights)
- You should fly out on Monday 16th March, and return on the evening of Thursday 19th March
 - We will have meetings on Thursday all day, so don't book your flight too early!
 - If you can spare the time, please try to fly out Monday morning to help us with very important last-minute preparations on Monday afternoon at URA
- **Your flights will only be reimbursed if Kim books them for you - do not book flights yourself!**

REIMBURSEMENTS

- The UEC will pay for:
 - Travel to DC (flights or mileage for driving - whichever is cheaper)
 - Taxi/limo from your home to your local airport (please share taxis if possible! We will put together a spreadsheet to help with that closer to the time)
 - Metro transportation around DC
 - Lodging in a shared hotel room (or 50% of your hotel room costs if you choose a single room)
 - \$40/day Per Diem
- We will reimburse full costs of the above if you book your travel before 15th February. If you book later, you will be capped at \$1000 total (so book as soon as you can!)
- Reasonable exceptions on a case-by-case basis

HOTEL ARRANGEMENTS

- We have a block of 20 rooms reserved at the Hyatt Place Washington DC/US Capitol
- Free breakfast if you sign up to the Hyatt rewards program (which is also free!)
- We are asking everyone to share hotel rooms
 - You can choose your roommate and let us know
 - Or we can choose one for you!
 - Keti will be sending out a survey to help match hotel buddies soon
- Even though we have a room block, **you will need to call the hotel and reserve your room in the block yourself** (and give them credit card details). **Your room is not guaranteed unless you do that!** Instructions will come soon - keep an eye out.

TRAINING

- We are planning three training sessions:
 - Week of Feb 10th: Introduction to the trip and how to schedule meetings
 - Early March: Our message, how to communicate the message, what to do in meetings
 - Early March: Science communication training (EPO SC is helping to arrange this - inviting Andre to give this training again)
- EPO SC is going to arrange to video experienced trip attendees giving their pitch, so people can get an idea of how that will go (thanks!)

TRIP MATERIALS

- Thank you all for your feedback on the “Particle Physics Priorities” and “STEM” brochures!
- We were the only user organisation to actually give feedback, so it was very valuable (and has all been incorporated)
- I have just circulated a draft of the new AI brochure - **please read and send feedback as soon as you can** - that will be very important because this entire brochure is brand new!

The P5 Report provides the strategy and priorities for U.S. investments in particle physics for the coming decade.

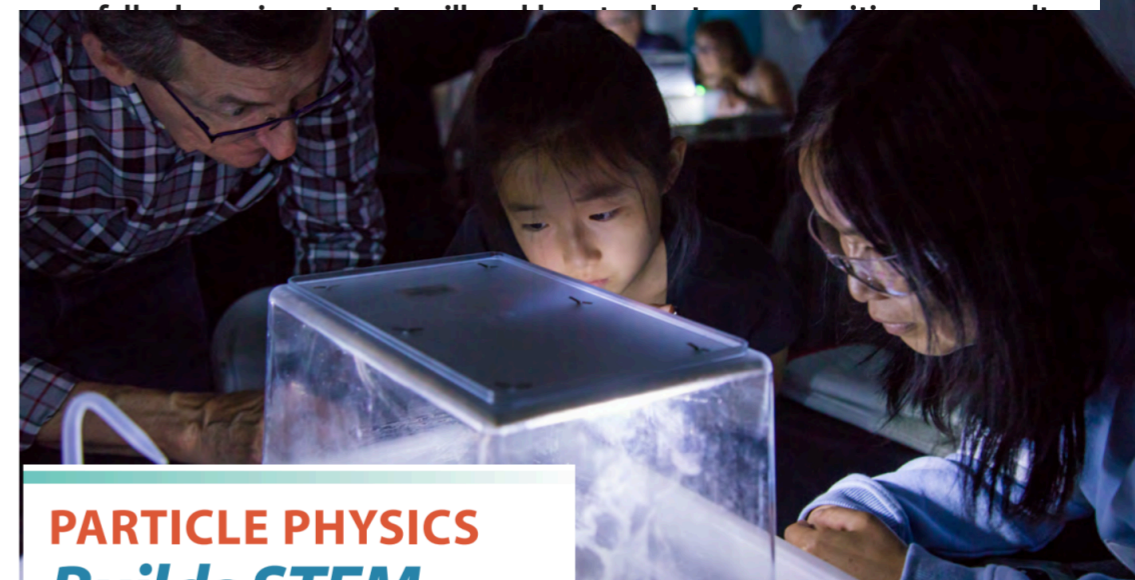
The top four priorities in 2019

Advance the High-Luminosity LHC (HL-LHC) accelerator and ATLAS and CMS detector upgrade projects on schedule, continuing the highly successful LHC program and bilateral partnership with CERN. This is P5's highest-priority near-term large project.

Advance the Long-Baseline Neutrino Facility (LBNF), Deep Underground Neutrino Experiment (DUNE), and Proton Improvement Plan II (PIP-II), working with international partners on the design, prototypes, initial site construction, and long-lead procurements. This is P5's highest-priority large project in its time frame.

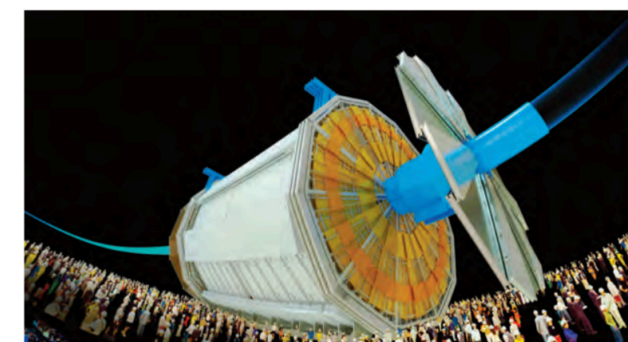
Support scientific research at universities and national laboratories, which includes data analysis, R&D, and a vibrant theory program. These activities are essential for extracting scientific knowledge from the data, as well as maintaining U.S. leadership and training the next generation of scientists and innovators.

Support the existing construction projects enabling the next major discoveries in particle physics, including LSST, DESI, Mu2e, LHCb, LZ, and SuperCDMS-SNOLAB.



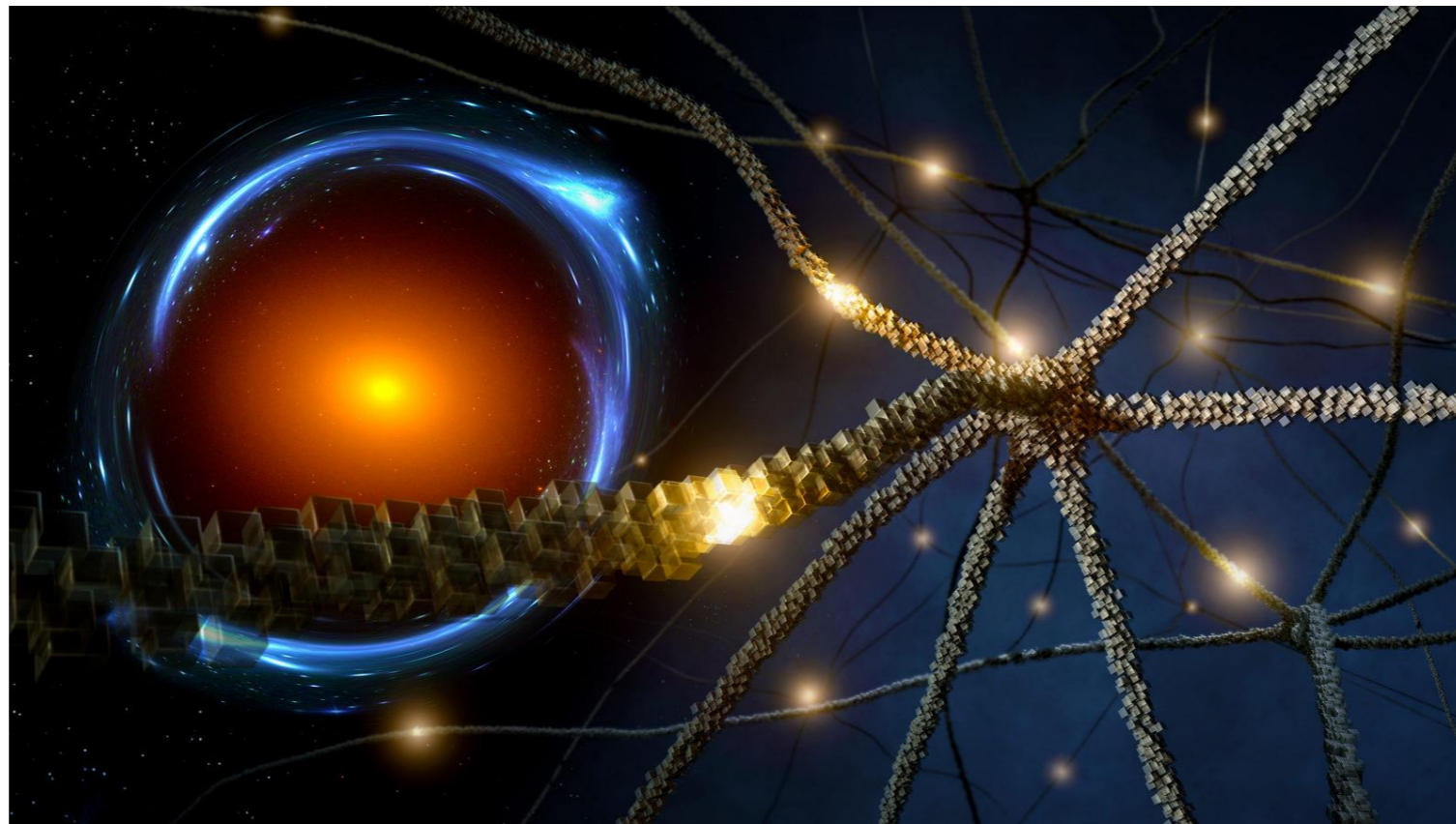
PARTICLE PHYSICS Builds STEM Leaders

Particle physicists share the excitement of discovery, inspire young minds, and enhance public understanding of science. We partner with educators to prepare students to thrive in our high-tech global economy and develop



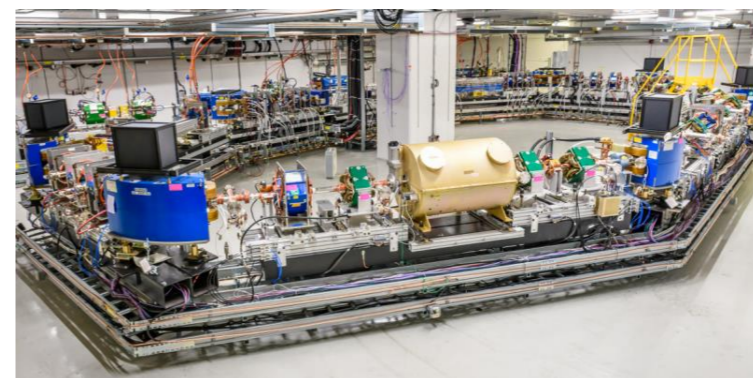
NEW AI BROCHURE

- Draft brochure showing text and images is ready
- Note: has not been through graphic design/layout so the eventual brochure will be a lot more pretty!
- Need feedback on:
 - Is the text appropriate? Is it all correct (i.e. no other scientist would be upset that we're saying these things)?
 - Are the images appropriate/the best we can get? Can you suggest better images? (Specific image suggestions are very welcome!)
- Feedback needed by **Friday 24th January**



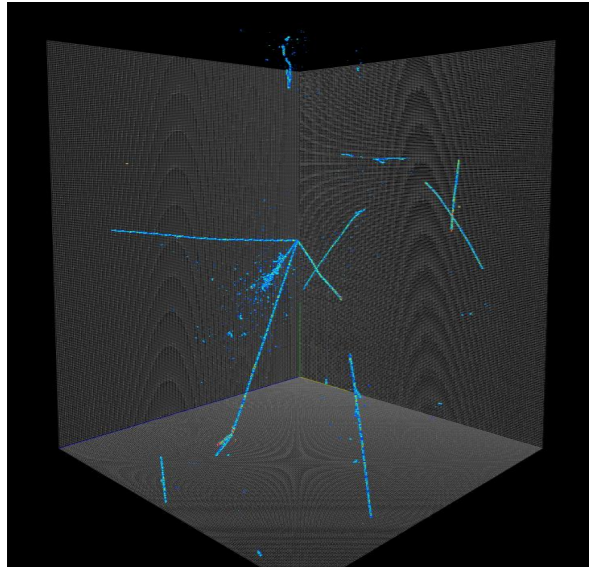
Particle Physicists Advance AI

Particle physicists explore the frontiers of artificial intelligence in their quest to advance discovery science. They face unique challenges to cope with massive data streams and in operating complex particle accelerators and detectors. They meet these challenges with innovative techniques that have applications in other sciences and industry.



AI for robust science and engineering

Particle physicists have used AI for decades and increasingly find new applications for the technology.



Neutrino physicists deploy special AI algorithms to enhance image analysis.

Researchers use AI to more **effectively and efficiently operate extremely complex machines**, such as the X-ray laser at SLAC National Accelerator Laboratory. AI relieves human operators of the need to constantly adjust dozens of knobs that carefully shape the nearly mile-long beam at SLAC.

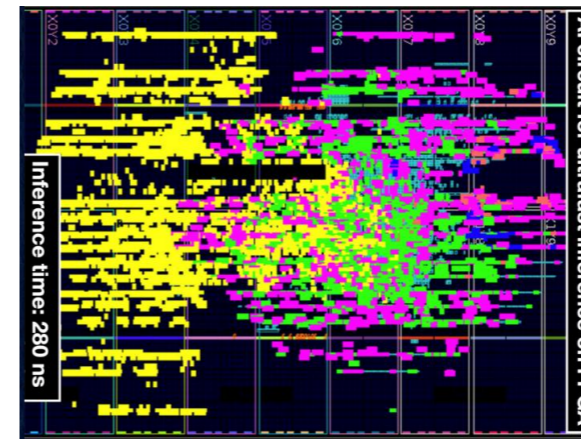
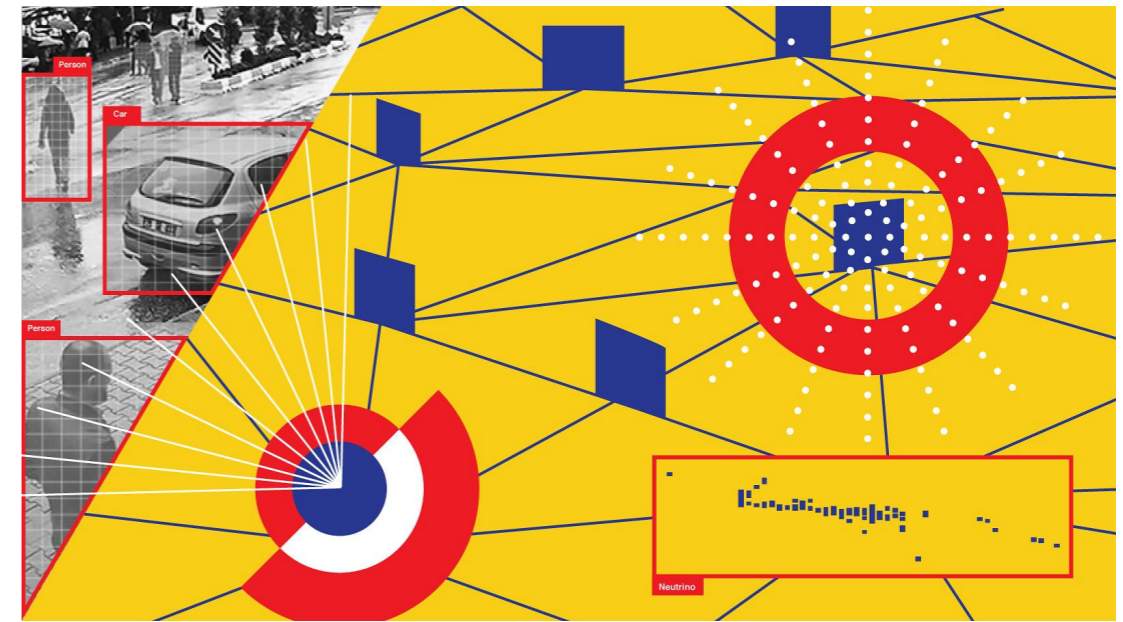


AI is being used to improve modeling and control of particle accelerators systems.

Scientists adapted the AI in self-driving cars to improve their image classification systems, but those tools lingered too long on pixels with no useful data. Particle physicists developed a new AI technique that enables more **rapid image processing by focusing on the data-rich pixels** while ignoring the empty ones.



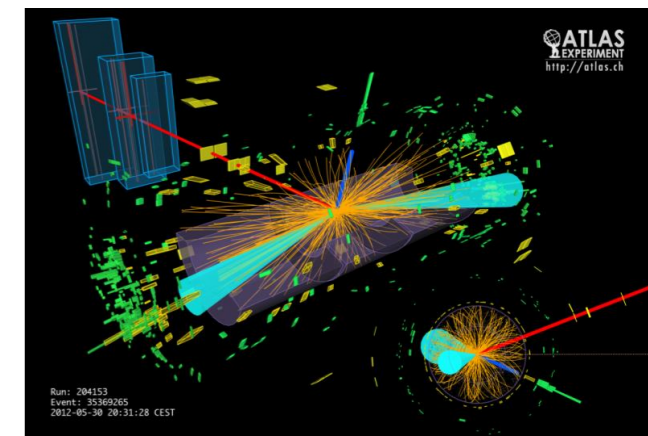
Solving these challenges in AI can impact other fields of science and help advance industry.



FPGAs at the point of data collection enable ultrafast data processing with minimal computational resources.

Particle physicists have devised new AI techniques to help them classify the mass of complex data that the ATLAS experiment generates. They train their algorithms to **ignore unreliable information**. This work has connections to any endeavor involving extreme data environments.

The CMS experiment generates data far too quickly for traditional computers to handle. Turbo-boosting special circuits called Field Programmable Gate Arrays (FPGAs) **instantly decide what data are interesting enough to keep** and which can be safely discarded.

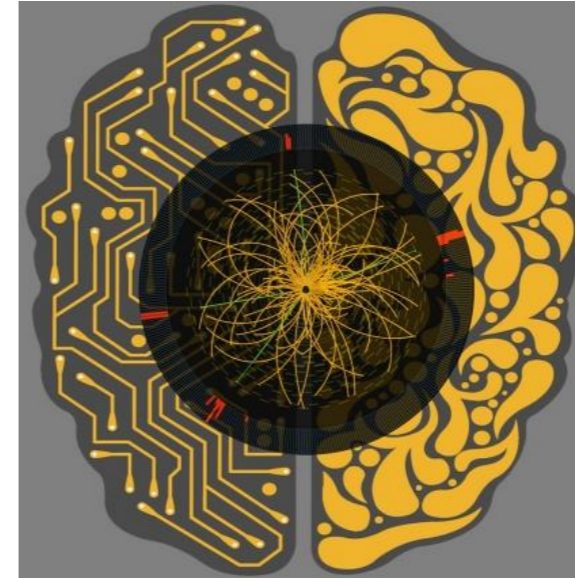


Researchers develop AI algorithms to improve their analysis of Higgs boson decay at the ATLAS experiment.

Particle physicists collaborate with industry leaders to develop innovative AI technology

Industry researchers exploit the massive data sets that particle physicists generate to gain insight for honing their AI technologies.

Particle physicists use specialized hardware manufactured by Xilinx to enhance data processing at CMS, one of the world's largest scientific experiments.



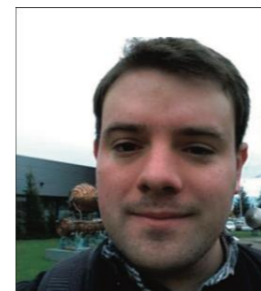
Microsoft Azure's FPGA-accelerated technology helps particle physicists rapidly process the CMS experiment's massive data flow.

Particle Physics and the AI-ready Workforce

AI bolsters the hybrid skill set that particle physicists acquire in their multidisciplinary research environment.



AI is important because it can help you discover things your brains and other techniques can't. There are many algorithms but you have to know which one to use, understand where it's applicable. Companies are jumping into this, and I've already worked with Boeing, Lockheed Martin, and in the energy sector.
—**Sandra Biedron, University of New Mexico and Element Aero**



At Tesla, I transformed enormous data sets into detailed road maps for self-driving cars and at DeepMind, I am building AI systems that imagine and plan. My experience in particle physics trained me to tackle these complex problems while dealing with the noisy and uncertain data of the real world.
—**Alex Mott, DeepMind**

WIKI PAGE

- Can you access the wiki page? https://www.uec-whips.org/wiki/index.php/Main_Page
- To get to the page where you can log in/make an account, you will need to give a group username/password - contact me if you don't know it
- New pages aimed specifically at new trippers:
 - [Our message](#)
 - [FAQs](#)
 - [How to set up meetings](#)
 - [Cool examples of particle physics making real-world differences](#)
 - [Tips on how to communicate our message](#)
- **Please read, learn, send feedback!** Let me know what you don't understand or what is missing.