Recommendations

- First set of recommendations on funding and initiatives

1. It is essential for the UK to adopt a strategic approach to AI for HEP, including sustained funding, skills development, talent retention, knowledge transfer, industry collaboration, and participation in global AI-initiatives.
2. Provision of dedicated, stable and long-term funding to ensure the UK is at the forefront of harnessing AI, whilst increasing the socioeconomic impact of the field.
3. Establish a regular forum for discussing common barriers, challenges, and opportunities in AI across the HEP field. An in-person meeting twice a year, circulating around different venues, was decided as an appropriate forum. Working groups focused on specific areas can meet more frequently as appropriate.
4. Increase engagement of UK-based researchers in AI strategy initiatives beyond-HEP, ensuring the UK's interests are represented and aligned with the outcomes.
5. Centrally maintain and advertise details of AI hardware and development environments available to HEP researchers.
6. Share expertise, document best practices and investigate shared frameworks/tools to aid knowledge exchange within the UK.

Recommendations related to skills et al.

7. Develop a coherent approach to AI training in HEP in the UK, for researchers of all career stages, including:
    a. More stable and focussed delivery of STFC's data-science summer school.
    b. Build upon successful HEP AI training programmes, such as the CDTs, to ensure successful elements are more widely adopted and benefits widely felt.
    c. Initiate focused AI software carpentry-style workshops.
    d. Encourage more expert-exchange placement, with industry and within HEP.

8. Enhance AI knowledge exchange in the UK by mapping expertise, creating common forums/software, enabling expert practitioners to work across experiments, and building strong cross-experimental cohorts.
9. To better exploit their deep foundational expertise, build stronger links between HEP researchers and STFC's national facilities such as Hartree Centre and the SciML.
10. Where most essential, strengthen links to foundational AI expertise beyond HEP, by identifying and building links with motivated foundational researchers.
11. Ensure HEP is sufficiently attractive to retain/attract AI experts, in terms of job progression, security and making an attractive offering. Explore innovative offerings, such as joint industry and research roles.

Recommendation: industry and engagement

12. Identify applications or projects (individuals, collaborative or consortia) that could be quickly initiated for future wider funding calls.
13. Exploit more efficient industry tools to maximally leverage developments and position for expertise exchange.
14. Maximise the wider socio-economic impact of HEP, enabling the field to tap into innovation funds and to build a stronger narrative for long-term investment from both government and industry.
15. Build on the UK HEP community's expertise in high-speed electronics and data processing algorithms to further develop Fast-ML activities, ensuring strong interconnections through a UK forum for groups of experts or interested parties.
16. Continue to develop leading-edge solutions in μs-scale AI, growing industry engagement, and making outcomes available to other research areas and beyond.
17. Commit to further contributions to development, support and training for open-source toolsets to enable fast AI, primarily on FPGA, for instance hls4ml and conifer.