

HSF Advisory Group Meeting #1

Graeme Stewart, for the HSF Steering Group

The Advisory Group

Welcome to the Advisory Group

- This is the first meeting of the [HSF Advisory Group](#)
- Formation of this body was proposed in 2024 at the [DESY HSF/WLCG Workshop](#)
- Motivation?
 - Get more direct advice from the leadership of the key communities that contribute to and benefit from HSF activities
 - There are a lot of advantages to having the HSF as bottom-up and a do-ocracy
 - Yet this can mean that individual opinions carry a lot of weight
 - We want to ensure a strong alignment with the needs of our communities
 - Thus, this group to engage in a more structured way with you all
 - This is also not a public discussion - we want you to be candid
- Thank you for participating!

HSF Advisory Group Composition

- Larger HEP experiments' Computing Coordination
 - ATLAS: Ed Moyses, David South
 - CMS: Liz Sexton-Kennedy, Phat Srimanobhas
 - LHCb: Ben Couturier, Carla Benito
 - ALICE: Stefano Piano, Andreas Morsch
 - Belle II: Frank Meier
 - DUNE: Mathew Meuther, Mike Kirby
- Key HEP Communities
 - WLCG: Simone Campana, Tommaso Boccali, David Britton
 - Theory/MCnet: Jon Butterworth, Frank Krauss
- HSF
 - Steering Group Chair, Graeme Stewart; Secretary, Paul Laycock

Engaged
Communities:
with a **Contact**
and an **AG**
Member (i.e.,
delegation)

Advisory Group Chair

- We proposed that the chair of the Advisory Group should come from the AG itself
 - The group should have some independence
- AG meetings will then be organised by the AG Chair and the HSF SG Chair
- AG Chair would also be in charge of any time that the AG needs to discuss any matters internally
- We are happy to receive proposals for the AG Chair position
 - Election by approval (if single candidate) or secret ballot (if more than one)
 - One vote per community
 - There is an AG Chair point on the agenda today and we can decide, e.g., the term and limit thereof

Advisory Group Meetings

- The intention is to have AG meetings *annually*
 - We think that this is the correct cadence on which to discuss more strategic decisions about the HSF's direction
 - Management of the week-to-week activities of the HSF will continue to happen in the HSF Coordination Meetings
 - These meetings are **open** and **everyone is welcome** to attend
 - They happen usually every two weeks
- The AG Chair can call for an extraordinary meeting for a specific topic if required
- We have wondered, as the SG, if a second meeting this year might make sense, as we tune the AG/SG interactions
 - E.g., after the WLCG-HSF workshop at IJCLab
- AG minutes are **not** public documents, but will be shared with the HSF Steering Group

HSF Goals and Activities

This is our original conception, from 2015

HSF Goals

The HEP Software Foundation facilitates cooperation and common efforts in High Energy Physics software and computing internationally.

- Share expertise
- Raise awareness of existing software and solutions
- Catalyze new common projects
- Promote commonality and collaboration in new developments to make the most of limited resources
- Aid developers and users in creating, discovering, using and sustaining common software
- Support training and career development for software and computing specialists
- Provide a framework for attracting effort and support to S&C common projects
- Provide a structure for the community to set priorities and goals for the work
- Facilitate wider connections; while the HSF is a HEP community effort, it should be open enough to form the basis for collaboration with other sciences

HSF Overview of Activities

- Workshops and events
 - General HSF Workshops (usually with WLCG)
 - Topical workshops, regular (e.g., PyHEP) or irregular (e.g. Analysis Ecosystem)
- Raising awareness
 - ICFA or ECFA talks, for example
 - Other invited talks at, e.g., SWIFT-HEP
- Strategic inputs
 - Snowmass and EPPSU documents
 - In particular EPPSU input being prepared now
- HSF activities
 - HSF Seminars and Compute and Accelerator Forum
 - Activity Areas
 - Google Summer of Code
 - Training

Steering Group and Coordination Team

- We evolved the old Coordination Team into the new Steering Group
 - There was strong feedback that this name is much better
- The job of these people is to
 - Be the longer term memory of the HSF
 - Give the HSF a strategic direction and decide which are the areas where we can most effectively apply our efforts
- Each of the SG members follows a specific HSF activity or effort (such as a workshop)
 - SG elects a chair each year - currently it's me!
 - People should normally serve for ~5 years
- Membership of the Steering Group is open to all active HSF members
- The Coordination Team is now the superset of the Steering Group and Activity Area conveners

HSF Workshops

- HSF General Workshops
 - Most often in conjunction with WLCG - preCHEP and standalone
 - Most recent was DESY, May 2024; next will be IJCLab, May 2025
 - Driven by a combination of abstract submission and invitations
- Language Topical Events
 - PyHEP has become a well established feature of the landscape
 - This is the user facing event, @virtual; with PyHEP.dev the developers' discussion event, which is @in-person (Princeton 2023, Aachen 2024)
 - JuliaHEP is a recent addition, provides a forum for those interested in Julia
 - Erlangen 2023, CERN 2024, Princeton 2025 (TBC)
- Other Topical Workshop (some examples)
 - Analysis Ecosystem - end-to-end discussions on analysis topics and coherence
 - Software Citations and Recognition - discussion of how we cite software and give suitable recognition to developers
 - Physics Event Generators Computing Workshop

HSF Strategic Inputs

- We have a strong track record of submitting inputs to these strategic deliberations
 - Original [HSF Community White Paper](#), published end of 2017, covered almost all areas of the field and set out a 10 year roadmap
 - An [executive summary](#) of that was submitted to the last European Strategy Update process at the end of 2018
 - For the LHCC HL-LHC review in 2020 we submitted two papers on
 - [Common Tools and Community Software](#)
 - [Monte Carlo generators challenges and strategy towards HL-LHC](#)
 - For the US Snowmass process both those papers were also submitted

European Particle Physics Strategy

- The European Particle Physics Strategy Update is underway!
 - Develop a visionary plan for particle physics in Europe (CERN's next project!)
- Submissions are open until 31 March and HSF is preparing a document on software in particular
 - This is a mini-update of our famous Community White Paper Roadmap from 2017
- Focus on software that consumes the most resources in HEP
 - Event generation
 - Detector Simulation
 - Reconstruction and Software Triggers
 - Data Analysis
- Plus... training and careers as being essential topics for the health of the field
- We held mini-workshops before Christmas and we are assembling the first full draft now
 - Have discussed with many of you re. experiment endorsement and we still hope to accomplish that
 - Discussions on the draft February; finalisation and endorsement March

Strategic Presentations

- See the list of [HSF presentations](#)
- Many invited talks and contributions at high level events, e.g.,
 - ECFA
 - ICFA
 - Snowmass
 - JENAS
- Liaison talks with projects, e.g., SWIFT-HEP
- Computing and Software seminars at labs and institutes
- *We do believe these have an incremental positive impact on policy*

Working Groups → Activity Areas

- Working groups were set up in 2017, in the wake of the CWP process
 - Initially Simulation, Reconstruction and Software Triggers, Data Analysis
 - Then widened to cover other areas
 - Nomination and appointment procedure, per calendar year
- Were generally successful in providing a forum for discussing developments in their area of interest
 - New software projects did not really arise from these fora
- Working Groups had rather inconsistent meeting schedules
 - Attendance varied from great to poor
- Difference between working groups and activities was not very well defined
- *We decided to consolidate all of these into HSF Activities last year*

Continuing Activity Areas

- Data Analysis
- Detector Simulation
- Physics Generators
- JuliaHEP
- PyHEP
- Reconstruction and Software Triggers
- Software Developer Tools and Packaging
- Training

The [activity areas](#) will keep their unique identity and they are an essential source of expertise in the HSF - this can be through the HSF Seminar series...

HSF Seminars

- Activity areas could be irregular with their meetings
 - Hard to get a sense of rhythm and impedes good attendance
- New [HSF Seminar Series](#) is trying to rectify that
 - Regular slot (16h30 last Wednesday of each month)
 - Pick highlight topics of wide interest from activity areas
 - Generally focus on domain specific topics
- We kicked off with two meetings co-hosted with JuliaHEP, followed by Event Generation in GPUs
- Next scheduled meeting is on 4D Reconstruction

The HEP Software Foundation Seminar Series

There are 2 events in the future. [Hide](#)

February 2025

26 Feb [HSF Seminar - 4D Reconstruction](#)

January 2025

29 Jan [HSF Seminar #4](#)

November 2024

27 Nov [HSF Seminar - Event Generation on GPUs](#)

October 2024

03 Oct [HSF Seminar - Julia as a Statically-Compiled Language](#)

01 Oct [HSF Seminar - Julia in high-energy physics: a paradigm shift or just another tool?](#)

Compute and Accelerator Forum

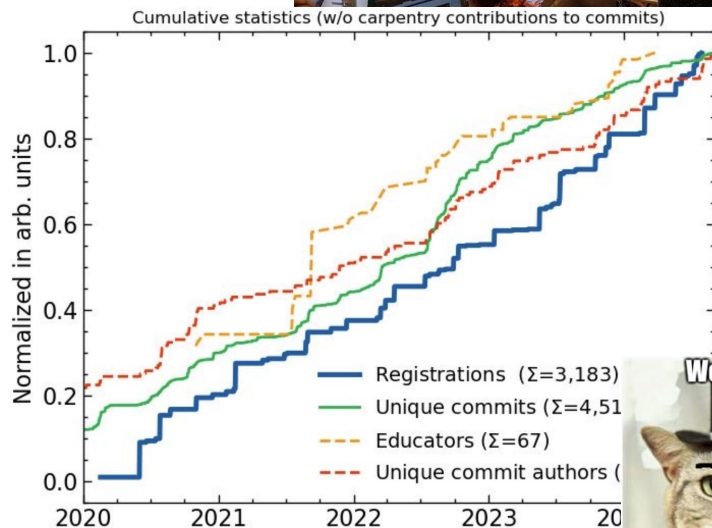
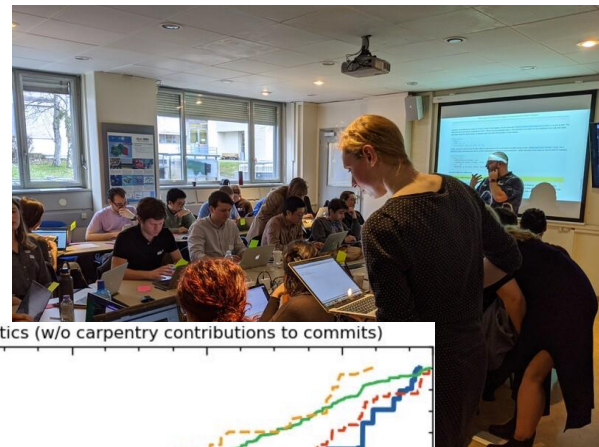
- Compute and Accelerator Forum has been a very successful meeting series
 - Co-organised with openlab and CASUS (initially also SIDIS activity)
 - Still going strong after four years!
 - Initial focus on compute accelerators
 - Project presentations
 - Facility talks
 - Vendor roadmaps
 - Now generalising to other interesting topics, e.g., D language, garbage collectors
- We are now discussing how to optimally organise these events
 - Don't duplicate efforts
 - Harmonise the programmes
 - Don't lose established identities and audiences

HSF Affiliated Projects and Software

- We are trying to improve our relationship with the software projects in HEP
 - What can be useful for the projects given that we cannot contribute resources?
- After consulting with the community we have established a new status of HSF Affiliated Projects and Software
- HEP projects can apply to become HSF affiliated
 - Projects always remain independent and responsible for their own affairs
 - We review the projects according to relevance, adoption, sustainability and best practices
 - We give positive feedback from this process
 - If the project passes the review then we can award a bronze, silver or gold badge
 - Projects can improve their level over time
- The hope is that affiliation will help the **visibility** of projects and attract more users... with knock-on positive effects for funding and support
- We also still offer to organise reviews and/or expert inputs when projects request that
 - E.g., the DUNE Framework Requirements Review

Training and Google Summer of Code

- HSF has helped to organise GSoC for many years now
 - Relieves individual projects of a considerable administrative burden
 - Has provided a talent pipeline in HEP
- Training Group have now organised, with IRIS-HEP and others, a significant level of training events targeting HEP
 - Software essentials
 - C++ essential and advanced courses
 - CI/CD
 - Analysis preservation
 - Machine learning in HEP
- A very active area, with more than 3000 students having signed up for courses over the last 5 years



Observations

We would particularly appreciate your feedback on the points we raise here, especially the more “challenging” things

Successes

- Knowledge transfer and active discussions for HEP software
 - Workshops
 - Activity meetings and seminars
 - Papers
 - Particularly in under organised areas: PyHEP, Generators, JuliaHEP
- Lobbying for HEP software
 - Raising awareness through presentations
 - Supporting successful software R&D projects, such as SWIFT-HEP and IRIS-HEP
 - Submissions to strategic processes
- GSoC
 - Valuable contribution to the field and entry point into our talent pipelines
- Training
 - Tangible benefits that are much appreciated

Challenges 1

- Maintaining efforts in the HSF without funding
 - We are hugely grateful to significant numbers of people who do contribute
 - But largely a lot of delta efforts, not so much significant contributions from individuals
 - Should we consider funding for the HSF?
 - Is so, by what mechanism?
- Do new colleagues know about the HSF?
 - We had quite a lot of new interest in the HSF around the time of the CWP
 - Since then the HSF is more of a “background activity”?
 - Do our younger colleagues know about the HSF and its activities?
 - We think that re-advertising the HSF once a year for new colleagues would be very valuable

Challenges 2

- Activity area and post-workshop momentum was inconsistent
 - Very dependent on motivation and involvement of conveners
 - E.g., the Tools and Packaging Group was very inactive the last few years
 - However, this year we have very motivated conveners and there is active interest in packaging tools again
 - Or on external factors
 - E.g., the Generators group needs to find its place w.r.t. the new LHC MC WG
 - We would appreciate your ideas here!
 - We hope the activity imbalance can be smoothed out with the seminar series
 - After having good workshops on, e.g., citations, follow-ups on things thought to be good ideas was difficult to achieve
 - Especially when the work was worthy, but not clearly rewarded/rewarding

Challenges 3

- Project affiliation reviews
 - It seems to be hard to find people to do the project reviews, even if they are lightweight
 - Value proposition remains unproven
- Are there projects that you would see benefiting from HSF affiliation?
- HSF Chair
 - Graeme will step down as SG Chair in June
 - We need to find a way to continue this valuable role for the HSF
 - 20-30% FTE level
 - Maybe in the future we need to incarnate this as more than one person? Or seek some other avenues of support?

Questions and Suggestions

Over to you...

What do you think we should be doing?

HSF Revised Goals?

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- Aid developers and users in *creating*, discovering, using and sustaining common software
- Support training and career development for software and computing specialists
- *Provide a framework for attracting effort and support to S&C common projects?*
- *Provide a structure for the community to set priorities and goals for the work?*
- Facilitate wider connections; while the HSF is a HEP community effort, it should be open enough to form the basis for collaboration with other sciences