

ARCHER

HPC Training & Access

General Overview



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- UK National Supercomputer Service, managed by EPSRC
 - housed, operated and supported by EPCC
 - hardware Supplied by Cray
- Training provided by the ARCHER Computational Science and Engineering (CSE) support team
 - 72 days per year at various locations round the UK
 - free to all academics

EPCC's Advanced Computing Facility



What is EPCC?

- UK national supercomputer centre
 - founded in 1990 (originally Edinburgh Parallel Computing Centre)
 - a self-funding institute at The University of Edinburgh
 - running national parallel systems since Cray T3D in 1994
 - around 80 full-time staff
 - a range of academic research and commercial projects
 - one-year postgraduate masters in HPC www.epcc.ed.ac.uk/msc/
 - new online accredited courses www.epcc.ed.ac.uk/online-courses/
- Get in contact if you want to collaborate
 - many staff are named RAs on research grants
 - joint research proposals
 - European project consortia

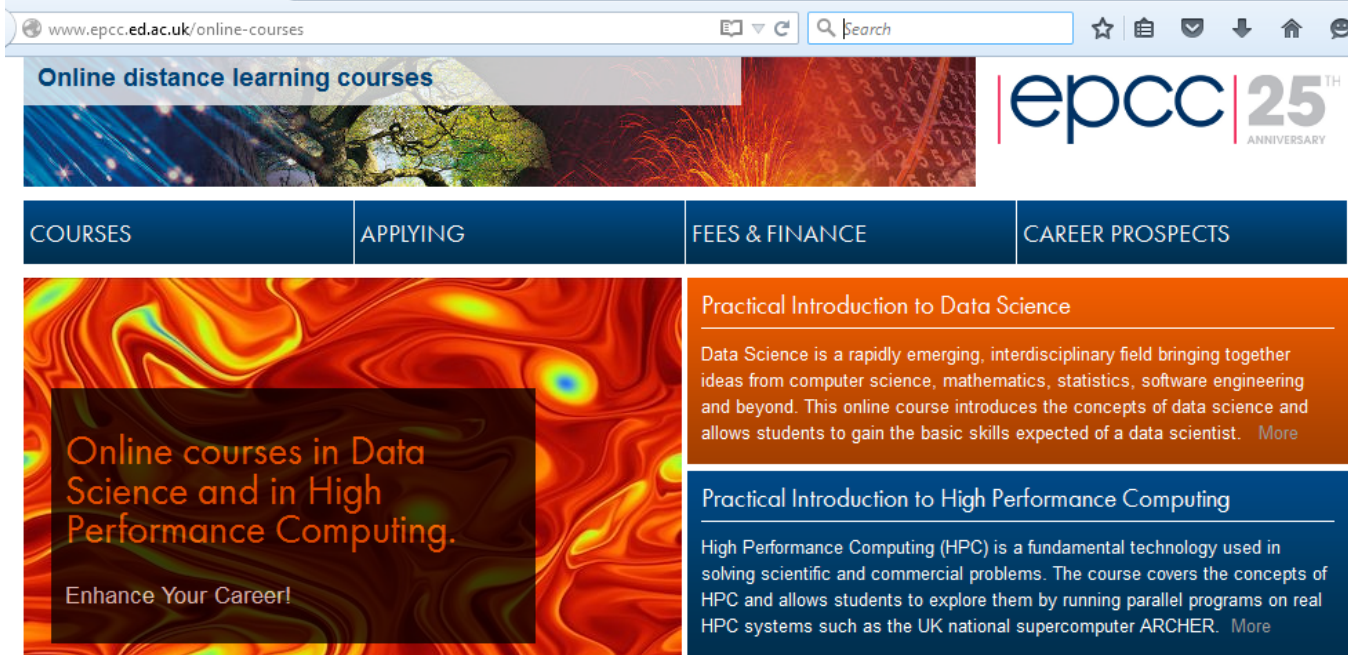
Key ARCHER training resources

- Upcoming courses
 - <http://www.archer.ac.uk/training/>
- Material from past courses
 - http://www.archer.ac.uk/training/past_courses.php
- Virtual tutorials / webinars
(online, recordings on ARCHER YouTube channel)
 - <http://www.archer.ac.uk/training/virtual/>
- Documentation
 - <http://www.archer.ac.uk/documentation/>

Other resources

- General enquiries about ARCHER go to the helpdesk
 - support@archer.ac.uk
- EPCC runs one-year taught postgraduate masters courses
 - ***MSc in HPC*** and ***MSc in HPC with Data Science***
 - awarded by the University of Edinburgh since 2001
 - scholarships available
 - taught by EPCC staff (plus options in Informatics, Maths, Physics, ...)
 - 12 taught courses (8 months); research dissertation (4 months)
 - <http://www.epcc.ed.ac.uk/msc/>

Online accredited courses

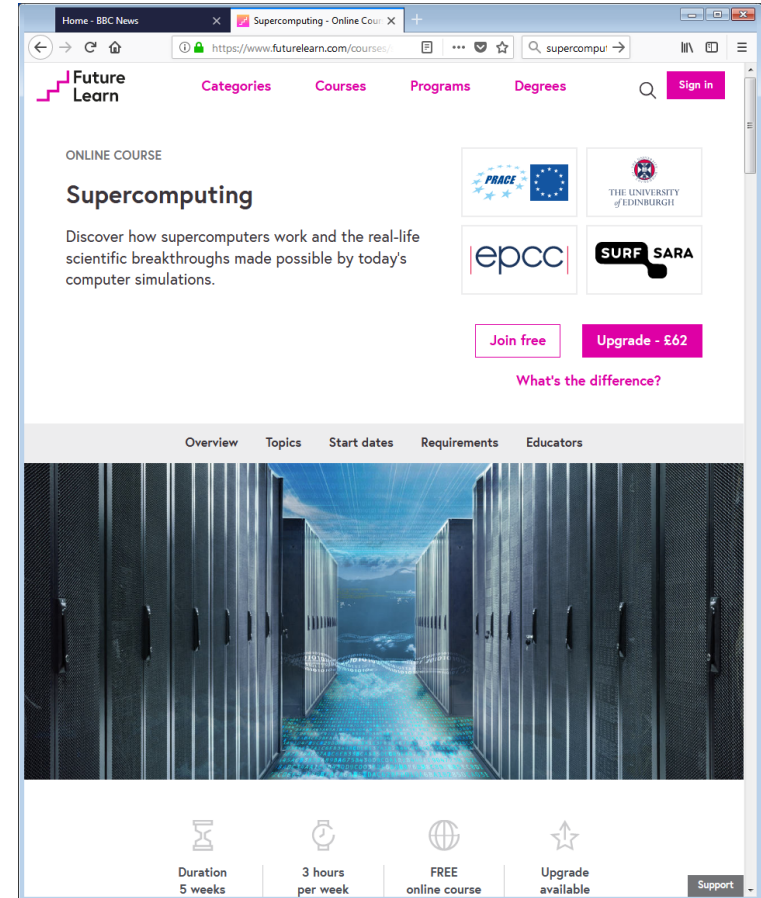


The screenshot shows the website www.epcc.ed.ac.uk/online-courses. The page features a navigation menu with four categories: COURSES, APPLYING, FEES & FINANCE, and CAREER PROSPECTS. Below the menu, there are two main course listings. The first listing is for 'Online courses in Data Science and in High Performance Computing', which includes the text 'Enhance Your Career!'. The second listing is for 'Practical Introduction to Data Science', which describes it as a rapidly emerging, interdisciplinary field. The third listing is for 'Practical Introduction to High Performance Computing', which describes it as a fundamental technology used in solving scientific and commercial problems. The EPCC 25th Anniversary logo is visible in the top right corner of the website screenshot.

- Run from January to June each year
 - entirely online: www.epcc.ed.ac.uk/online-courses/.
 - each course is 20 credits (c.f. a 180-credit MSc)

Supercomputing MOOC

- futurelearn.com/supercomputing
 - 5 weeks
 - free (with paid “upgrade” option)
 - conceptual
 - no computer programming required
- runs twice per year
 - typically thousands of “joiners”
 - several hundred active in final week
 - very collaborative
 - lots of support from fellow learners



Access to ARCHER (during course)

- Guest accounts for duration of course
- Accounts will be closed immediately after the course
 - all files etc will be deleted
- Take copies of all your work before course ends!

Access to ARCHER (longer term)

- Various ways to apply for time on ARCHER
 - see <http://www.archer.ac.uk/access/>
- All require justification of resources
 - Instant Access has the lowest barrier to entry
 - designed for exploratory work, e.g. in advance of a full application
- Or take the “ARCHER Driving Test”
 - www.archer.ac.uk/training/course-material/online/driving_test.php
 - successful completion allows you to apply for an account for 12 months with an allocation of around 80,000 core-hours
 - backed up by online training materials
 - www.archer.ac.uk/training/course-material/online/

Access to HPC resources

- University / Institute cluster
- Regional / National HPC machines
- UK:
 - <http://www.hpc-uk.ac.uk/>
 - <https://hpc-uk.github.io/facilities-presentation/>
 - <https://youtu.be/YmL5zLw6Sx8>
 - <http://www.cirrus.ac.uk>
 - <http://www.archer.ac.uk>

Subscribing to ARCHER training emails

- Weekly service updates sent to registered ARCHER users
 - many contain information relevant to training
- You can subscribe to receive only training-related emails
 - even if you don't have an ARCHER account

- Visit:

`https://www.jiscmail.ac.uk/cgi-bin/webadmin?SUBED1=ARCHER-TRAINING&A=1`

eCSE software development funding

- Embedded CSE (eCSE) project funding:
 - Regular calls
 - Provides funding to develop software in a sustainable manner for running on ARCHER (& other HPC platforms).
 - Funds employment of a researcher / code developer to work specifically on the relevant software to enable new features or improve the performance of the code
 - Current call closes July 17th
- See <https://www.archer.ac.uk/community/eCSE/calls.php>



PARTNERSHIP FOR ADVANCED COMPUTING IN EUROPE





Currently 25 members

- Austria
- Belgium
- Bulgaria
- Cyprus
- Czech Republic
- Denmark
- Finland
- France
- Germany
- Greece
- Hungary
- Ireland
- Israel
- Italy
- Netherlands
- Norway
- Poland
- Portugal
- Slovakia
- Slovenia
- Spain
- Sweden
- Switzerland
- Turkey
- UK

UK represented by EPCC
(on behalf of EPSRC)





PRACE Activities

- HPC Training
- Access to HPC resources
- Best practice guides (new hardware platforms)
- ...
- ...
- Funding of computational science research visits
(**HPC Europa**)

Six PRACE Advanced Training Centres (PATCs)

Hubs for world-class HPC training for researchers in Europe

www.training.prace-ri.eu

- Barcelona Supercomputing Center (Spain)
- CINECA - Consorzio Interuniversitario (Italy)
- CSC - IT Center for Science Ltd (Finland)
- EPCC at the University of Edinburgh (UK)
- Gauss Centre for Supercomputing (Germany)
- Maison de la Simulation (France)



PRACE Training

- PRACE funds delivery of PATC HPC courses
- Upcoming courses (UK and throughout Europe):
 - <http://www.training.prace-ri.eu>
 - <http://www.archer.ac.uk/training/>
- Introduction to HPC
- Performance analysis and code optimisation
- Parallel programming (models, libraries, runtime systems)
- Accelerators, data analytics, software carpentry,

HPC-Europa3



Transnational Access research visit programme

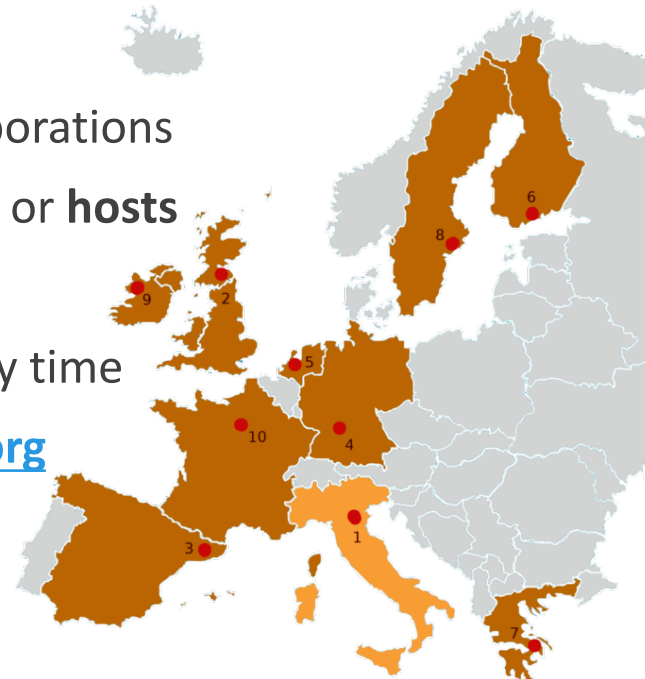
<http://www.hpc-europa.org/>

EC-funded collaborative research visits using HPC

- Funding for travel and accommodation / living expenses
- Access to world-class HPC systems
- Training and support provided
- Opportunities for scientific collaborations
- Researchers in UK can be **visitors** or **hosts**
- Easy application procedure

4 closing dates per year – apply any time

Questions to: staff@hpc-europa.org



HPCE3 Partners:

1. CINECA
2. UEDIN-EPCC
3. BSC
4. USTUTT-HLRS
5. SURFsara
6. CSC
7. GRNET
8. KTH-PDC
9. NUIG-ICHEC
10. CNRS (not participating in the Transitional Access activity)

HPC-Europa3



Transnational Access research visit programme

<http://www.hpc-europa.org/>

- Applicants can be of any level **from Master students** working on their final project **up to professors, with any level of HPC expertise**, from complete beginner to expert user
- Researchers in any EU country or Associated State can apply (details on webpage).
- UK-based researchers can apply to collaborate with research groups in Finland, Germany, Greece, Ireland, Italy, the Netherlands, Spain and Sweden.
- Visit duration is **from 2 to 13 weeks**.
- Visits must start **between 2 and 6 months from date of acceptance**. As the selection process can take up to 2 months, applicants should plan to start their visit **4-8 months after the closing date**.
- At the end of the visit, visitors must complete some brief questionnaires and reports.

For help identifying a suitable host for your visit, or any other questions, please contact staff@hpc-europa.org

HPC-Europa3



Transnational Access research visit programme

<http://www.hpc-europa.org/>

Next call closes **Thursday 13th September 2018**