

# RESEARCH SOFTWARE ENGINEERING AT EPCC

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CERSE 15/03/23



## A bit of history

- Established in 1990
  - Department of Physics used parallel computers for a number of projects
  - Established an independent institute to:
    - Promote the use of parallel computers in academia and industry
    - To be self funded
    - Edinburgh Parallel Computing Centre – now just EPCC
- Originally based in the JCMB at the Kings Buildings
  - Moved to the Bayes Centre when the building first opened in 2018
  - Occupy most of the second floor at the Bayes
- For a long time EPCC was composed of around 40-50 individuals
  - Now have around 130 individuals
  - Have almost run out of space on the second floor

## A good place to work ...

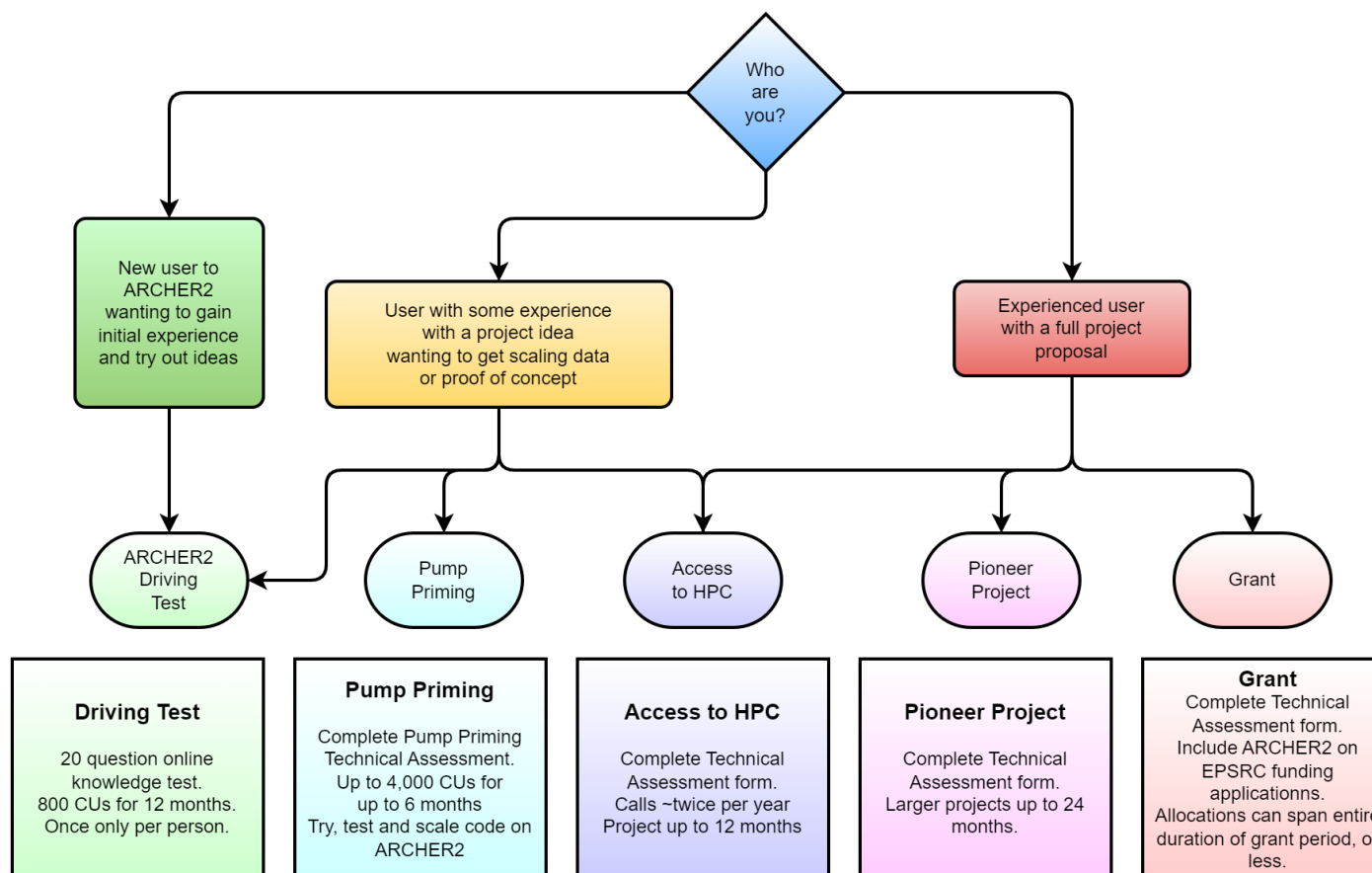
- A bright multi disciplinary young set of people to work with
  - A bunch of high powered geeks...
- A half-way house between industry and academia and industry
  - A little more regimented than an academic post but not as draconian as industry
- Some novel and big kit to play with (more on this later)
- Run MSc/PhDs
  - MSc in High Performance Computing (HPC) and HPC with Data Science
  - Always looking for interesting MSc projects
- Mostly project based work
  - Challenge and extend your skill set
- Software Sustainability Institute based at EPCC (more on this later)

## Big kit

- ARCHER2 – UK's National Supercomputing Service (Tier-1 system)
  - 5,860 nodes: 5,276 standard memory (256GiB), 584 high memory (512GiB)
    - Node: 2× AMD EPYCTM 7742, 2.25 GHz, 64-core
  - More info: <https://www.archer2.ac.uk/>
- Cirrus – EPSRC Tier-2 National HPC Facility
  - 280 compute nodes (2.1 GHz, 18-core Intel Xeon E5-2695 (Broadwell) with 256GiB mem)
  - 2 compute nodes (384GiB mem) each with 4 GPUs
  - 36 compute nodes each with 4 GPUs (NVIDIA v100 GPUs 16GiB)
  - More info: <https://www.cirrus.ac.uk/>
- EIDF (Edinburgh International Data Facility)
  - Data Science Cloud
  - More info: <https://www.ed.ac.uk/edinburgh-international-data-facility>

# Access to ARCHER2

## Getting access to ARCHER2



Thanks to Clair Barrass

## Access to Cirrus

- On the Cirrus web: Access > Scottish Academic Access
- Possibly most pertinent - Scottish Academic Scheme
  - Trial access
    - Max ~15k CPU-h 600 GPU-h
  - Production access
    - Max 1M CPU-h 40k GPU-h
  - Have to fill in an application:
    - Only one Scottish Access application will be funded per researcher
- There are other methods of access ...

## Software Sustainability Institute (SSI)

- Virtual Organisation consisting of
  - Edinburgh, Manchester, Southampton and Oxford
- Started in 2010
- Director, Prof Neil Chue Hong, based at EPCC
- Generally advocates: better software, better software
- Large number of activities
  - Started the RSE movement – now has a life of its own
  - Encouraged the adoption of the Carpentries in the UK
    - Edinburgh Carpentries (EdCarp) sister effort to CERSE
  - Runs a Fellowship Programme
  - ...
- More info: <http://www.software.ac.uk/>

## Conclusions

- EPCC a great place to work for
- Can use as a resource:
  - Hardware/Storage that is available
  - The people involved
- Engage with the SSI