

The role of RSEs in (and out of) HEP

Today

- About me
- Overview of RSE team at UCL
- Possible benefits of RSEs in HEP



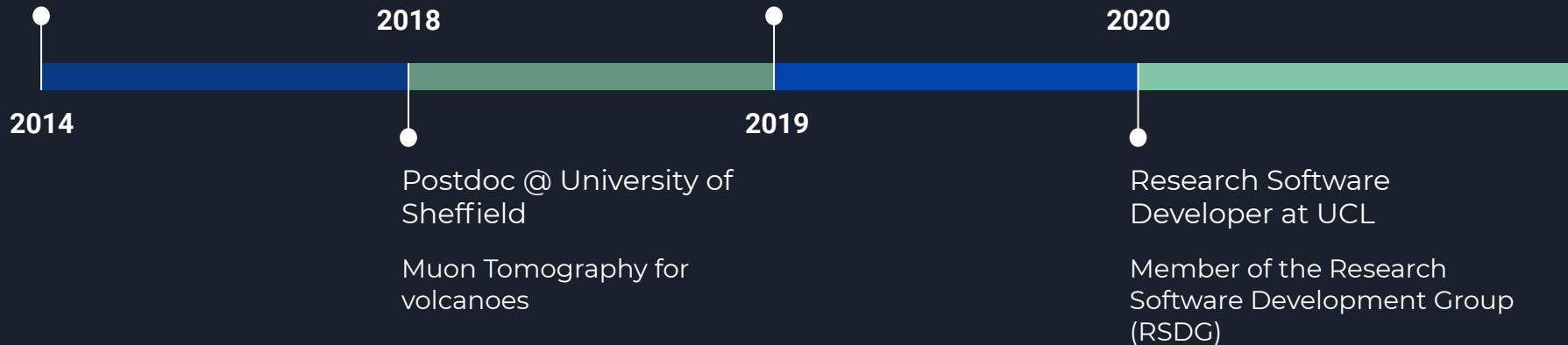
About me

PhD @ University of Sheffield

QCD multijet background
estimation for ATLAS SUSY
searches

RSE @ the British Library

RSE in Digital Scholarship



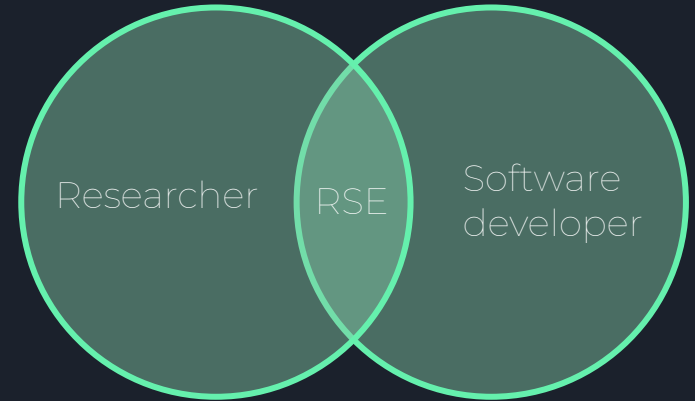
UCL RSDG

- Central group within Research IT Services collaborating on [research projects around UCL](#)
- Founded in 2012
- Now approaching 30 members(!)
- Software engineers/developers who specialise in research software on open-ended contracts
- Costed into grant submissions (pre-award) or day rate (post-award)

The screenshot shows the website for Research Software Development at UCL. The header includes the UCL logo and navigation links: Home, About RITS, Services, Showcase, Programming Hub, and User Support Pages. The main content area is titled 'Research Software Development' and features a navigation menu on the left with options for Software Development, Projects, AI Studio, and Medical Imaging Research Software Group. The main text states: 'Our goal is to help researchers to produce high quality research software, from the simplest scripts to complex simulations running on state-of-the-art supercomputers.' Below this is a 'Projects' section with a 'Projects' button. A large graphic for 'Zacros' is displayed, with the tagline 'Advanced lattice-KMC made easy' and a brief description of the software. On the right side, there are sections for 'Using our services' with a search icon, 'ISD-RITS support pages' with contact information, 'Programming Hub' with a description of community support, and 'Showcase' with an article titled 'Power to the People - James Legg' dated 4 November 2020. The footer includes 'Our mission' and a row of five dots.

What we do

- Collaborate with researchers across all faculties
- Project scoping
- Build sustainable software
- Provide expert advice and consultancy
- Deliver teaching in reproducible computational research
- Community building & peer support
- Develop grant proposals
- Co-author papers
- Staff mentoring



Benefits of HEP ↔ RSE





HEP & RSE collaboration

- Understanding of the field enables deep engagement
 - Potential to be part of group research activities
 - Read & understand papers
- Create readable, reusable, sustainable software
- RSEs able to teach good SW development practices
 - Knowledge exchange
- Researchers who are highly skilled software engineers may miss new standards/innovations



HEP & RSE collaboration

Some potential sites of collaboration

- Porting or refactoring existing code for use with GPU/FPGA/etc in a sustainable way
- Software optimisation
- Knowledge exchange
 - CI/CD, regression testing, cloud technologies
 - Collaborative tools (e.g. jupyter notebooks)
- Support for machine learning integration



HEP & RSE collaboration

- RSEs have the time to create software
 - Potential to operate on longer timescales than PhDs and postdocs
 - Knowledge retention
 - sustainability
 - No personal research agenda, can go further than “code ‘til it works”
- Engagement with RSEs and widely accepted standard practices will help your career too!
- Central pool/shared RSEs useful for smaller experiments who do not have a dedicated S&C person/people

Q&A

