



Software  
Sustainability  
Institute



# Research Software Engineers Community and Its Role in Training

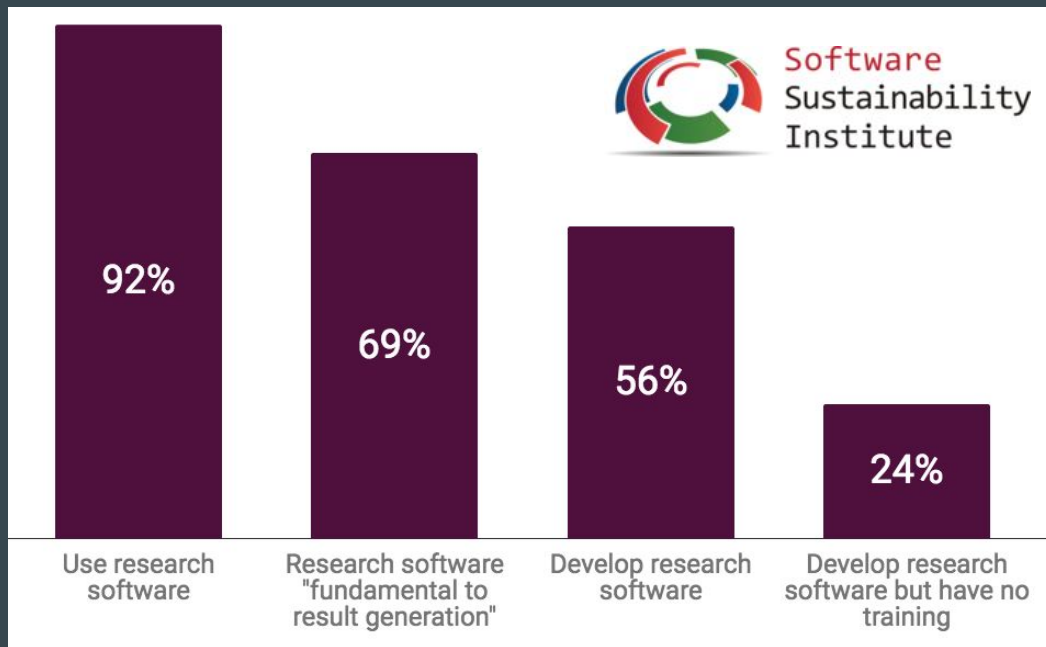
...

A movement in the UK to recognise and develop the role of software experts in research

# Software in research

UK survey: software is  
vital to research

Majority of  
researchers write code



# The “Research Software Engineer” role



Combine software engineering skills  
with an intricate understanding of research

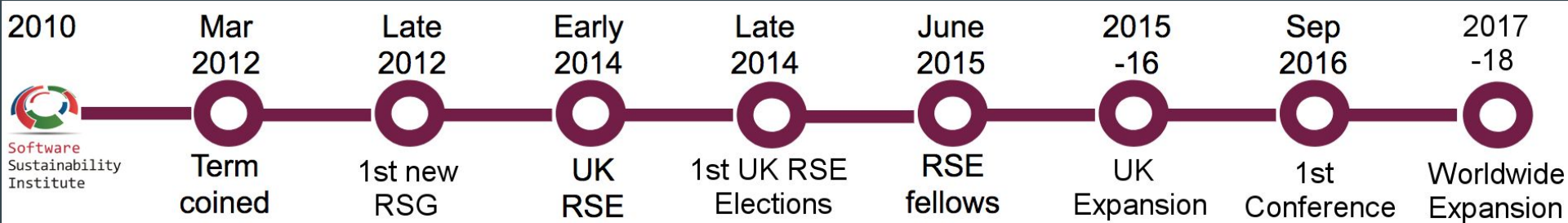
# Hidden role & no career path

# 194 different job titles

Analyst Developer Analyst Programmer Analyst Programmer - SITS (x 3) Analyst/Programmer Applications Developer Applied Scientist Architectural Robotics Developer Assistant Data Programmer Assistant Project Manager Atmospheric Correction and Radiative Transfer Model Scientist Audio Software Developer - KTP Associate Bioinformatician Bioinformatician In Potato Genomics and Genetics Bioinformatician/Computational Bioscientist in Microbiology Bioinformatics Bioinformatician Analyst Programmer Bioinformatics Researcher Bioinformatics scientist Biometric Software Systems Developer Forensic Software Development 3D Computer Simulation Engineer Data Analyst Project Editor (Research Assistant/Associate) Climate Researcher Research Associate Social Simulation Modelling Modelling Research Associate Computational Biologist / Bioinformatician Computational Scientist Computational Scientist in Computational Fluid Dynamics & Industrial Applications Computational Scientist in Structural Mechanics and Industrial Applications Computer Scientist Computer Vision Researcher Content Developer/Programmer Control Engineer-IMG - 3 posts CREATE Data Specialist Data Analyst Data Integration Coordinator Data Manager x3 Database and Software Engineer Database Manager/Researcher Database Programmer Digital Media Technician E-Learning Portal Manager (KTP Associate) e-Learning Systems Development Analyst e-Learning Systems Development Analyst (Moodle, SQL) E-Learning Web Developer E-Portfolio Learning Technologist Embedded Systems Engineer Engineering Technician Environmental Scientist EPSRC Studentship on Algorithmic Construction of Finsler-Lyapunov Functions Experimental Officer in Bioinformatics Experimental Psychologist Finance Assistant Gaia Alerts Software Developer Gaia Software Developer (Gaia UK Team) GIS Applications Specialist Graduate Programmer / Software Developer Graphics Programmer Health Data Manager / Scientist High Throughput Bioinformatician High Throughput Sequencing Bioinformatician (Two posts) HIVE Manager/ HIVE Coordinator HIVE Senior Researcher and Technical Lead Hydro-informatics Scientific Software Developer Image Analysis Manager for Cancer Imaging Information Systems Developer Instrumentation Engineer Investigator Statistician IT Developer IT Services Manager IT Services Specialist (e-Learning Systems) IT Support Technician (Unix / Windows Systems) Knowledge Transfer Partnership (KTP) Associate: Innovent Technologies LTD Knowledge Transfer Partnerships (KTP) Associate - Software Developer (KTP Associate - Robot Vision Scientist (Research Fellow) KTP Associate (Fixed Term Contract for 24 months) KTP Associate (Precision Agriculture Data Analyst) KTP Associate (e-Learning Web Developer) KTP Associate: Electronics / Robotics Engineer Learning Technologist Leicester Respiratory BB IT Developer Linguistics/ Psychologist Managerial Technician Marie Curie Early Stage Researcher Marie Curie Early Stage Researcher in Radar Rainfall for Integrated Water Quality Modelling Marine Earth Observation Scientists Medical Statistician Medical Statistician/Senior Medical Statistician Metrology Engineer Mobile Application Developer NASC IT Support - Programmer and Systems Administrator (Fixed-term) NIHR Research Methods Fellow PDRA on EU Project on Automated Multisensor Surveillance Planning Officer Policy Modeller 2014 Post - Doctoral Research Assistant INSTRON Post Doctoral Research Worker Post Doctoral Researcher in the application of Digital Technology Post-Doctoral Research Assistant in Simulation and Visualization Post-Doctoral Research Associate Post Doctoral Research Associate (Pathogen Genomics) Post-Doctoral Research Fellow Postdoctoral Fellow - population genetics / evolutionary genetics Postdoctoral Fellow in Bioinformatics Postdoctoral Fellow in Cancer Therapeutics Postdoctoral Research Assistant Postdoctoral Research Associate Postdoctoral Research Fellow Postdoctoral Research Scientist Postdoctoral Researcher in Declarative (Logic and Functional) Programming Postdoctoral Researcher Postdoctoral Scientist Postdoctoral statistician Postdoctoral Training Fellow - Statistical and Computational Genetics of Autism Principal / Senior Bioinformatician Principal Bioinformatician Product Development Engineer (Rail) Publishing Portal Web Developer Radio Frequency Engineer Reader in Computer Science Reporting Analyst Research (Software) Engineer Research Assistant Research Associate Research Fellow Research Image Data Manager, Biomedical Engineering Research Officer Research Officer â€ Social Protection Research postgraduate Research Programmer Research Scientist Research Scientist / Senior Research Scientist Research Scientist in Machine Learning and Computer Vision Research Software Developer Research Software Developer for the Herchel Smith Professor of Organic Chemistry Research Software Engineer Research Studentship Research Worker Researcher SAP Trainee Technical Analyst Scientific Officer with Michela Garofalo Scientist SEAHA Studentship: Extracting epidemiological data from collections SEAG Data Archive Manager Senior / Research Associate in Clinical Integration and Image Analysis for Fetal Surgery Senior Analyst Programmer (Business Analysis) Senior Analyst/Programmer Senior Bioinformatician Senior Bioinformatician / Bioinformatician Senior Computational Statistician - Spatial Models Senior Data Acquisition Scientist / Data Acquisition Scientist Senior Data Manager Senior Database Administrator Senior IT Developer Analyst Senior Mathematical Modeller Senior Media Developer Senior Postdoctoral Researcher - Evolutionary and Computational Analysis of Infectious Disease (Phylogenetics) Senior Research Assistant Senior Research Associate Senior Research Associate â€ Molecular Modelling & Simulation Senior Research Associate in Quantitative Clinical MRI Senior Research Fellow Senior Research Fellow/Research Fellow in Vibration Diagnostics and Prognostics/Digital Signal Processing Senior Research Laboratory Technician Senior Research Research Technician in Bioinformatics Senior Software Engineer / Software Engineer Senior Statistical Epidemiologist Senior Systems Administrator Demonstrator (UCMK) Senior Web Developer SharePoint Developer Software Developer Software Developer (Bioinformatics) Associate) Software Developer x 2 Software Developer/Programmer Software Developers in e-Learning Software Engineer Soft (KTP Associate) Sports Programme Manager Statistical Geneticist Statistical Programmer/Data Scientist Statistician Statistician/Enrolment Services Manager SWCAR Information Assistant System Administrator Systems Developer Systems, Data and Applications Fellow in Computational Methods UTRCI Research Scientist, Control Systems Web Application Programmer Web Developer



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"Developing the profession of a scientific software engineer and the career track of software developers in academia"

- James Hetherington



Ashley Towers

@ashleytowers



Follow

Yay my new job title is now official - Research Software Engineer - big thanks to @SoftwareSaved for starting the movement :-D



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500

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1211

members

29 April 2018

1 Jan 2015

1 Jan 2016

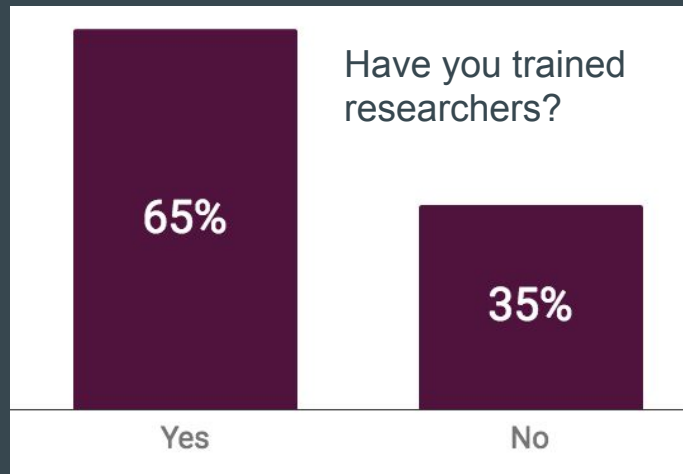
1 Jan 2017

1 Jan 2018

#### International RSE Groups

| Country         | Organisation   | Group   |
|-----------------|--|---|
| Canada          | CANARIE  | Research Software Program   |
| Canada          | Perimeter Institute for Theoretical Physics  | Research Computing Group  |
| Germany         | Göttingen State and University Library   | Software and Service Development Group  |
| Germany         | National   | German RSE Community  |
| Germany         | Digital Humanities im deutschsprachigen Raum (DHd) - Translation: Digital Humanities in the German-speaking regions. | Working Group 'Research Software Engineering in the Digital'                                  |
| South Africa    | University of Cape Town  | eResearch and Computational Biology Division (developers employed by the Division)            |
| South Africa    | University of the Western Cape   | South African National Bioinformatics Institute (developers/devels employed by the Institute) |
| Sweden          | Developer group at National Bioinformatics Infrastructure  | Multiple groups within Sweden   |
| The Netherlands | National   | The Netherlands RSE Community   |
| The Netherlands | Netherlands eScience Center  | Netherlands eScience Center   |
| USA             | Argonne National Laboratory  | PETSc Team  |
| USA             | Indiana University   | Data to Insight Center (D3I) and Pervasive Technology Institute (PTI)                         |
| USA             | Louisiana State University, Center for Computation and Technology  | HPC enablement group  |
| USA             | National Center for Supercomputing Applications (NCSA) at University of Illinois Urbana-Champaign                    | parts of various groups   |
| USA             | RENCI at the University of North Carolina at Chapel Hill   | parts of various groups   |
| USA             | University of Virginia, Charlottesville  | Advanced Research Computing Services  |
| USA             | Princeton University   | Research Computing  |

**What we have learned...**



# RSEs are untapped training resource

**Action can be taken on all scales**



**Change is not easy...**

... but small changes add up

**Communities are powerful**

# Read more

UK RSE website

[www.rse.ac.uk](http://www.rse.ac.uk)

Simon Hettrick- A very brief history of RSEs

<https://bit.ly/2IWDgfl>

Simon Hettrick- A not-so-brief history of RSEs

<http://bit.ly/2uU99z4>

Research Software Engineers:

State of the Nation Report 2017

<https://zenodo.org/record/495360>

# Contact

[www.rse.ac.uk](http://www.rse.ac.uk)

@ResearchSoftEng

[www.software.ac.uk](http://www.software.ac.uk)

@SoftwareSaved



# Special thanks to...

- Alys Brett, co-chair of the UK RSE Association
- Simon Hettrick, co-director of the Software Sustainability Institute and former chair of the UK RSE Association

