

A German study about Research Software Engineers (RSEs)

The people writing software for Science

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GeoIT Wherecamp Conference 2017, Nov 29, Berlin, Germany

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² Software Sustainability Institute

³ University of Southampton

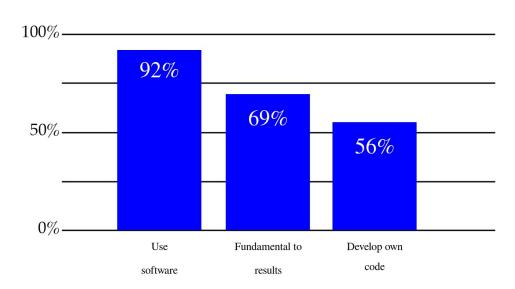
⁴ Max Planck Institute of Molecular Cell Biology and Genetics

Brief History of RSE...

RSE

RESEARCH SOFTWARE
ENGLINEEDS ASSOCIATION

Back to 2010 The Software Sustainability Institute (SSI, UK) run a study



- ... "It's impossible to conduct research without software, say 7 out of 10 UK researchers"

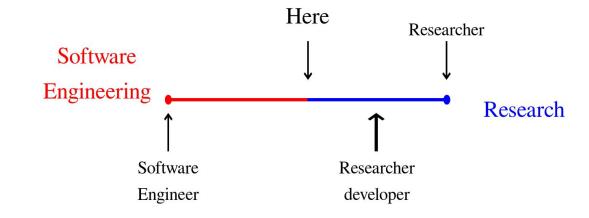
https://www.software.ac.uk/blog/2014-12-04-its-impossible-conduct-research-without-software-say-7-out-10-uk-researchers

Who writes code / develops software?

RSE

RESEARCH SOFTWARE
ENGLINEEDS ASSOCIATION

There are plenty of researchers who write really good code ...



Back to 2012 there has been a Collaborations Workshop (#CollabW12):
 "Developing the profession of a scientific software engineer and the career track of software developers in academia" -- James Hetherington

What is the name for these people?

jobs.ac.uk
 10,000 jobs assessed
 ~400 related to
 software development
 4%



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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 Bioinformaticians Bioinformatics Analyst Bioinformatics Postdoctoral Researcher Bioinformatics scientist Biometric Software Systems Developer Biorespository Software Developer C++/3D Graphics Software Engineer Casebooks Project Editor (Research Associate) Climate Researcher (Research Associate) Clinical Study Programmer CoMPLEX 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 Co-ordinator 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 - Innevest Technologies LTD Knowledge Transfer Partnerships (KTP) Associate - Software Developer KTP Associate - Robot Vision Scientist Relegan 1/2 low) KTP Associate - Robot Vision Scientist Relegan 1/2 low) KTP Associate (Precision Agriculture Data Analys) KTP Associate (Precision Agriculture Data Analys) KTP Associate (Precision Agriculture Developer Linguist / Psycholinguist Maker Space Toennician Marie Carlo Researche Admire Carlo Researche Admire Carlo Researche 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 Modeler 2014 Post, Doctoral Research Assistant INSTRON Post Doctoral Research Worker Post Doctoral Research assistant INSTRON Post Doctoral Research Associate Post-Doctoral Research Associate (Pathogen Genomics Plate to all Research Associate Post-Doctoral Fellow in Boinformatics Post-Doctoral Fellow in Court But applied to the Post-Doctoral Research Associate Post-Doctoral Research Post-Doctoral Research Associate Post-Doctoral Research Post-D 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 SEEG 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 (Phylodynamics) Senior Research Assistant Senior Research Associate Senior Research Associate â€" Molecular Modelling & Simmulation 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 Technician Senior Software Developer in Bioinformatics Senior Software Engineer / Software Engineer Senior Statistical Epidemiologist Senior Systems Administrator Senior Technician / Demonstrator (UCMK) Senior Web Developer SharePoint Developer Software Developer (Bioinformatics) Software Developer (KTP Associate) Software Developer x 2 Software Developer/Programmer Software Developers in e-Learning Software Engineer Software/ Database Developer (KTP Associate) Sports Programme Manager Statistical Geneticist Statistical Programmer/Data Scientist Statistician Statistician/Epidemiologist Student and Enrolment Services Manager SWCAR Information Assistant System Administrator Systems Developer Systems, Data and Applications Team Leader Teaching

Fellow in Computational Methods UTRCI Research Scientist, Control Systems Web Application Programmer Web Developer



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Research

with Michela Gamajal Scientist SEAHA Studentship: Extracting epidemiological data from collections SEEG Data Archive Manager Sanjor / Research Associations of the Collection of Collectio

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 Resear in Computer Science Reporting Analyst Research (Software) Engineer Research Associate Research Fellow Research Image Data Manager, Biomedical Engineering Research Officer Research Officer âc[®] Social Protection Research Sostgraduate Research Programmer Research Scientist Research Scientific Officer Scientist Research Scientist Research Scientific Officer Researc

Research er - Evolutionary and Computational Analysis of Infectious (Lase (Phylodynamics) Senior Research Assion Senior Research Associate & Molecular Modelling & Simmulation Senior Research Associate in Quantitative Clinical MRI Senior Research Fellow Senior Research Fellow in Vibration Diagnostics and Prognostics/Digital Signal Processing Senior Research Laboratory Technician Senior Research Technician Senior Software Developer in Bioinformatics Senior Software Engineer / Software Engineer Senior Statistical Epidemiologist Senior Systems Administrator Senior Technician / Demonstrator (UCMK) Senior Web Developer SharePoint Developer Software Developer (Bioinformatics) Software Developer (KTP Associate) Software Developer x 2 Software Developer Software Developers in e-Learning Software Engineer Software Developer (KTP Associate) Sports Programmer Manager Statistical Geneticist Statistical Programmer/Data Scientist Statistician Statistician/Epidemiologist Student and Enrolment Services Manager SWCAR Information Assistant System Administrator Systems Developer Systems, Data and Applications Team Leader Teaching Fellow in Computational Methods UTRCI Research Scientist, Control Systems Web Application Programmer Web Developer

Research Software Engineer (RSE)

- Back to 2013 growth of network
 - UKRSE Association
 - Since 2013 birth of Research Software Groups
 - University of Bristol, Culham Centre for Fusion Energy, Diamond, Imperial, King's College London, LSE, University of Manchester, University of Oxford, University of Sheffield, Software Sustainability Institute, University of Southampton, UCL
- Back to 2016 1st Conference of Research Software Engineers #RSE16
 - Since 2016 birth of national RSE chapters



The #RSE17 international workshop involved people from UK, NO, CA, DE, NL, LT, AU, and NZ ... Awesome!

2:36 PM - 8 Sep 2017





The German RSE chapter de-RSE

- #RSE16, Sep 2016 in Manchester
- Website, Slack and mailing list up by end of Sep 2016
- Defined objectives and activities
- Grew network
- Started community calls
- Raised awareness

More info

https://www.software.ac.uk/blog/ 2017-01-19-launching-german-rse-chapter-de-rse





What do we know about RSEs?

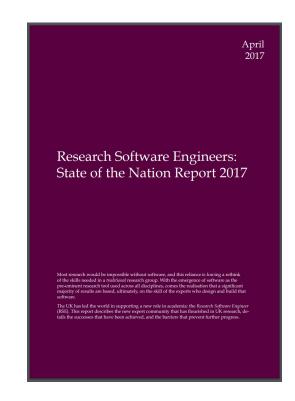
- UK Research Software Survey in 2014
 http://doi.org/10.5281/zenodo.14809
- RSE surveys were started
 - First results based on 2016 UK survey http://doi.org/10.5281/zenodo.495360
- Surveys spread over the globe
 - UK
 - Germany
 - USA
 - South Africa
 - Netherlands

- ...



We need your help with the @SoftwareSaved and #deRSE survey on research software and the people writing scientific software for Germany. Please complete the survey and spread the word:

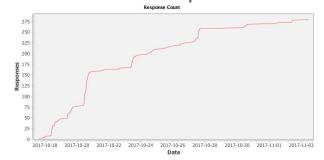
softwaresaved.limeguery.com/661559



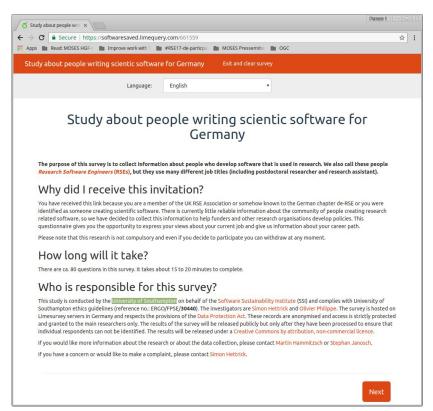


A German study about RSEs

- Started in October,
 ends in December 2017
 https://softwaresaved.limeguery.com/661559
- 300 valuable responses so far



- Intermediate results ...

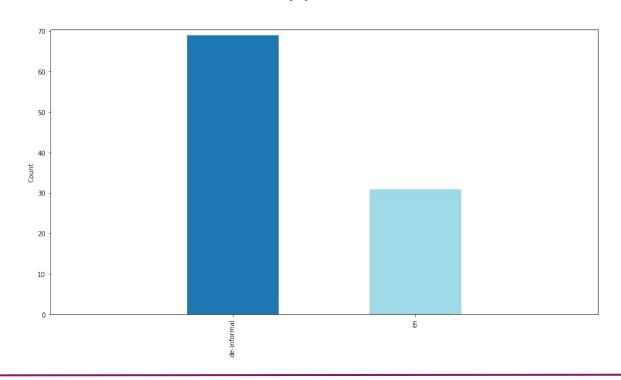




Language

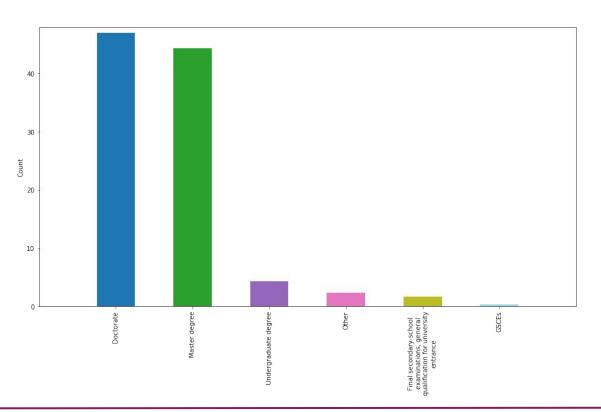


Start language [PERCENTAGE]



Qualification

What is the highest qualification you have obtained? [PERCENTAGE]

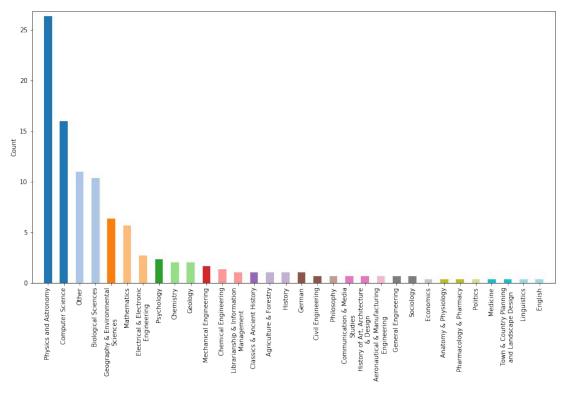




Subject of highest qualification

In which subject is your highest academic qualification? [PERCENTAGE]

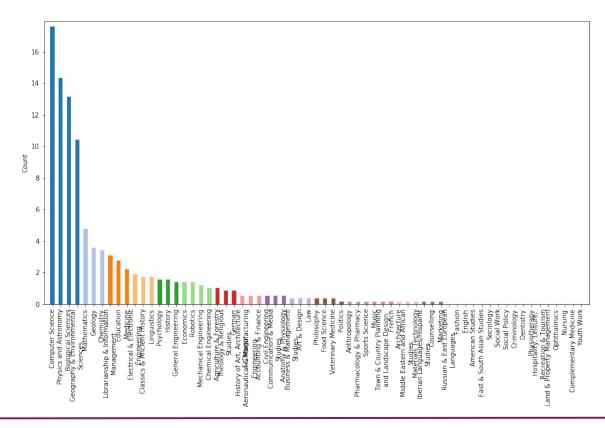




Discipline of work

Count [PERCENTAGE]

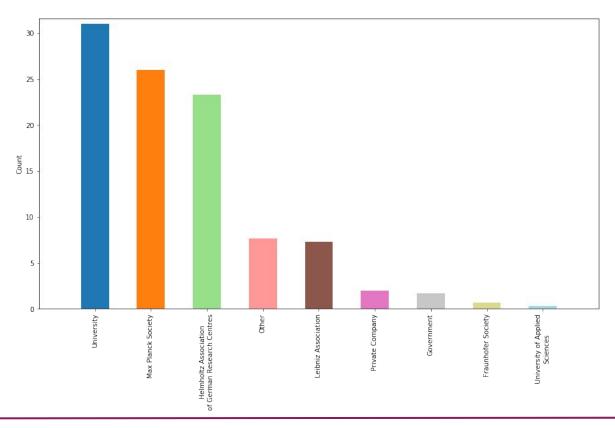




Employer

What type of organisation do you work for? [PERCENTAGE]

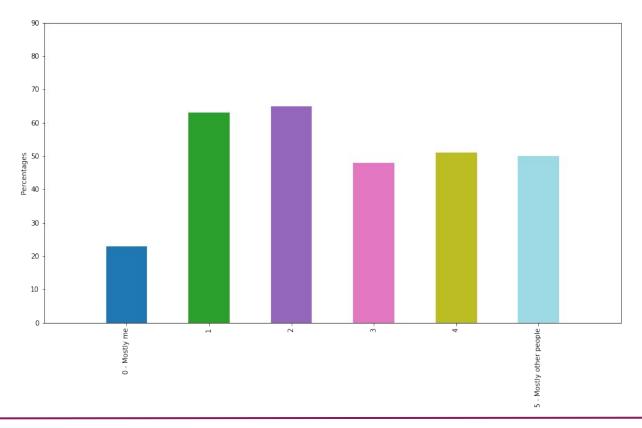




Code usage

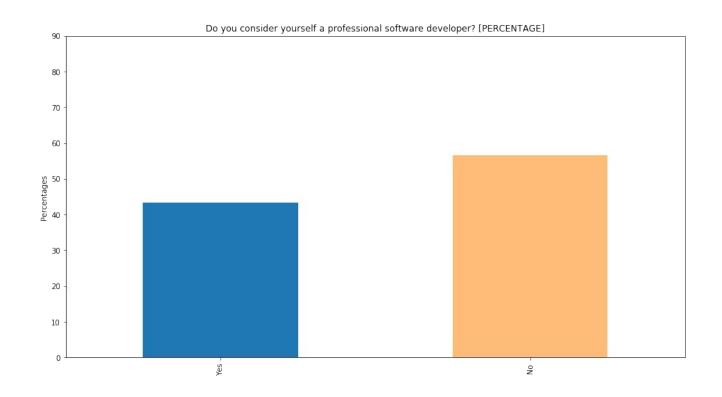
Who uses the code that you write? []





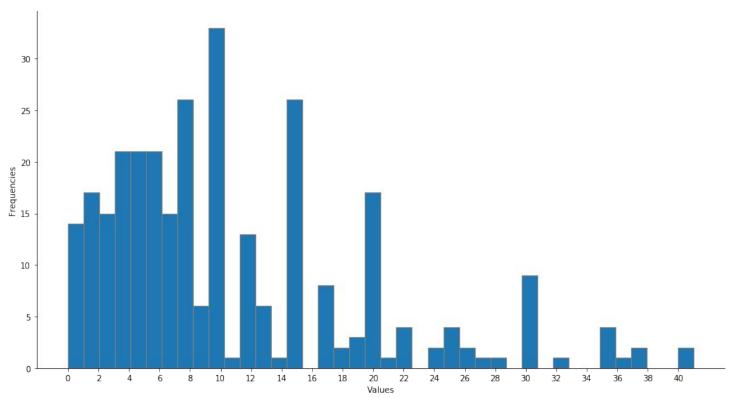
Professional developers





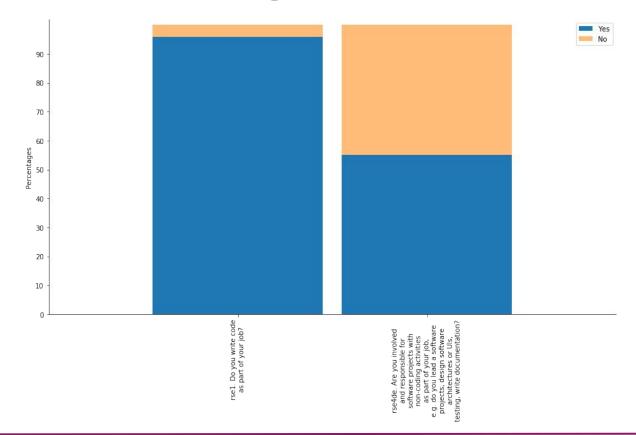
Experience





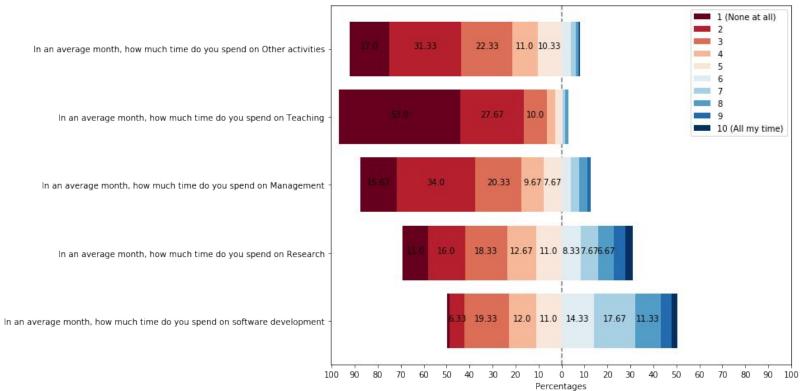
Coding and non-coding activities





Other activities

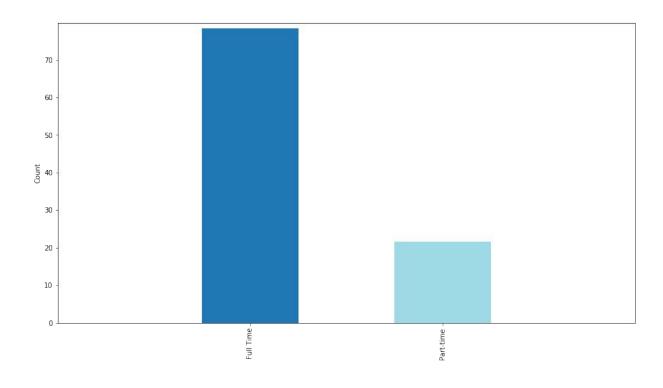




Full time work

Do you work full time or part time [PERCENTAGE]

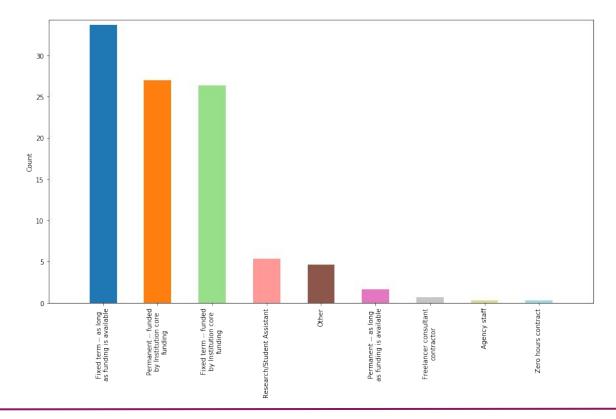




Type of contract

What type of contract are you employed on? [PERCENTAGE]





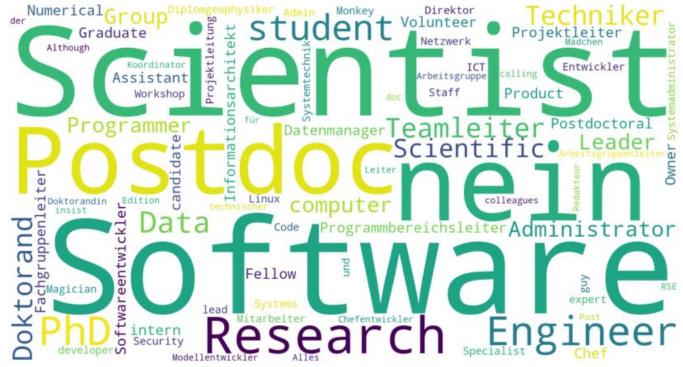
Official job title





Also known as





Other questions

- Rank the following factors dependent on how strongly they influenced your decision to accept your current position
- Do you always work with the same researcher(s), or do you regularly change the researcher(s) you work with?
- Do you work for a Research Software Group?
- Has your software contributed to research that has been published in a journal or at a conference? How are you acknowledged?
- How many software projects are you currently involved in?
- How many software developers typically work on your projects?
- In general, what sort of testing do you conduct on your software?
- What is the bus factor of your most important software project?
- ... and many, many more

Spread the word ...

... and participate!

- Results / data will be released under CC BY-NC
- Data enables further analysis, e.g. per organisation

