

CaRCC Research Computing and Data (RCD) Workforce 2021 Census Questions

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Version 1.0 - 2021-06-02

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This document contains the survey questions used by the Campus Research Computing Consortium (CaRCC) Professionalization Working Group and Northwestern University for an IRB_approved survey of members of the Research Computing and Data (RCD) workforce in the United States.

The aim of the study was to provide the first large data set on the composition of the RCD workforce in terms of demographics, job responsibilities, job types, compensation, and perceptions of the RCD field. The study is limited to the United States due to varying data privacy laws and research requirements internationally.

The survey was eligible for adults residing in the United States who were currently or previously employed in RCD roles or a position with RCD responsibilities. RCD positions include but are not limited to:

- Research computing facilitators, system administrators, cyber infrastructure engineers
- Research network, storage, and HPC engineers and specialists
- Research software engineers
- Research data professionals, including data scientists, data management specialists, data librarians, statistical and data consultants
- Research computing managers, directors, and other leaders
- Cybersecurity and research networking professionals
- IT professionals whose positions include research computing or data responsibilities
- Research staff whose positions include research computing or data responsibilities
- Anyone supporting researchers in using computational and data tools and resources in their research

If you use or adapt this document, please cite:

- Christina Maimone, Scott Yockel, Jay Alameda, Timothy Middelkoop, Amy Neeser, Ashley Stauffer (2021). CaRCC Research Computing and Data (RCD) Workforce 2021 Census Questions (Version 1.0 June 2021). Zenodo. <https://doi.org/10.5281/zenodo.5914431>

Introduction

Research Computing and Data (RCD) Workforce Census

This study aims to provide the first large data set on the composition of the Research Computing and Data (RCD) workforce in terms of demographics, job responsibilities, job types, compensation, and perceptions of the RCD field. This survey is intended for individuals currently or previously employed in Research Computing and Data (RCD) positions in the United States. This includes anyone supporting researchers in using computational and data tools and resources in their research. This may be done by directly supporting researchers; by creating or maintaining systems, software, data, or other technological resources; or by supervising others in such positions.

Throughout this survey, Research Computing and Data is abbreviated as RCD.

Consent to Participate in Research

The following information relates to your participation in this research study to help you decide whether or not you would like to participate. At the end of the consent, there will be an option where you can choose to participate or not.

- **Title of Research Study:** Research Computing Workforce Survey
- **Principal Investigator:** Christina Maimone
- **Supported By:** This research is supported by the Campus Research Computing Consortium (CaRCC) and Northwestern University.

Key Information about this research study:

The following is a short summary of this study to help you decide whether to be a part of this study. Information that is more detailed is explained later on in this form.

- The purpose of this study is to collect data on the research computing and data professionals workforce in the United States.
- You will be asked answer questions about your demographic, educational, and career background, your current employment, job responsibilities, and views of working in the research computing and data field.
- We expect the survey to take approximately 20 minutes to complete.
- The primary potential risk of participation is the breach of data security and public exposure of raw survey data. The survey does not ask for immediately identifying characteristics such as name or email address, but it does ask for a combination of personal and employment characteristics that could be used to identify respondents. We will do everything we can to minimize this risk, as described in more detail later in this form.
- The main benefit of being in this study is contributing to a resource that will be of use to the research computing and data professionals community.

Why am I being asked to take part in this research study?

We are asking you to take part in this research study because you are an adult, 18 years of age or older, who resides in the United States and has current or prior employment related to the research computing and data field.

How many people will be in this study?

We expect about 400-800 people will be in this research study.

What should I know about participating in a research study?

- Whether or not you take part is up to you.
- You can choose not to take part.
- You can agree to take part and later change your mind.
- Your decision will not be held against you.
- You can ask all the questions you want before you decide.
- You do not have to answer any question you do not want to answer.

What happens if I say, “Yes, I want to be in this research”?

You can complete the study by answering the survey questions that follow this

consent form.

Will being in this study help me in any way?

We cannot promise any benefits to you or others from your taking part in this research. There are no expected individual benefits from participating in this study. As a part of the research computing and data community, this study may benefit you by providing data on the field, including analysis of job responsibilities, compensation, size of the workforce, and demographic composition. This information may be useful as part of your employment or in obtaining future employment.

Is there any way being in this study could be bad for me?

A possible risk for any research is that confidentiality could be compromised – that is, that people outside the study might get hold of confidential study information. We will do everything we can to minimize this risk, as described in more detail later in this form.

What happens if I do not want to be in this research, or I change my mind later?

Participation in research is voluntary. You can decide to participate or not to participate. If you do not want to be in this study or withdraw from the study at any point, your decision will not affect your relationship with Northwestern University.

You can leave the research at any time by stopping answering survey questions and closing your internet browser; this decision will not be held against you. If you decide to withdraw from this study by ending the survey early, any data already collected from you will be destroyed at the close of the study. Survey questions other than those establishing that you meet participation criteria are optional; you can skip any individual questions and still complete the survey and study.

How will the researchers protect my information?

The data collected for this study will be stored in secure, online platforms and encrypted, password-protected computers. The raw, individual-level identifiable data will only be accessible to the Principal Investigator.

This study does not collect information (such as name or email address) that can be used to directly identify you. However, the combination of demographic, educational, and employment information included in the survey could be used to identify at least some participants. The raw, individual-level survey results will only be accessible to the Principal Investigator.

De-identified data collected during the study will be shared publicly as a part of publishing the results. Individual-level data will be shared only when the combination of variables cannot reasonably be used to identify you. For example, job titles reported in the survey will be shared separately from other data, since unique job titles may identify an individual. Similarly, individual-level demographic and educational background data will be shared separately from employment information. Someone may be able to guess you were a participant in the study from your job title, unique demographic characteristics, or other information, but they would not be able to associate other survey answers with you specifically. Statistics on responses for subgroups of participants will only be shared when the group consists of five or more individuals.

Who will have access to the information collected during this research study?

Efforts will be made to limit the use and disclosure of your personal information, including research study records, to people who have a need to review this information. We cannot promise complete secrecy.

There are reasons why information about you may be used or seen by other people beyond the research team during or after this study. Examples include: University officials, government officials, study funders, auditors, and the Institutional Review Board may need access to the study information to make sure the study is done in a safe and appropriate manner.

How might the information collected in this study be shared in the future?

We will keep the information we collect about you during this research study for study recordkeeping and potential use in future research projects.

De-identified data from this study will be shared with the research community, with journals in which study results are published, and with databases and data repositories used for research. We will remove or recode any personal information that could directly identify you before the study data are shared. Despite these measures, we cannot guarantee anonymity of your personal data.

Will I be paid or given anything for taking part in this study?

There is no payment or reimbursement for participating in this study.

Who can I talk to?

If you have questions, concerns, or complaints, you can contact the Principal Investigator, Christina Maimone, at christina.maimone@northwestern.edu.

This research has been reviewed and approved by an Institutional Review Board (“IRB”) – an IRB is a committee that protects the rights of people who participate in research studies. You may contact the IRB by phone at (312) 503-9338 or by email at irb@northwestern.edu if:

- Your questions, concerns, or complaints are not being answered by the research team.
- You cannot reach the research team.
- You want to talk to someone besides the research team.
- You have questions about your rights as a research participant.
- You want to get information or provide input about this research.

Consent

If you want a copy of this consent for your records, you can print it from the screen. If you cannot print the consent and would like a copy for your records, contact the Principal Investigator with the contact information above.

If you wish to participate, please select “I Agree” and click the >> button to be taken to the survey.

If you do not wish to participate in this study, please select “I Disagree” or close your internet browser.

- I agree
- I disagree

Background: Intro and Age Check

The first two questions determine your eligibility for this study.

What is your age?

You do not have to answer this question. Not answering will end the survey.

- Under 18
- 18 - 19
- 20 - 24
- 25 - 34
- 35 - 44
- 45 - 54
- 55 - 64
- 65 - 74
- 75 - 84
- 85 or older

Do you currently reside in the United States?

You do not have to answer this question. Not answering will end the survey.

- Yes
- No

Background: Personal

The following section of the survey asks about your personal characteristics.

We are asking these questions to better understand the composition of the Research Computing and Data (RCD) workforce and how the RCD workforce compares to the composition across other workforce sectors within the United States (e.g. tech industry). We are also interested in how an individual's personal characteristics may inform other organization and system-level factors (e.g. salary, work activities).

Overall, your answers to the following set of questions will help the Research Computing and Data community work towards an accessible and equitable ecosystem for all.

Reminder: As noted in the study consent information, identifiable data will only be accessible to the study Principal Investigator and will be kept confidential. Identifiable, individual-level data will not be shared, reported, or linked to institution or specific geographic location.

Which of these best describes your current gender identity?

- Female / Woman
- Gender nonconforming / genderqueer
- Male / Man
- Non-binary / third gender
- Other / Prefer not to say

Which racial/ethnic group do you identify as?

We are using US Census categories to facilitate comparison with federal statistics.

- American Indian or Alaska Native
- Asian
- Black or African American
- Native Hawaiian or Pacific Islander
- White
- Prefer not to say
- Other

Are you of Hispanic, Latino, or Spanish origin?

We are using US Census categories to facilitate comparison with federal statistics.

- Yes
- No
- Prefer not to say

Are you a citizen or permanent resident of the United States of America?

Why we are asking: We want to understand the current composition of the RCD workforce and provide information for human resources departments and federal agencies about the global composition of the RCD workforce.

- Yes
- No
- Prefer not to say

Which of these best describes your current sexual orientation?

- Asexual
- Bisexual
- Gay / Lesbian
- Heterosexual / Straight
- Pansexual
- Queer
- A sexual orientation not listed here
- Prefer not to say

Do you have a disability?

A long-lasting condition that substantially limits one or more of your major life activities

- Yes, I have a disability, or have a history/record of having a disability
- No, I don't have a disability, or a history/record of having a disability
- Prefer not to say

Background: Career

This section of the survey asks about your career and educational background.

This information will help us understand the career trajectories and experience levels of those in the workforce.

Years of work experience

How many years of work experience do you have as a Research Computing and Data (RCD) professional?

How many of those years as an RCD professional were at an academic institution?

How many years of work experience do you have in total, including both RCD and non-RCD experience?

Which types of organizations have you worked for? (check all that apply)

- Academic Institution or University
- Non-academic Non-profit
- Federal National Laboratory
- Government
- Company or Corporation
- Self-employed
- Other

What is the highest degree you have earned?

- High school or less than high school
- Some college
- 2 year degree
- 4 year degree
- Master's degree
- PhD or Doctorate
- Other

Which of these best describes the field, content area, or domain of your formal education?

- Math, Statistics
- Law, Journalism, Business, Education
- Computer and Information Sciences
- Engineering
- Life and Health Sciences
- Physical Sciences
- Social, Economic, and Behavioral Sciences
- Arts, Humanities
-
- Other

To what extent is your current work related to the domain of your formal education?

- Extremely related
- Very related
- Moderately related
- Slightly related
- Not at all related

Current Position: Intro and check

Are you currently employed in a position that includes Research Computing and Data (RCD) responsibilities?

- Yes
- No, I am currently employed, but not in a position that includes RCD responsibilities
- No, I am not currently employed

Current Position: Not RCD Intro

This section of the survey asks about your current employment.

If you have multiple positions or complicated employment arrangements, please answer the questions to the best of your ability focusing on your primary position.

As noted in the study consent information, identifiable data will only be accessible to the study Principal Investigator. Identifiable, individual-level data will not be shared. Job titles and institution/company names will not be directly associated with other survey responses in shared data.

Current Position: Shared

Which best describes your primary employment?

- I have one primary position or job
- I have one primary position or job with formally split responsibilities across multiple units at the same organization, institution, or company
- I have multiple formal positions at the same organization, institution, or company that together form my primary employment
- My primary employment is split across more than one organization, institution, or company
- It's really complicated (please specify)

What type of organization is your primary employer?

- Academic Institution or University
- Non-academic Non-profit
- Federal National Laboratory
- Government
- Company or Corporation
- Self-employed
- Other

What is the name of the institution, organization, or company that is your primary employer?

e.g. Ohio University, Los Alamos National Laboratory (Why we are asking: We are using this information solely for benchmarking of RCD positions at specific organizations. Individually identifiable survey responses will not be reported alongside institution information).

Where is your primary place of employment? Please enter: city, state

Location information will be used for comparisons to local labor markets and cost of living adjustments. If you work remotely normally (outside of pandemic conditions), please enter the location of your primary office or employer.

Where do you normally work (when pandemic work restrictions are not in place)?

- On-site at my employer
- Remotely
- A combination of remotely and on-site

What is your official job title(s) on record with human resources?

Why we are asking: We want to understand the diversity of job titles used for people in the RCD field. Your job title will not be associated with your individual answers when survey results are shared. Knowing the HR job title, even if it is not descriptive of your work, helps us understand how RCD positions are categorized by HR and how they fit into job families and career tracks.

If you commonly use a job title(s) other than your official one, or have a different working job title, what is it?

Why we are asking: We want to understand the diversity of job titles used for people in the RCD field. Your job title will not be associated with your individual answers when survey results are shared.

Which of these best describes how your position is classified?

- Staff
- Research Faculty
- Faculty
- Postdoc
- Student position / internship
- Other

Which of these best describes the level of your position?

- Individual contributor
- Senior individual contributor
- Lead individual contributor
- Principal individual contributor
- Manager
- Director
- AVP, VP, CIO, or other senior leader

Which best describes the duration of your position?

- Permanent (no set end date or renewal period)
- Fixed Term (set end date or renewal period)
- Temporary (less than one year without expectation for continuation)
- Other

Which best describes the type of your position?

- Full-time salaried
- Full-time hourly
- Part-time salaried
- Part-time hourly

What is your total salary or yearly pay for your primary employment?

Your yearly pay for the position referenced throughout this section. Do not include income from side jobs, contract work, or other positions you do not consider part of your primary employment.

< \$20,000 In Thousands \$ > \$250,000

Prefer
Not to
Answer

20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250

Not RCD: Why

Why are you not currently working in the RCD field? Select all that apply

- My RCD position ended
- I was unable to find an RCD position in my preferred location
- Salary
- Job security
- To take a more senior level position
- To take a research-focused position
- I didn't like RCD work
- Other

How likely are you to apply for an RCD position again in the future?

- Very likely
- Somewhat likely
- Neither likely nor unlikely
- Somewhat unlikely
- Very unlikely

Perceptions: General

This section asks about your perceptions of the Research Computing and Data (RCD) field in general.

In general, how satisfied are you with working in the RCD field?

- Extremely satisfied
- Somewhat satisfied
- Neither satisfied nor dissatisfied
- Somewhat dissatisfied
- Extremely dissatisfied

On a scale from 0-10, how likely are you to recommend a position like your current or most recent RCD position to a friend or colleague?

Not at all likely

Extremely likely

0 1 2 3 4 5 6 7 8 9 10

When is the last time you applied for a new RCD job position?

- Within the last month
- 1-6 months ago
- 7-12 months ago
- 1-2 years ago
- More than two years ago

When is the last time you applied for a new job position outside of RCD?

- Within the last month
- 1-6 months ago
- 7-12 months ago
- 1-2 years ago
- More than two years ago
- Never

What is your view of the RCD field?

| | Strongly agree | Somewhat agree | Neither agree nor disagree | Somewhat disagree | Strongly disagree |
|--|-----------------------|-----------------------|----------------------------|-----------------------|-----------------------|
| There are many opportunities for me within my chosen career path | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I have a future in the RCD field | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I feel included and welcome in the RCD field | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| The work of RCD professionals is recognized by researchers | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Current Position: RCD Intro

This section of the survey asks about your current employment.

If you have multiple positions or complicated employment arrangements, please answer the questions to the best of your ability focusing on your primary position that includes RCD responsibilities.

Identifiable data will only be accessible to the study Principal Investigator. Identifiable, individual-level data will not be shared. Job titles and institution/company names will not be directly associated with other individually identifying survey responses in any shared data or reports.

Current Position: RCD Additional

What is the name of the primary unit, group, or department with which you are associated?

Why we are asking: We want to understand the diversity of groups and units with RCD responsibilities. Your group or unit name will not be associated with your individual answers when survey results are shared.

Does your position include management or supervisory responsibilities? Select all that apply

- Supervising students, postdocs, or fellows in their education or research
- Supervising student workers or interns
- Supervising staff
- Supervising faculty
- None

Which best describes how your position is funded?

- Hard funding (university core funds)
- Soft funding (grants or sponsored funding)
- Mixture
- I don't know

How many years...

Have you been in your current unit or group?

Have you been in your current job code, grade, or level (as defined by human resources)?

Have you been promoted within your current unit or group?

- Yes, most recently within the last year
- Yes, most recently 1-3 years ago
- Yes, most recently 3-5 years ago
- Yes, more than 5 years ago
- No

Does your position have a contractual or stipulated number of hours per week?

- No
- Yes (please specify; e.g. 37.5)

How many hours per week did you work on average over the past year in your current position?

Would you say you have worked more, about the same, or fewer hours per week this past year as compared to the previous several years?

- Far more hours during past year
- Slightly more hours during the past year
- About the same
- Slightly fewer hours during the past year
- Far fewer hours during the past year

Taken in aggregate, how much time do you spend on professional development per year *as a part of your position?* (i.e. at work, not on your personal time)

For example: attending or presenting at conferences or community calls, taking courses, learning new skills.

- None
- Less than 1 day
- 2-5 days
- 1-2 weeks
- More than 2 weeks

In addition to your full-time employment, do you have any additional paid jobs or positions? Select all that apply

For example: teaching a course outside of your primary position's responsibilities or part-time consulting work.

- Yes, I have an additional position with another organization
- Yes, I have an additional position with the same organization
- Yes, I am self-employed, a consultant, or a contractor
- Yes, I have a paid fellowship or grant-funded position outside of my primary employment
- No

Current RCD Responsibilities

The next set of questions is about the Research Computing and Data (RCD) responsibilities of your current position.

What percentage of your position is dedicated to RCD responsibilities?



Are you familiar with the [CaRCC Facings Model](#) (researcher, data, software, systems, strategy and policy) for describing RCD roles?

- Yes
- No
- Sort of

Which of these best describes the scope across which you provide RCD services?

What is the largest organizational level across which you support researchers with computing and data services?

- National
- Multiple Institutions
- University, Company, or Institution
- College or School
- Department
- Center or Institute
- Research Group

Which activities do you spend at least 20% of your RCD time on? Choose up to 5 activities that you spend the most time on

Note: The next question will provide the opportunity to indicate additional activities on which you spend less than 20% of your time.

- Project management
- Security/compliance
- Developing new systems, services, or solutions
- Budget, finance, and/or securing human, financial, or capital resources
- Performing technical work (software development, data analysis, visualization, code optimization, data management, etc.) for specific researchers
- Community development and event planning
- Administrative work
- Customer Service/Help Desk/Tickets
- Metrics and reporting
- Directly contributing to specific research projects intended for peer-reviewed publication
- Software development
- Engaging with external colleagues in the RCD community
- Communications/outreach to researchers/service users
- Managing or supervising others
- Partnering/collaborating with others outside your primary work unit
- Consulting with or advising researchers
- Documentation and/or teaching others
- System operations/administration
- Other
- Other
- Other

Which, if any, additional activities not chosen in the previous question do you consider core duties of your RCD role?

- » Administrative work
- » Managing or supervising others
- » Budget, finance, and/or securing human, financial, or capital resources
- » Partnering/collaborating with others outside your primary work unit
- » Customer Service/Help Desk/Tickets
- » Developing new systems, services, or solutions
- » Engaging with external colleagues in the RCD community
- » Security/compliance
- » Performing technical work (software development, data analysis, visualization, code optimization, data management, etc.) for specific researchers
- » Project management
- » Directly contributing to specific research projects intended for peer-reviewed publication
- » Documentation and/or teaching others
- » Consulting with or advising researchers
- » System operations/administration
- » Community development and event planning
- » Communications/outreach to researchers/service users
- » Metrics and reporting
- » Software development
- » Other
- » Other
- » Other

Which, if any, professional service activities do you participate in related to your RCD responsibilities?

- University committees
- Conference organizer or planning committee
- Journal editor
- Conference, journal, or grant reviewer
- Conference volunteer
- Leadership position with a national or international association or organization
- Leadership position with a regional or multi-institution association or organization
- Multi-institution working groups or committees
- Institutional representative to a multi-institution organization or meeting
- Funding agency meetings or workshops
- Other (please specify)

Have you written non-research publications or given presentations related to research computing and data?

For example, a paper or presentation for PEARC or SC conferences, articles for online RCD publications, or other publications or presentations derived from your RCD work. Please select the first answer that applies.

- Yes, I am expected to share my work as part of my RCD responsibilities
- Yes, I share my work as part of my RCD responsibilities
- Yes, I share my work independently from my RCD responsibilities on my own time or with my own funds
- No, but I am planning on doing this in the future
- No

Are you currently working on research intended for peer-reviewed publication?

Please select the first answer that applies.

- Yes, I am expected to publish as part of my RCD responsibilities
- Yes, I am authoring/coauthoring research as part of my RCD responsibilities
- Yes, I am contributing to a specific research publication as part of my RCD responsibilities, but I will not be a coauthor
- Yes, I author/coauthor research independently from my RCD responsibilities
- No, but I have authored or coauthored research as part of my current RCD responsibilities in the past
- No, I am not currently working on research intended for peer-reviewed publication

Which of these best describes the role you are in **most frequently** when conducting research?

- A principal investigator or project lead, determining the research direction and publishing as a primary author
- Supporting research led by others as a coauthor
- Directly contributing to published research without authorship (for example, unmentioned or recognized in the acknowledgements section)

Perceptions: Currently Employed RCD

In general, how satisfied are you with your current position?

- Extremely satisfied
- Somewhat satisfied
- Neither satisfied nor dissatisfied
- Somewhat dissatisfied
- Extremely dissatisfied

My work in my current position is acknowledged and valued by

| | Always | Most of the time | About half the time | Sometimes | Never | I don't know/ Not Applicable |
|---------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|---------------------------------|
| RCD peers and colleagues | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Supervisor or manager | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Researchers you work with | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Organization you work for | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |