CaRCC Research Computing and Data Career Arcs 2021 Survey

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Abstract

This document contains a survey that was used by Campus Research Computing Consortium (CaRCC) Career Arcs working group to study the career arcs for Research Computing and Data (RCD) professionals employed in Research Computing and Data positions in the United States at the time of the survey or before. The purpose of the study is to identify key factors that influence career decisions in RCD. This survey gathered responses from over 200 respondents at institutions across the US.

Consent to Participate in Research

This survey is intended for individuals currently or previously employed in Research Computing and Data 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**. Some institutions and the NSF also use the term Cyberinfrastructure (CI); others use Research IT.

What is this research studying?
 This study will help us understand the career arcs for Research Computing and Data (RCD) professionals. The resulting resource will help all of us to think about our career trajectories and professional development options, and will help teams recruit and retain people for RCD roles.

What would I do if I participate?
In this study, you will be asked to respond to a short survey anonymously. A majority of the questions are multiple-choice. No personally identifiable data is required for participation in this survey.

Can I quit if I become uncomfortable?
Yes, absolutely. You can exit the survey at any time.

How long will participation take?
We are asking for 10-15 minutes of your time.

How are you protecting privacy?
The survey is anonymous and no personal or identifiable data is being asked throughout this survey. No one other than the IRB-certified PIs of this study, listed below, will have access to the raw data.

What will happen to my data?
No personal or identifiable data is being asked throughout this survey. De-identified data could be used for future research studies.

What are the benefits and risks of participating in this research?
There are no anticipated risks to your participation in this research. The benefits associated with this research are to help the community understand the career paths of existing RCD professionals, and in particular the key factors that influence decisions to change positions, and pursue new opportunities. We appreciate your time and effort with this research study.

I have some questions about this study. Who can I ask?
The study is being run by the CaRCC Career Arcs Working Group. If you have questions, concerns, or complaints, you can contact the Principal Investigators Arman Pazouki (pazouki@northwestern.edu) Patrick Schmitz (patrick@sempercogito.com) or Kerk Kee (Kerk.Kee@ttu.edu).   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 Investigators 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.   Note for those using a screen reader: Due to the use of survey logic, question numbers may not follow sequentially as you proceed through the survey.

Consent

By checking this box, I confirm that I am at least 20 years old, am currently living in the United States, and wish to participate in the survey.
o   I Agree
o   I Disagree (will exit survey)

RCD Roles and Funding

Do you currently hold an RCD role (including researcher-, data-, software-, system-, strategy and policy-facing roles)?
o   Yes
o   No

Which roles have you had as part of your RCD work: *[Select all that apply]*
☐   **Researcher Facing Roles**. Includes research computing and data staffing, outreach, and advanced support, as well as support in the management of the research lifecycle. Example roles include: Research IT User Support, Research Facilitator, CI Engineer.
☐   **Data Facing Roles**. Includes data creation; data discovery and collection; data analysis and visualization; research data curation, storage, backup, preservation, and transfer; and research data policy compliance. Example roles include: Research Data Management specialist, Data Librarian, Data Scientist.
☐   **Software Facing Roles**. Includes software package management, research software development, research software optimization or troubleshooting, workflow engineering, containers and cloud computing, securing access to software, and software associated with physical specimens. Example roles include: Research Software Engineer, Research Computing support.
☐   **Systems Facing Roles**. Includes infrastructure systems, systems operations, and systems security and compliance. Example roles include: HPC systems engineer, Storage Engineer, Network specialist.
☐   **Strategy- and Policy Facing Roles**. Includes institutional alignment, culture for research support, funding, and partnerships and engagement with external communities. Example roles include: Research IT leadership.
☐   I have never had any of these roles

Which best describes the type of your position?
o   Full-time and eligible for benefits
o   Full-time and ineligible for benefits
o   Part-time, salaried
o   Part-time, hourly
o   Other

Years of work Experience

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

How many years of work experience do you have as an RCD professional?

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

How many different positions/jobs have you held with an RCD professional role?

What was the average duration of your RCD roles (in years)?

Factors impacting getting RCD positions

This information will help us understand career trajectories and what influences them.

For each of the following, please indicate how important you think the factor was in enabling you to get your positions **in RCD roles** (current and previous). ***If you held positions in non-RCD roles, please do not include them as you consider the factors below.***

How important were the following factors in your successfully pursuing RCD opportunities?
Please choose and rank your top 5 (at least; more than 5 is great, but you can leave any blank that were not important). Use 1 for the most important factor and count up for the less important factors.

_____ Your age
_____ Your gender identity
_____ Your racial/ethnic identity
_____ Your years of experience in RCD roles
_____ Your years of experience overall
_____ Your degree (e.g., having a masters or PhD)
_____ The domain or field of your education/degree
_____ Specific organizations or institutions you had worked at previously
_____ Specific projects in which you had a significant role
_____ Technical certifications you had
_____ Specific technical skills you could demonstrate
_____ Specific interpersonal, communication, and related skills you could demonstrate
_____ Specific leadership or management skills you could demonstrate (e.g., for management roles)
_____ Experience with and/or understanding of academic research projects and environments
_____ Experience working with the group as a student (e.g., an internship)
_____ Referral from someone (a connection, colleague, or reference, including a degree advisor)
_____ Other (please specify)

Factors impacting hiring into RCD positions
Are you a hiring manager and/or have you hired someone into an RCD role?
o   Yes
o   No

How important is each of the following when hiring someone into an RCD role?
 Please choose and rank your top 5 (at least; more than 5 is great, but you can leave any blank that were not important).
Use 1 for the most important factor and count up for the less important factors.
_____ Their years of experience in RCD roles
_____ Their years of experience overall
_____ Their degree (e.g., having a masters or PhD)
_____ The domain or field of their education/degree
_____ Specific organizations or institutions they had worked at previously
_____ Specific projects in which they had a significant role
_____ Technical certifications they had
_____ Specific technical skills they could demonstrate
_____ Specific interpersonal, communication, and related skills they could demonstrate
_____ Specific leadership or management skills they could demonstrate (e.g., for management roles)
_____ Experience with and/or understanding of academic research projects and environments
_____ Experience working with the group as a student (e.g., an internship)
_____ Referral from someone (a connection, colleague, or reference, including a degree advisor)
_____ Other (please specify)

Advancement in RCD
What does advancement in your current RCD role mean to you?
 Please choose and rank your top 5 (at least; more than 5 is great, but you can leave any blank that were not important).
Use 1 for the most important factor and count up for the less important factors.
_____ Rising to management
_____ Becoming a senior contributor
_____ Developing deep knowledge of a particular application domain (e.g., computational biology)
_____ Being recognized for expertise and impact (on campus and/or more broadly)
_____ Increasing salary and/or benefits
_____ Progressing up a series of titles
_____ Having the ability to acquire new RCD skills (e.g., moving from a systems-facing to researcher-facing role)
_____ Having a bigger team
_____ Having more funding/budget for projects
_____ Having greater influence in the strategic vision of the organization
_____ Other (please specify)

Factors impacting RCD Career Decisions

This section of the survey asks about your familiarity with RCD roles and factors for considering a career change.

How did you first learn about or get introduced to RCD roles and careers?
- o   Through my field of study (e.g., my major or special emphasis)
- o   A particular person or mentor
- o   A particular project or opportunity (like internship or funding opportunity or grad/ugrad career fair as an RA/GRA)
- o   An institution or organization ("I really wanted to go work for this institution or organization, and they introduced me to RCD").
- o   Attended an event/conference and was introduced to RCD
- o   Read or heard about RCD roles and career options through a journal article, blog post, social media etc.
- o   Recruiter/job posting
- o   Other

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How familiar were you with RCD roles and an RCD career path when you got your first full time position in RCD?
- o   Not familiar at all
- o   Slightly familiar
- o   Moderately familiar
- o   Very familiar
- o   Extremely familiar

How clear is your understanding of your current RCD career path and/or your options for the future?
- o   Not clear at all
- o   Slightly clear
- o   Moderately clear
- o   Very clear
- o   Extremely clear

How satisfied are you with your current RCD career path and/or your options for the future?
- o   Not satisfied at all
- o   Slightly satisfied
- o   Moderately satisfied
- o   Very satisfied
- o   Extremely satisfied

How important were the following factors in *motivating you* to make a previous job transition, or that *would motivate you* to consider a future job transition, **to or within the RCD field** (i.e., to a new **RCD** position or role):

	Not important at all	Slightly unimportant	Neutral	Slightly important	Extremely important
An opportunity for promotion/advancement (e.g., into a management or leadership role, or a more senior professional/technical role or compensation).	o	o	o	o	o
An opportunity for professional skills development (e.g., to learn a new skill, or deepen/expand your skills).	o	o	o	o	o
An opportunity for a more meaningful contribution (having a more satisfying role on a team, or in an organization that was more meaningful to you).	o	o	o	o	o
An opportunity to have more influence.	o	o	o	o	o
An opportunity to join an organization that embraces innovation and/or has cutting edge tools and technology services.	o	o	o	o	o
A higher salary.	o	o	o	o	o
Better fringe benefits (insurance, vacation).	o	o	o	o	o
More flexible hours and/or a better work-life balance (e.g., due to some event or change in your life).	o	o	o	o	o
The lack of motivation/excitement in your previous role.	o	o	o	o	o
A reorganization (e.g., that changed the reporting structure, the team focus or mission, the size or structure of your team, etc.).	o	o	o	o	o
Loss of funding for my previous (or current) position	o	o	o	o	o
Being inspired or convinced by someone (e.g., a friend/colleague in the new organization, a coach/mentor, etc.).	o	o	o	o	o
An opportunity to join a team with a better cultural fit (e.g., more inclusive/supportive).	o	o	o	o	o
Motivated to leave a non-conducive environment (not happy, uncomfortable).	o	o	o	o	o

An opportunity for greater community engagement (either external or internal).	o	o	o	o	o
The new organization's track record of fundraising, or otherwise having strong, stable funding.	o	o	o	o	o
The diversity and prevalence of relevant opportunities within the institution.	o	o	o	o	o
An opportunity in your desired organizational affiliation (e.g. the library, a central RCD team, an institute or lab, departmental research, etc.).	o	o	o	o	o
An opportunity to gain experience in other domains (e.g., a lateral move to a new department).	o	o	o	o	o
An opportunity for relocation to another geographical location (e.g., better weather, closer to family, lower taxes, etc.)	o	o	o	o	o
Ability to work remotely	o	o	o	o	o
Other	o	o	o	o	o

How important was each of these factors in motivating you to **leave an RCD role/career** for something in a domain **outside RCD** (or that would make you **seriously consider leaving your RCD role/career**):

	Not important at all	Slightly unimportant	Neutral	Slightly important	Extremely important
Layoffs or loss of funding for your position	o	o	o	o	o
Re-organization/re-structuring.	o	o	o	o	o
Poor or inadequate compensation in the RCD role.	o	o	o	o	o
Lack of career advancement opportunities in RCD.	o	o	o	o	o
Excited about working in industry.	o	o	o	o	o
Family circumstances (needed to move, or needed a different work/life balance).	o	o	o	o	o
Lack of a team- or organization-level roadmap.	o	o	o	o	o
Constant changes of priorities.	o	o	o	o	o

Misalignment of the role and skills.	o	o	o	o	o
Unable to impact/influence the organization.	o	o	o	o	o
Disagreement with the management style.	o	o	o	o	o
Retirement (voluntary).	o	o	o	o	o
Other	o	o	o	o	o

Personal Characteristics and Educational Background

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

We are asking these questions to better understand the composition of respondents, and whether certain factors matter more to different sub-communities. Your answers to the following questions will help the RCD community work towards an accessible and equitable ecosystem for all.

Reminder: As noted in the study consent information, potentially identifiable data will only be accessible to the study Principal Investigators and will be kept confidential. Potentially identifiable, individual-level data will not be shared or reported.

What is your age?
o   20 - 24
o   25 - 34
o   35 - 44
o   45 - 54
o   55 - 64
o   65 or older
o   Prefer not to say

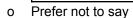Which of these best describes your current gender identity?
o   Female / Woman
o   Gender nonconforming / Genderqueer
o   Male / Man
o   Non-binary / Third gender
o   Other _____
o   Prefer not to say

Which of these best describes your current sexual orientation?
- o   Asexual
- o   Bisexual
- o   Gay / Lesbian
- o   Heterosexual / Straight
- o   Pansexual
- o   Queer
- o   Other _____
- o   Prefer not to say

Which racial/ethnic group do you identify as? *We are using US Census categories to facilitate comparison with federal statistics.*
- o   American Indian or Alaska Native
- o   Asian
- o   Black or African American
- o   Native Hawaiian or Pacific Islander
- o   White
- o   Other

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- o   Prefer not to say

Are you of Hispanic, Latino, or Spanish origin? *We are using US Census categories to facilitate comparison with federal statistics.*
- o   Yes
- o   No
- o   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.
- o   Yes
- o   No
- o   Prefer not to say

Do you identify as having a disability? *I.e., a long-lasting condition that substantially limits one or more of your major life activities.*
- o   Yes, I have a disability, or have a history/record of having a disability
- o   No, I don't have a disability, or a history/record of having a disability
- o   Prefer not to say

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.

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

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Which of these best describes the field, content area, or domain of your formal education?
▫ Arts and Humanities
▫ Engineering, Computer, and Information Sciences
▫ Life and Health Sciences
▫ Mathematical and Physical Sciences
▫ Social, Economic, and Behavioral Sciences
▫ Other

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