

Undergraduate & Post-Undergraduate Experiences Follow-Up Survey [REU Program Follow-up Survey] GRADUATE STUDENT VERSION

Thank you for taking part in the Computing Research Association's (CRA's) Undergraduate Experiences Survey [REU Program Survey]! The survey should take no more than 20 minutes of your time to complete. This survey works best with Google Chrome.

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1. Are you currently a student?

- Yes, I am currently an **undergraduate student** [If selected, go to undergraduate student survey]
- Yes, I am currently a **graduate student**
- Yes, I am currently a **non-degree earning student** (e.g., taking courses only, certificate program, bootcamps, etc.). [If selected, go to non-degree earning student survey]
- No, I am not currently a student. [If selected, go to non-student survey]

DEFINITION TO RESPONDENT:

Throughout this survey, we will use the terms "**computing**" and "**computing-related**".

"Computing" or "computing-related" includes the fields below and other similar fields:

- Computer Science
- Computer Engineering
- Software Engineering
- Electrical and Computer Engineering
- Systems Engineering
- Computer Hardware Engineering
- Computing Information Systems
- Information Systems, Information Science
- Informatics, Bioinformatics
- Cybersecurity
- Data Science/Data analytics
- Machine Learning
- Robotics
- High Performance Computing
- Human-Computer Interaction
- Computational Science/Social Science
- Computational Biology
- Computational Economics

This survey was developed by Computing Research Association's (CRA) Center for Evaluating the Research Pipeline (CERP). Please acknowledge CRA and CERP in all publications using this survey and direct other parties interested in obtaining the survey to CERP (cerp@cra.org).

- Computational Mathematics
- Any other computing & technology field

2. Please select the institution that you are currently attending from the list below. If you do not see your institution on the list, scroll to the bottom of the list and select 'Other'.
[List of institutions]

[If Other is selected]

3. Please list the name of the institution that you are currently attending below.

GRADUATE STUDENTS - DEGREE PROGRAM CURRENTLY ENROLLED

4. In what type of degree program are you currently enrolled?
- Doctoral program (includes those earning a master's degree as part of their doctoral program)
 - Terminal master's (will graduate and finish with a master's degree)
 - Joint bachelor's/master's (e.g., accelerated programs)

[Displayed if Joint bachelor's/master's is selected]

5. Which of the following is true regarding your undergraduate coursework for your joint bachelor's/master's program:
- I have not started taking undergraduate courses for my joint program yet
 - I am currently enrolled in undergraduate courses for my joint program
 - I have completed all my undergraduate coursework for my joint program

COMMUNITY COLLEGE EXPERIENCE

6. Which of the following applies to you? Select all that apply.
- I have taken courses for credit at a community college
 - I have completed a degree or certificate at a community college
 - None of the above [Exclusive answer]

[Display if Q6. is "I have completed a degree or certificate at a community college"]

7. In the previous question, you indicated that you completed a degree or certificate at a community college.

What did you earn from community college? Select all that apply.

- Associate's degree
- A certification (not a degree)
- Something different

[Display if Q7. is "Associate's degree"]

ASSOCIATE'S DEGREE INFORMATION

8. At which institution did you earn your most recent **associate's degree**? If you do not see your institution on the list, scroll to the bottom of the list and select 'Other'.
[List of institutions]

[Displayed if Q8. is "Other"]

9. Please list the name of the institution at which you earned your most recent **associate's degree**. Please avoid acronyms.

10. What was your field of study for your most recent **associate's degree**? Choose up to 2 responses if you had a double-major.

Note: If you do not see your exact program name, please select the option(s) most closely related.

[List of fields]

11. In what year did you earn your most recent **associate's degree**?

[Drop down list of years]

BACHELOR'S DEGREE INFORMATION

12. At which institution did you earn your most recent **undergraduate degree**? If you do not see your institution on the list, scroll to the bottom of the list and select 'Other'.

[List of institutions]

[Displayed if selected Q12.: Other]

13. Please list the name of the institution at which you earned your most recent **undergraduate degree**.

14. In which year did you earn your most recent **undergraduate degree**?

[Drop down list of years]

15. What was your **undergraduate major** in college for your most recent undergraduate degree? Choose up to 2 responses if you had a double-major.

Note: If you do not see your exact program name, please select the option(s) most closely related.

[List of majors]

REU UNDERGRADUATES EXPERIENCES

REU PROMPT (Questions 16. through 19. are for COMPARISON GROUP PARTICIPANTS ONLY)

The next set of questions will focus on your previous **formal research experience as an undergraduate student** (i.e., REU). Formal research includes any experience you applied for and through which you worked closely with a mentor or research advisor.

Before we move into questions about formal REUs, please answer the following question.

16. During your **undergraduate program**, which of the following experiences were you involved in that were NOT part of a formal REU?

- Independent research projects
- Course-based research projects
- Internships or co-ops
- Research Assistant
- None of the above

17. During your **undergraduate program**, did you participate in any formal REUs?

Reminder: Formal REU includes any experience you applied for and through which you worked closely with a mentor or research advisor.

- Yes, I participated in at least one formal research experience as an undergraduate [Go to Q19.]

- No, I NEVER participated in a formal research experience as an undergraduate [Answer Q18.; skip to PRE-GRADUATE SCHOOL JOB EXPERIENCE section]

[If Q17. is “No, I never...”]

18. Which of the following reasons explain why you did not participate in a formal research experience? Choose up to 3 responses.

- I was not aware of research opportunities available to me
- I didn't have time
- It never occurred to me to do research
- I was not interested in doing research
- I preferred more practical experiences such as internships
- It didn't pay well enough or not at all
- Other; please specify: _____

[If Q17. is “Yes...”]

19. Which of the following reasons best explain your motivations to participate in a formal REU? Please choose up to 3 responses.

- To increase my competitiveness for graduate school
- To learn more about what graduate school might be like
- To have something to do outside of my coursework
- To build work experience and my resume/CV
- To participate in something prestigious
- To expand on what I had been learning about in my classes
- To develop or improve my technical skills
- The research project(s) seemed interesting
- To learn more about a specific research area of interest to me
- To learn more about what being a researcher is like
- To build my confidence as a researcher
- To better understand the connection between research and real world applications
- To build connections and/or collaborate with other student researchers
- To build connections and/or collaborate with particular faculty
- To have a paid opportunity
- To help pay for my living expenses while in college
- Other; please specify: _____

[Answer the section below (PAST REU INFORMATION) if Q17. is “Yes...”]

PAST REU INFORMATION (COMPARISON GROUP)

20. During your undergraduate program, how many formal REUs did you complete?

- 1
- 2
- 3
- 4 or more

[Repeat Q21. – Q30. for each REU]

21. In which year did your [first/second/third/fourth] formal REU start?
[List of years]

22. Was this REU funded by NSF?

- Yes [answer next question]
- No [skip to Q25.]
- I do not know [skip to Q25.]

23. Please indicate the NSF program in which you participated. Select all that apply.

- Research Experiences for Undergraduates (REU)
- Louis Stokes Alliance for Minority Participation
- Research Experiences for Teachers
- Other: please specify

24. [If Q23. = "REU"] Was this an REU Site or REU Supplement?

- REU Site (typically involves working with a group of 10 or so other undergraduates at a university other than one's undergraduate institution)
- REU Supplement (typically working individually or with one other student on a PI's funded project, usually at one's undergraduate institution)
- Don't know

25. When and where did your formal REU take place?

{Academic Year; Summer}

- At my home college or university
- At another college or university
- At a company or organization or government institution outside of my college or university
- Somewhere else

[If "At another college or university"]

26. What was the name of the institution where you completed this REU?

[List of institutions]

[If "At a company..."]

27. What was the name of the company or organization where you completed this REU?

28. Which of the following apply to this REU?

- You received a stipend (not including other paid benefits)
- You were provided housing
- You were provided with a local public transportation pass
- You were provided with a meal stipend
- You were provided with a computer
- You had a dedicated space to do your work
- You could attend professional development seminars (including grad school advice)
- You could attend technical seminars
- You received one-on-one advising from my faculty mentor
- You met peers with whom you have kept in touch
- I don't remember [Exclusive answer]
- None of the above [Exclusive answer]

[Answer Q29. - 30. if received a stipend]

29. You indicated that you received a stipend for this REU. How much do you feel you deserved to be paid relative to the amount of work expected of you during this REU?

- Deserved a lot less
- Deserved a little less
- Deserved neither less nor more
- Deserved a little more
- Deserved a lot more

30. How much was your total stipend amount for this REU (in USD), not including other paid benefits?

- Less than \$1,000
- \$1,000 - \$2,999
- \$3,000 - \$4,999
- \$5,000 - \$6,999
- \$7,000 - \$8,999
- \$9,000 - \$10,999
- \$11,000 - \$12,999
- \$13,000 - \$14,999
- \$15,000 or more
- I don't remember

REU PROMPT (Questions 31. through 40. are for NSF REU PARTICIPANTS ONLY)

The next set of questions will focus on your previous **formal research experiences as an undergraduate student** (i.e., REU). Formal research includes any experience you applied for and through which you worked closely with a mentor or research advisor.

Before we move into questions about formal REUs, please answer the following question.

31. During your **undergraduate program**, which of the following experiences were you involved in that were NOT part of a formal REU?

- Independent research projects
- Course-based research projects
- Internships or co-ops
- Research Assistant
- None of the above

Now we would like to ask about your NSF REU experience that you participated in from [insert start date] to [insert end date].

32. How often are you in touch with the following people from this REU?

(Never; Rarely, Occasionally, Frequently, Very frequently/// Not Applicable)

- Your faculty advisor/the PI
- A postdoc
- Graduate student(s)
- A staff member of the lab
- Other students from your cohort

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33. Which of the following happened after this REU experience? Please select all that apply.
- You received an NSF-funded stipend to continue working on this REU project for additional semesters/quarters
 - You had an opportunity to continue research with the REU faculty as an intern or in a non-NSF-funded paid position when your REU ended
 - You developed a new research project based on your work in this REU
 - You began working with another research group based on your REU work
 - You submitted a research paper or poster to a conference based on your REU
 - You presented a research paper or poster at a conference based on your REU
 - You contributed to a research article with your peers and PI from your REU
 - You published your research from your REU
34. In what way did this REU experience impact your subsequent CS elective coursework?
- I decided to take fewer CS elective courses
 - I decided to take more CS elective courses
 - I decided to take different CS elective courses
 - My REU did not impact my subsequent CS elective coursework
35. To what degree did this REU impact your interest in the following?
(Less interested, More interested, No impact)
- Pursuing more research opportunities
 - Pursuing a research career
 - Pursuing a non-research career
 - Getting a master's degree
 - Getting a doctoral degree
36. Since completing this REU(s), have you ever worked on an REU in a supervisory or mentoring role?
- Yes
 - No
37. To what degree did participating in this REU influence your decision to go to graduate school?
- Not at all
 - Somewhat
 - A moderate amount
 - Quite a bit
 - A great deal
 - I don't remember
38. Which of the following are true for your graduate school application process? Select all that apply.
- Your mentor for this REU wrote a letter of recommendation
 - You applied to graduate school at the same institution where you were in this REU
 - You are attending graduate school at the same institution where you were in this REU
 - Your connections from this REU helped you find a graduate advisor to work with
 - Your experience in this REU inspired you to apply to graduate schools that you would not otherwise consider applying to

None of the above

39. To what degree did this REU help set you up for success in your graduate program?

- Not at all
- Somewhat
- A moderate amount
- Quite a bit
- A great deal
- I don't remember

40. After [insert end date of REU], did you participate in any additional formal REUs during your undergraduate program?

Reminder: Formal REU includes any experience you applied for and through which you worked closely with a mentor or research advisor.

If your NSF REU extended beyond the term listed above, please answer "Yes."

- Yes, I participated in at least one formal undergraduate research experience after that time. [\[Go to Q42.\]](#)
- No, I did not participate in another formal undergraduate research experience after that time. [\(Go to Q41.\)](#)

[\[If Q40. is "No..."\]](#)

41. Which of the following reasons explain why you did not participate in another formal research experience? Choose up to 3 responses.

- I was close to graduating
- I was not aware of research opportunities available to me
- I didn't have time
- It never occurred to me to do more research
- I was not interested in doing research
- I preferred more practical experiences such as internships
- It didn't pay well enough or not at all
- Other; please specify: _____

[\[If Q40. is "Yes..."\]](#)

42. Which of the following reasons best explain your motivations to participate in another formal REU? Please choose up to 3 responses.

- To increase my competitiveness for graduate school
- To learn more about what graduate school might be like
- To have something to do outside of my coursework
- To build work experience and my resume/CV
- To participate in something prestigious
- To expand on what I had been learning about in my classes
- To develop or improve my technical skills
- The research project(s) seemed interesting
- To learn more about a specific research area of interest to me
- To learn more about what being a researcher is like
- To build my confidence as a researcher
- To better understand the connection between research and real world applications

- To build connections and/or collaborate with other student researchers
- To build connections and/or collaborate with particular faculty
- To have a paid opportunity
- To help pay for my living expenses while in college
- Other; please specify: _____

[Answer the section below (PAST REU INFORMATION) if Q40. is “Yes...”]

PAST REU INFORMATION (NSF REU PARTICIPANTS)

43. Since your NSF REU that you participated in from [insert start date] to [insert end date], how many additional formal REUs did you complete? Reminder – If you participated in your NSF REU for additional terms, please include this in your count below.

- 1
- 2
- 3
- 4 or more

[Repeat Q44. – Q53. for each REU]

44. In which year did your [first/second/third/fourth] formal REU start?
[List of years]

45. Was this REU funded by NSF?

- Yes [answer next question]
- No [skip to Q48.]
- I do not know [skip to Q48.]

46. Please indicate the NSF program in which you participated. Select all that apply.

- Research Experiences for Undergraduates (REU)
- Louis Stokes Alliance for Minority Participation
- Research Experiences for Teachers
- Other: please specify

47. [If Q46. = “REU”] Was this an REU Site or REU Supplement?

- REU Site (typically involves working with a group of 10 or so other undergraduates at a university other than one’s undergraduate institution)
- REU Supplement (typically working individually or with one other student on a PI’s funded project, usually at one’s undergraduate institution)
- Don’t know

48. When and where did your formal REU take place?

{Academic Year; Summer}

- At my home college or university
- At another college or university
- At a company or organization or government institution outside of my college or university
- Somewhere else

[If “At another college or university”]

49. What was the name of the institution where you completed this REU?
[List of institutions]

[If “At a company...”]

50. What was the name of the company or organization where you completed this REU?

51. Which of the following apply to this REU?

- You received a stipend (not including other paid benefits)
- You were provided housing
- You were provided with a local public transportation pass
- You were provided with a meal stipend
- You were provided with a computer
- You had a dedicated space to do your work
- You could attend professional development seminars (including grad school advice)
- You could attend technical seminars
- You received one-on-one advising from my faculty mentor
- You met peers with whom you have kept in touch
- I don't remember [Exclusive answer]
- None of the above [Exclusive answer]

[Answer Q52. - 53. if received a stipend]

52. You indicated that you received a stipend for this REU. How much do you feel you deserved to be paid relative to the amount of work expected of you during this REU?

- Deserved a lot less
- Deserved a little less
- Deserved neither less nor more
- Deserved a little more
- Deserved a lot more

53. How much was your total stipend amount for this REU (in USD), not including other paid benefits?

- Less than \$1,000
- \$1,000 - \$2,999
- \$3,000 - \$4,999
- \$5,000 - \$6,999
- \$7,000 - \$8,999
- \$9,000 - \$10,999
- \$11,000 - \$12,999
- \$13,000 - \$14,999
- \$15,000 or more
- I don't remember

PRE-GRADUATE SCHOOL JOB EXPERIENCE

54. How many jobs did you have after you graduated from your undergraduate studies, but *before* you

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began your graduate studies?

- 0
- 1
- 2
- More than 2

[Display if Q54. is NOT "0"]

55. Which of the following apply to the job(s) you had after you graduated from your undergraduate studies, but before you began your graduate studies? Select all that apply.

- Computing related
- Research focused
- Industry position
- Academic position
- None of the above [Exclusive answer]

[Display following section if Q4. is "Doctoral program (includes those earning a master's degree as part of their doctoral program)"]

DOCTORAL STUDENTS/HOLDERS: EARN TERMINAL MASTER'S DEGREE?

56. Prior to entering your doctoral program, did you complete a terminal master's program?

Note: A terminal master's degree program is a program to which you applied to earn a master's degree only. You would have graduated and finished the program with a master's degree

- Yes, I completed a terminal master's program
- No, I did not complete a terminal master's program

[Display if Q56. is "Yes"]

57. Which of the following help explain why you decided to pursue a doctoral program after completing a terminal master's program? Select all that apply.

- Wanted to change fields
- Wanted to grow expertise in my field
- Wanted to pursue a research career
- It was required for a position I was interested in
- Other; please specify: _____

[Display following section if Q56. is "Yes"]

MASTER'S DEGREE INFORMATION

58. At which institution did you earn your most recent **terminal master's degree**? If you do not see your institution on the list, scroll to the bottom of the list and select "Other".

[List of institutions]

[Display if Q58. is "Other"]

59. Please list the name of the institution at which you earned your most recent **terminal master's degree**.

60. In which year did you earn your most recent **terminal master's degree**?

[List of years]

61. In which field did you earn your **terminal master's degree**? Choose up to 2 responses.

Note: If you do not see your exact program name, please select the option(s) most closely related.
[List of fields]

62. Before you earned your master's degree, did you complete any of the following?
- A master's thesis
 - A capstone project (not your thesis)
 - An independent research project (not your thesis or capstone)
 - A teaching assistantship
 - A research assistantship
 - An internship
 - None of the above **[Exclusive answer]**

CURRENT PROGRAM DETAILS

Now, we would like to ask about your experiences in your **current program**.

63. Which of the following applies to you? Select all that apply.
- I temporarily withdrew from my current institution due to economic hardships.
 - I temporarily withdrew from my current institution for reasons not related to economic hardships.
 - None of the above **[Exclusive answer]**

64. In what year did you enter your current institution for your current program?
[List of years]

65. In what year do you expect to complete your current program? If you aren't sure, pick the year that seems most likely.
[List of years; last option: "I am not completing a degree or certificate"]

66. In which academic term do you expect to complete your current program? If you aren't sure, pick the option that seems most likely.
- Fall
 - Winter
 - Spring
 - Summer

ONLINE DEGREE PROGRAM

67. Is your program primarily on campus or online? *Note: Please do not include temporary circumstantial changes to program formats due to the novel coronavirus (COVID-19).*
- On campus only
 - Online only
 - Primarily on campus, but taking some online courses
 - Primarily online, but taking some courses on-campus
 - I am not sure

[Display if Q67. is "Online only" or "Primarily online, but taking some courses on-campus"]

68. Why did you enroll in an online program? Choose up to 3 responses.
- I wanted to take courses at my own pace
 - Online programs have lower costs

- I have a job and I wanted to continue working while getting an education
- I have family responsibilities
- The program I was interested in was only available online
- I did not want to relocate and/or commute
- Other; please specify: _____

[Display if Q67. is "Online only" or "Primarily online, but taking some courses on-campus"]

PROMPT:

Although you are in an online program, many of the questions in this survey are relevant to you. In the case that one of our questions does not apply to you as an online student, simply skip that item.

GRADUATE PROGRAM INFORMATION

69. What is your enrollment status for your current degree program?

- Full-time student
- Part-time student

70. In which field is your current program? Choose up to 2 responses.

Note: If you do not see your exact program name, please select the option(s) most closely related.

[List of fields]

[If Q70. is "Other computing & technology field" or "Other Engineering field" or "Other field"]

71. In the previous question, you selected either "Other computing & technology field" or "Other Engineering field" or "Other field."

Please specify your program in the space below:

[If Q70. is a computer science, technology, or engineering field]

72. What is your specialty area(s) or expected specialty area(s)? Please select all that apply.

- No specialty [Exclusive answer]
- Artificial Intelligence
- Computer-Supported Cooperative Work
- Data Mining
- Databases/Information Retrieval
- Distributed Systems
- Embedded Systems
- Formal Methods/Verification
- Graphics/Visualization
- Hardware/Architecture
- Human-Computer Interaction
- High-Performance Computing
- Informatics: Biomedical or Other Science
- Information Science
- Information Systems
- Machine Learning
- Natural Language Processing
- Networks

- Operating Systems
- Operations Research
- Programming Languages/Compilers
- Robotics/Vision
- Scientific/Numerical Computing
- Security/Information Assurance
- Social Computing/Social Informatics
- Software Engineering
- Theory and Algorithms
- Other; please specify: _____

73. Why did you choose your program? Choose up to 3 responses.

- I like learning about this field
- My friends are enrolled in this program
- The courses required of this program are interesting
- Professors/faculty at my institution influenced my decision
- The program will allow me to make an impact on society
- The job market for this field is promising
- I want to pursue research in this field
- This program will enable me to make a lot of money
- My family influenced my decision
- I will be successful completing the coursework required of this program
- I aspire to make a difference in this field
- I wanted to change fields
- Other; please specify: _____

[If Q4. is "Terminal master's...."]

74. Before you earn your master's degree, will you complete any of the following?

- A master's thesis
- A capstone project (not your thesis)
- An independent research project (not your thesis or capstone)
- A teaching assistantship
- A research assistantship
- An internship
- None of the above [Exclusive answer]

75. How committed are you to completing your current degree program?

- Not at all committed
- Slightly committed
- Moderately committed
- Quite committed
- Extremely committed

[If Q70. is not a computing field]

GRADUATE STUDENTS: SWITCHED FROM COMPUTING?

76. Based on your responses, you are not in a computing-related degree program. Have you ever been in a computing-related degree program?

- Yes, I have been in a computing-related degree program in the past
- No, I have never been in a computing-related degree program
- My mistake, I am currently in a computing-related degree program [If selected, skip section]

[If Q76. is "Yes..."]

77. Why did you leave computing and/or choose a non-computing related program for your current degree? Choose up to 3 responses.

- The courses are too difficult
- I am not interested in learning about computing and technology
- I do not have any friends there
- The professors are not supportive
- The department does not make me feel welcome
- I do not like the course material
- My non-computing program aligns with my future career goals better
- Too many people pursue computing
- I do not meet the eligibility requirements
- The math requirements are too hard
- Computing is not a valuable career
- The job market is not promising
- I wanted to try something different
- Scheduling is too difficult (courses are full, not offered frequently enough, etc.)
- There is no sense of community in the department
- I do not feel safe in the computing department
- Other; please specify: _____

EDUCATIONAL FINANCING

78. How are you paying for your program? Please select all that apply.

- Federal student loans
- State student loans
- Private student loans
- Credit (e.g., personal loans, credit cards, etc.)
- Personal savings
- Scholarship, fellowship, grant, or other aid – NOT to be repaid
- Research assistantship
- Teaching assistantship
- Full-time work
- Part-time work
- Employer support (e.g., vocational rehabilitation, tuition benefits, etc.)
- Military/Veterans benefits/assistance
- Family support (e.g., spouse/partner, parents, etc.) – to be repaid
- Family support (e.g., spouse/partner, parents, etc.) – NOT to be repaid
- Other

79. [Display if Q78. is "Scholarship, fellowship, grant, or other aid"] Are you an NSF Graduate Research Fellow?

- Yes, I am

No, I am not

80. [Display prompt if Q79. is yes] You indicated that you are an NSF Graduate Research Fellow, but you may be receiving additional funding from your institution.

Are you receiving a stipend from your institution?

Yes, I am receiving a stipend

No, I am not

[Display if Q80. is "Yes, I am receiving a stipend" or Q79. is "Yes, I am"]

81. How difficult or easy is it to cover your basic expenses with your current stipend(s)?

Very difficult

Somewhat difficult

Neither difficult nor easy

Somewhat easy

Very easy

PERCEPTIONS OF DEPARTMENT AND INSTITUTION

Next, we would like to ask about your perceptions of the computing program at your institution. The following questions relate to the courses and people within the computing program at your institution.

82. Please indicate the extent to which you disagree or agree with the following statement:

{Strongly disagree; Somewhat disagree; Neither disagree or agree; Somewhat agree, Strongly agree}

- Overall, I am satisfied with the computing program at my institution.

83. How often to you receive the following from **other students**?

{Never; Rarely; Occasionally; Often; All of the time}

- Help and support
- Willingness to listen to issues you are having in your program
- Helpful feedback about your work
- Respect for your work and/or ideas
- Inclusion of your perspective on their work and/or ideas
- Opportunities to collaborate

84. Think about the **faculty, staff, administrators (e.g., the department chair, dean, staff)** in the computing department and rate the extent to which you disagree or agree with the following statements:

{Strongly disagree; Somewhat disagree; Neither disagree nor agree; Somewhat agree, Strongly agree}

- The computing department cares about its students.
- The computing department is NOT very supportive of its students.
- Computer science administrators and faculty care about diversity.

85. Think about the environment of the computing department as a **whole (including faculty, staff, administrators, and students)**, and rate the extent to which you disagree or agree with the following statements:

{Strongly disagree; Somewhat disagree; Neither disagree nor agree; Somewhat agree, Strongly agree}

- I feel a sense of community in the computing department.

- People in the department often attribute my success to special treatment or luck, rather than my competence.
- The environment in the computing department inspires me to do the best job that I can.
- My ideas or opinions are minimized or ignored.

86. Please provide any additional comments you have about your experiences in the computing department or in your current program.

PERSISTENCE

87. During your studies at your current institution, how often have you considered leaving your degree program before completing it?

- Never
- Rarely
- Occasionally
- Often
- All of the time

[If Q87. is NOT "Never"]

88. Why did you consider leaving your current degree program? Choose up to 3 responses.

- The courses were difficult
- The math requirements were too hard
- I was interested in trying something new
- I did not like the course material
- I was having trouble passing my courses
- I did not have any friends in the major
- The professors were not supportive
- I felt isolated in my program
- The department did not make me feel welcome
- I experienced health issues that inhibited my ability to feel/be successful
- I was considering a job
- Other; please specify: _____

[If Q87. is NOT "Never"]

89. What helped you continue in your current degree program when you were contemplating leaving? Choose up to 3 responses.

- My family encouraged/supported me
- My friends encouraged/supported me
- Professors/faculty encouraged/supported me
- I had already invested too much time and resources
- I liked the field of study
- The job market is promising
- Other; please specify: _____

ADVISOR QUESTIONS

90. **An academic advisor** is an individual, or group of people, that is responsible for helping you manage the requirements of your degree program and giving academic advice.

This survey was developed by Computing Research Association's (CRA) Center for Evaluating the Research Pipeline (CERP). Please acknowledge CRA and CERP in all publications using this survey and direct other parties interested in obtaining the survey to CERP (cerp@cra.org).

Do you have access to one or more academic advisor(s)? Select all that apply.

- Yes, I have an academic advisor(s) affiliated with the **computing department**
- Yes, I have an academic advisor(s) affiliated with **another department**
- No, I do not have an advisor yet, but I know how to get one
- No, I do not have an advisor yet, and I do not know how to get one

[REU ONLY - If Q90. is “Yes, I have an academic advisor(s) affiliated with the computing department” or “Yes, I have an academic advisor(s) affiliated with another department”]

91. Is your academic advisor a former REU advisor?

- Yes
- No

[If Q90. is “Yes, I have an academic advisor(s) affiliated with the computing department” or “Yes, I have an academic advisor(s) affiliated with another department”]

92. How dissatisfied or satisfied are you with the following?

{Very dissatisfied; Somewhat dissatisfied; Neither dissatisfied nor satisfied; Somewhat satisfied; Very satisfied}

- How often you meet with your advisor(s)
- The academic guidance your advisor(s) provides
- The career advice your advisor(s) provides
- How available your advisor(s) is to meet with you
- How supportive your advisor(s) is of your academic goal(s)

[If Q90. is “Yes, I have an academic advisor(s) affiliated with the computing department” or “Yes, I have an academic advisor(s) affiliated with another department”]

93. About how many times **per academic term** do you interact with academic advisor(s) for the following reasons?

{Never; Once; Two or three times; Four or more times}

- Course-related guidance
- Career advice
- Advice related to graduate school
- Other reason

RESEARCH SKILLS AND KNOWLEDGE

94. How would you rate your current skill level in each of the following:

{Poor/Fair/Good/Very good/Excellent}

- Generating hypotheses
- Using scientific methods to test a hypothesis
- Collaborating with colleagues
- Collecting data or conducting experiments
- Analyzing data with statistics or other tools

95. How would you rate your current skill level in each of the following:

{Poor/Fair/Good/Very good/Excellent}

- Summarizing published research results
- Explaining research results
- Writing or co-authoring a research paper or report

- Presenting a research paper or report
- Publishing a research paper or report

CURRENT STUDENTS: ACTIVITIES

96. How often have you been involved in the following during your current program?
{Never; Once; Two or three times; Four or more times}
- Visited lectures related to computing
 - Mentored students
 - Taught courses
 - Led an independent research project
97. How often have you been involved in the following during your current program?
{Never; Once; Two or three times; Four or more times}
- Received study support in computing (e.g., received tutoring; supplemental Instruction [SI])
 - Provided study support in computing (e.g., provided tutoring; supplemental Instruction [SI])
 - Helped prepare grant proposal(s) (not as PI or co-PI)
 - Departmental service
98. How often have you been involved in the following during your current program?
{Never; Once; Two or three times; Four or more times}
- Worked as a teaching assistant
 - Worked as a research assistant
 - Jobs related to computing (not as a TA or RA)
 - Internships related to computing
 - Entrepreneurial or consulting projects (e.g., tech start-ups, client services, etc.)
 - Independent computing projects (e.g., tinkering and technical skill building outside of your coursework)
99. How often have you been involved in the following during your current program?
{Never; Once; Two or three times; Four or more times}
- Computing-related contests (e.g., Hackathons, robotics competitions, programming competitions, etc.)
 - Computing-related online social networking (listservs, etc.)
 - Outreach to K-12 students related to computing
 - Involvement in efforts to broaden participation in computing
 - Computing-related student groups (e.g., technical organizations on campus, ACM student chapters, etc.)
 - Other student groups (e.g., Greek Life, volunteer groups, academic merit societies, etc.)
100. How often have you been involved in the following during your current program?
- Professional societies related to computing
 - Technical conferences related to computing
 - Career mentoring programs or workshops
 - Trainings or workshops in computing (other than conferences)
 - Summer institutes or short courses related to computing (other than summer research programs) (e.g., Google for Education Computer Science Summer Institute, online courses/MOOCs, etc.)
101. How often have you been involved in the following during your current degree program?
{Never; Once; Two or three times; Four or more times}

- Submitted a poster proposal to a conference
- Presented a poster at a conference
- Submitted a paper proposal to a conference
- Had a paper accepted for publication in conference proceedings
- Given an oral presentation at a conference
- Submitted a paper for publication in a peer reviewed journal
- Had a paper accepted for publication in a peer reviewed journal

DIVERSITY ACTIVITIES - STUDENTS

102. Have you participated in any of the following conferences or programs? Select all that apply.

Note: If you are not sure, click each link that will take you to a webpage to learn more. The webpage will open in a new window.

- ACM Richard Tapia Celebration of Diversity in Computing
- ACM Programming Languages Mentoring Workshops (PLMW)
- CRA-WP Career Mentoring Workshop for PhDs and Postdocs
- CRA-WP Early-career Mentoring Workshop
- CRA-WP Grad Cohort for Women
- CRA-WP Grad Cohort for Inclusion, Equity, Accessibility, and Leadership Skills (IDEALS)
- Grace Hopper Celebration of Women in Computing
- STARS Computing Corps conference or workshops, or home team meetings
- Residential/Living Learning Community on campus
- Local events related to diversity in computing
- None of the above **[Exclusive answer]**

SKILLS PROFICIENCY

103. Please rate the degree of your proficiency (how skilled you are) in the following items:

{Highly deficient; Deficient; Average; Proficient; Highly Proficient}

- Mentoring others
- Building/maintaining a professional network
- Dealing with conflict
- Providing constructive feedback

104. Please rate the degree of your proficiency (how skilled you are) in the following items:

{Highly deficient; Deficient; Average; Proficient; Highly Proficient}

- Time management
- Speaking clearly and effectively
- Presenting research
- Planning and organizing projects

105. Please rate the degree of your proficiency (how skilled you are) in the following items:

{Highly deficient; Deficient; Average; Proficient; Highly Proficient}

- Obtaining funding for research
- Teaching in a classroom setting
- Writing scientific papers

106. Please rate the degree of your proficiency (how skilled you are) in the following items:

{Highly deficient; Deficient; Average; Proficient; Highly Proficient}

- Identifying career options
- Preparing job application materials
- Interviewing techniques
- Preparing your CV/resume

SCIENTIFIC IDENTITY

The following questions ask how you think about yourself and your personal identity. We want to understand how much you think that being a scientist is part of who you are.

107. How true of you are the following statements:

{Not at all true; A little true; Moderately true; Quite true; Extremely true}

- In general, being a scientist is an important part of my self-image.
- I have a strong sense of belonging to the community of scientists.
- Being a scientist is an important reflection of who I am.
- I have come to think of myself as a “scientist.”
- I am a scientist.

BELONGING

108. Please indicate the extent to which you disagree or agree with the following statements:

{Strongly disagree; Somewhat disagree; Neither disagree nor agree; Somewhat agree, Strongly agree}

- I see myself as a “computing person”.
- I feel like I belong in computing.
- I feel like an outsider in computing.
- Computing is a big part of who I am.
- I feel welcomed in computing.
- I do not have much in common with the other students in my computing classes.

SELF-EFFICACY

109. Please indicate the extent to which you disagree or agree with the following statements:

Note: Even if you do not have experience with an item below, please rate your confidence in your ability to do so.

I am confident that I can...

{Strongly disagree; Somewhat disagree; Neither disagree nor agree; Somewhat agree, Strongly agree}

- clearly communicate technical problems and solutions to a range of audiences.
- articulate thoughtful answers to questions about my work during a presentation.
- introduce myself to new peers/colleagues at professional meetings.
- be a capable researcher in computing.
- find employment in an area of computing interest.

110. Please indicate the extent to which you disagree or agree with the following statements:

Note: Even if you do not have experience with an item below, please rate your confidence in your ability to do so.

I am confident that I can...

{Strongly disagree; Somewhat disagree; Neither disagree nor agree; Somewhat agree, Strongly agree}

- complete my graduate degree program
- successfully teach a course in my field.

- be an effective mentor.
- become an expert in my field
- discuss my work with senior members of my field.
- publish in tier 1/top conferences and journals in my field

MENTOR SUPPORT

111. **A mentor** is someone with whom you have an ongoing relationship, and who provides you with advice and assistance in advancing in your career.

To what extent do you have a mentor who....

{Not at all; A little; A moderate amount; Quite a bit; Very much}

- helps you improve your computing skills?
- helps you improve your research skills?
- helps you identify or develop your research interests?
- shows compassion for any issues you discussed with them?
- shares personal experiences as an alternative perspective to your problems?

112. To what extent do you have a mentor who....

{Not at all; A little; A moderate amount; Quite a bit; Very much}

- explores career options with you?
- encourages you to do the best you can in your coursework?
- prepares you for a career in academia?
- supports your research ideas?
- provides constructive feedback?

MENTOR SUPPORT: WHO DO YOU CONSIDER TO BE A MENTOR?

113. Among the people below, who do you consider to be a mentor? Select all that apply.

- My advisor
- A former REU mentor (display to REU participants only)
- A professor within my department (not my advisor)
- A professor outside of my department
- A Director or administrative faculty
- A graduate student (includes graduate teaching/research assistants and student mentors)
- An undergraduate student (includes undergraduate teaching/research assistants and student mentors)
- Someone I met at a conference or mentoring program sponsored by an outside organization (or other professional activity)
- A family member, partner, friend, pastor, or someone else with whom I have a personal relationship
- A coworker, supervisor, or someone else with whom I have a professional relationship
- Someone else
- No one

PROFESSIONAL NETWORK

114. To what extent is each of the following available to you at this point?

{Not at all; A little; A moderate amount; Quite a bit; Very much}

- A strong network of peers to interact with at conferences.
- A strong network of mentors to interact with at conferences.

- People who would be excited to learn about your professional successes.
- People with whom you can discuss issues you are having.
- People with whom you can ask questions related to your professional development.

ENTITY BELIEFS

115. Please indicate the extent to which you disagree or agree with the following statements:

{Strongly disagree; Somewhat disagree; Neither disagree nor agree; Somewhat agree, Strongly agree}

- People have a certain amount of ability to learn computing, and they really can't do much to change it.
- Anyone has the ability to learn computing and be good at it.
- Computing comes naturally to some people but not others.
- Not everyone is well-suited for computing.

IMPOSTER SYNDROME

116. In your opinion, to what extent are each of the following statements true of you:

{Not at all true; A little true; Moderately true; Quite true; Extremely true}

- I can give the impression that I'm more competent than I really am.
- When others praise me for something I have accomplished, I'm afraid I won't be able to live up to their expectations of me in the future.
- At times, I feel my success has been due to some kind of luck.
- At times, I am disappointed in my present accomplishments and think I should have accomplished much more by now.

INTEREST IN COMPUTING RESEARCH

The following questions ask about your interests in and knowledge about future computing research pathways.

117. What is your current level of interest in the following:

{Not at all interested/Slightly interested/Moderately interested/Quite interested/Extremely interested}

- Conducting research as a graduate student
- Learning more about computing
- Pursuing a research career
- Pursuing a non-research career
- Mentoring others on a future REU project

PROMPT: FUTURE PLANS AND ASPIRATIONS

Now, we would like to ask about your future plans and career aspirations.

HIGHEST DEGREE ASPIRATIONS

118. What is the highest degree you plan to attain? Note: Even if you are not sure yet, please select the degree you would like to attain if you could.

- Technical certificate
- Graduate certificate
- Master's degree
- Doctoral degree

119. In which field do you intend to earn your highest degree? Choose up to 2 responses.

Note: If you do not see your exact field, please select the option(s) most closely related. Even if you are unsure about your highest degree plans, please select the field in which you would attain that degree if

you were to pursue it.
[List of fields]

FUTURE PLANS PROMPT

120. After you complete your current program, what are your plans after graduation? Choose up to 2 responses.

- Go back to school
- Start working (includes internship, full/part time work, postdoc, etc.)
- Create a start-up
- Take a break from work and school
- Take a gap year for personal/religious reasons
- Traveling
- Another plan
- I don't know at all [Exclusive answer]

[Display following section if Q120. is "Start working..."]

FUTURE PLANS – START WORKING

121. Which of the following steps, if any, have you taken in the job search process? Select all that apply.

- Met with someone from my institution's career services
- Exploring my options
- Applied for jobs
- Interviewed for jobs
- Received a job offer
- Negotiated a job offer
- Accepted a full-time job offer
- Accepted a part-time job offer
- None of the above [Exclusive answer]

[Display if Q121. is "Received a job offer"]

122. How many job offers have you received since starting the job search process? (Please use numerical values only.)

FUTURE PLANS – WORKING, ACCEPTED A JOB OFFER

[Display if Q121. is "Accepted a ... offer"]

We would like to ask you some questions about the job offer you accepted.

123. How best would you describe your new job?

- Entry level
- Mid level
- Senior level
- Executive level

124. To which field is your new job most closely related? Choose up to 2 responses.

Note: If you do not see your exact field, please select the option(s) most closely related.

[List of fields]

125. In what setting is your new job?

- Academia, PhD-granting institution
- Academia, non-PhD-granting institution
- Industry
- Government (includes national labs)
- Other

126. What is the focus of your new job? Select up to 2 responses.

- Research
- Teaching
- Administration/Leadership
- Technical
- Administrative
- Analytical
- Management
- Skilled labor
- Developer
- Operations
- Other

127. What is your job title? (50 character limit): _____

128. What is the starting annual salary (in US dollars) for your job?

▼ \$0 (23) ... More than \$150,000 (22)

129. Which of the following apply to your new job?

- I received a signing bonus
- I received relocation funds
- I will relocate to a new area for my job
- I will be managing or supervising other staff
- None of the above [Exclusive answer]

[If Q is "I will relocate to a new area for my job"]

130. To which country/location are you relocating for your job? If you are relocating within the same country, please select that country.

▼ Afghanistan (1) ... Zimbabwe (1357)

[Display following section if Q120. is "Go back to school"]

FUTURE PLANS - GRAD SCHOOL, ATTENDING OR APPLYING

You indicated your future plans include going back to school. We'd like to ask you a few questions related to going back to school.

131. Where are you in the application process for going back to school? Select all that apply.

- Exploring my options
- Preparing applications
- Submitting applications

- Received waitlist notifications
- Received acceptance letters
- Accepted an offer from a program to which I applied
- None of the above [Exclusive answer]

[Display following question if Q is "Received waitlist notifications"]

132. How many waitlist notifications did you receive? (Numbers only.) _____

[Display following question if Q is "Received acceptance letters"]

133. How many acceptance letters did you receive? (Numbers only.) _____

[Display following section if Q is "Preparing applications" or "Submitting applications"]

FUTURE PLANS: PREPARING AND SUBMITTING APPLICATIONS TO GO BACK TO SCHOOL

134. To which type of programs are you applying to go back to school? Select all that apply.

- Certificate programs
- Associate's programs
- Bachelor's programs
- Master's programs
- Doctoral programs
- None of the above [Exclusive answer]

135. Are you applying for on campus or online programs? Select all that apply.

Note: Please do not include temporary circumstantial changes to program formats due to the novel coronavirus (COVID-19).

- On campus only
- Online only
- Primarily on campus, but some courses are online
- Primarily online, but some courses are on campus

136. In which fields are you applying for going back to school? Select all that apply.

Note: If you do not see your exact program name, please select the option(s) most closely related.

[List of fields]

[Display following section if Q is "Accepted an offer from a program to which I applied"]

FUTURE PLANS - GRAD SCHOOL, ACCEPTED OFFER

137. From which program did you accept an offer?

- Certificate program
- Associate's program
- Bachelor's program
- Master's program
- Doctoral program
- Other

138. In which field will your program be? Choose up to 2 responses.

Note: If you do not see your exact program name, please select the option(s) most closely related.

[List of fields]

139. Will your program be full time or part time?

- Full time
- Part time
- Non-degree earning student

140. Is your program on campus or online?

Note: Please do not include temporary circumstantial changes to program formats due to the novel coronavirus (COVID-19).

- On campus only
- Online only
- Primarily on campus, but taking some online courses
- Primarily online, but taking some courses on campus

141. Will you have to relocate to a new geographic location for your program?

- Yes, I am relocating within the United States
- Yes, I am relocating to a country outside of the United States
- No, I am not relocating

[If Q141. is "Yes, I am relocating to a country outside of the United States"]

142. To which country/location are you relocating for your program?

▼ Afghanistan (1) ... Zimbabwe (1357)

[If Q120. is NOT "Applying to go back to school" and

Q120. is NOT "Going back to school" and

Q4. is NOT "Doctoral program (includes those earning a master's degree as part of their doctoral program)"]

FUTURE PLANS – WHY NOT GO BACK TO SCHOOL

143. We are interested in why your future plans do not include going back to school after you finish your current program.

Why are you not planning to go back to school? Choose up to 3 responses.

- I have personal and/or family obligations
- I do not feel academically prepared
- I am worried about financial support
- I want to take a break from school
- I am considering a job
- It takes too long to complete
- I do not see the value in it
- I think school is too difficult
- I am not interested in getting another degree
- I have already earned the highest degree I plan to attain
- I am currently earning the highest degree I plan to attain
- I had not considered it
- Other; please specify: _____

GENERAL JOB INTEREST

144. How interested are you in having the types of jobs listed below?

{Very uninterested; somewhat uninterested; neither uninterested nor interested; somewhat interested; very interested}

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- College or university professor in computing field (**teaching focused**)
- College or university professor in computing field (**research focused**)
- K-12 computing teacher
- Computing researcher in industry
- Computing researcher in a government lab or agency

145. How interested are you in having the types of jobs listed below?

{Very uninterested; somewhat uninterested; neither uninterested nor interested; somewhat interested; very interested}

- A non-research computing position in industry (e.g., software engineer)
- A non-research computing position in government
- Entrepreneur (computing related; e.g., individual contractor, build a start-up)
- Non-computing career

SPECIFIC CAREER INTERESTS

146. For your future career, in which setting would you like to work **the most**?

- Academia
- Industry
- Government (includes national labs)
- Self-employment
- Something else

147. How likely will your future career have a **computing-related focus**?

- Extremely unlikely
- Somewhat unlikely
- Neither unlikely or likely
- Somewhat likely
- Extremely likely

148. How likely will your future career have a **research_focus**?

- Extremely unlikely
- Somewhat unlikely
- Neither unlikely or likely
- Somewhat likely
- Extremely likely

149. What job title would you like to have after you finish your highest degree? If you are uncertain, you are welcome to enter a job title that interests you the most (e.g., Professor; Software Engineer; Senior Researcher; etc. 50 character limit.)

[If currently enrolled in doctoral program]

150. To what extent do you feel prepared to start a tenure-track job in academia at this point in your career?

- Not at all prepared
- A little prepared
- Moderately prepared
- Quite prepared

- Extremely

151. How concerned are you that the economic impact of the novel coronavirus (COVID-19) will negatively impact your ability to move up in your career within the next 5 years?

- Not at all concerned
 Slightly concerned
 Moderately concerned
 Quite concerned
 Extremely concerned

CAREER VALUES

152. How important to you is it that **your career** allows you to do each of the following?

{Not important; A little important; Moderately important; Quite important; Extremely important}

- Make a lot of money
- Work independently
- Work collaboratively
- Spend a lot of time with my family and friends
- Have a social impact

153. How important to you is it that **your career** allows you to do each of the following?

{Not important; A little important; Moderately important; Quite important; Extremely important}

- Have a flexible work schedule
- Be a role model
- Become well-known in my field
- Help others
- Build a strong professional network

154. In your opinion, to what extent would (or does) a **career in computing** allow you to do the following?

{Not at all; A little; A moderate amount; Quite a bit; Very much}

- Serve humanity
- Be in a position of influence in society
- Spend a lot of time with family

YOUR BACKGROUND

We have just a few more questions about your academics and background.

GPA & TEST SCORES PROMPT

155. Please tell us your GPA below using numerical values. If you do not know your GPA, simply leave the space blank.

Note: If you have a weighted GPA (e.g. 5.0 scale), please convert to a 4.0 scale for the questions below.

- Overall GPA [choices]

TEST SCORES

156. Have you taken the GRE?

- Yes

No

[If Q156. is "No"]

157. Do you plan to take the GRE in the future?

- Yes, I plan to take the GRE in the future
- No, I do not plan to take the GRE in the future
- I am not sure yet

[If Q156. is "Yes"]

158. Please provide us with your GRE scores using numerical values. If you do not know your score, simply leave the space blank.

Verbal score: _____

Quantitative score: _____

Analytic writing score: _____

UPDATE DEMOGRAPHICS?

Our records indicate that on a past survey you completed for us, you answered our demographics questions. Here is the list of demographic questions we ask: *Gender identity Race/ethnicity Veteran status Citizenship status Disability status Annual household income Sexual orientation Marital & family status Family background*

159. If you think something has changed and you would like to update your demographic data, please indicate which sections you would like to update.

- Gender
- Race/ethnicity
- Veteran status
- Citizenship status
- Disability status
- Annual household income
- Sexual orientation
- Marital & family status
- Family history
- I do not need to update my demographic data

[Display all Demographics questions from T1 selected above]

RAFFLE BLOCK – ALL RESPONDENTS

160. If you are interested in being entered in the CRA raffle to win 1 of 150 \$10.00(USD) gift cards to Amazon, please provide your email address. The email you provide will only be used to contact you if your name is drawn for the prize; it will not be used for any other purpose.

Email address: