

Undergraduate & Post-Undergraduate Experiences Follow-Up Survey [REU Program Follow-up Survey] **UNDERGRADUATE 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 25 minutes of your time to complete. This survey works best with Google Chrome.

An agency may not conduct or sponsor, and a person is not required to respond to, an information collection unless it displays a valid Office of Management and Budget (OMB) control number. The OMB control number for this collection is 3145-0266. Public reporting burden for this collection of information is estimated to average 25 minutes per response, including the time for reviewing instructions. Send comments regarding the burden estimate and any other aspect of this collection of information, including suggestions for reducing this burden, to: Suzanne H. Plimpton, Reports Clearance Officer, National Science Foundation Alexandria, VA 22314.

1. Are you currently a student?
 - Yes, I am currently an **undergraduate student**
 - Yes, I am currently a **graduate student** [If selected, go to graduate student survey]
 - 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]

[ALL RESPONDENTS]

DEFINITION TO RESPONDENT:

Note that 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
- Computational Mathematics
- Any other computing & technology field

For the following questions, when we refer to your institution, we are asking about the school where you are currently enrolled as an undergraduate and/or where you expect to get your undergraduate degree.

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:

COMMUNITY COLLEGE EXPERIENCE

4. 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 Q4. Is "I have completed a degree or certificate at a community college"]

5. 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 Q5. is "Associate's degree"]

ASSOCIATE'S DEGREE INFORMATION

6. 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 Q6. is "Other"]

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

8. 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]

9. In what year did you earn your most recent **associate's degree**?
[Drop down list of years]

CURRENT PROGRAM DETAILS

10. Which of the following applies to you? Select all that apply.
- I temporarily withdrew from my current institution due to economic hardships.

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).

- I temporarily withdrew from my current institution for reasons not related to economic hardships.
- I transferred from a 2-year institution to my current institution.
- I transferred from a 4-year institution to my current institution.
- None of the above [Exclusive answer]

[Display if Q10. is "I transferred from a 2-year institution" or "I transferred from a 4-year institution"]

11. You indicated that you transferred from another institution to your current institution. In what year did you enter the institution from which you transferred?

[List of years]

12. In what year did you enter your current institution for your current program?

[List of years]

13. 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"]

14. In which academic term do you expect to complete your current degree? If you aren't sure, pick the option that seems most likely.

- Fall
- Winter
- Spring
- Summer

15. What is your enrollment status for your current program?

- Full-time student
- Part-time student

EDUCATIONAL FINANCING

16. How are you paying for your education? 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

17. Are you receiving a stipend from your institution?

(REU Participants only) Please do NOT include any stipend you are getting for your REU in your answer.

- Yes, I am receiving a stipend
- No, I am not

[Display if Q17. is "Yes.."]

18. How difficult or easy is it to cover your basic expenses with your current stipend?
- Very difficult
 - Somewhat difficult
 - Neither difficult nor easy
 - Somewhat easy
 - Very easy

MAJOR PROMPT

19. Which type of undergraduate degree will you be earning?
- Associate's degree
 - Bachelor of Science (BS/SB degree)
 - Bachelor of Arts (BA/AB degree)
 - Bachelor of Fine Arts (BFA degree)
 - Other
20. Are you enrolled in an accelerated or joint bachelor's/master's program?
- Yes
 - No
21. Which of the following applies to you:
- I have one declared major
 - I have more than one declared major
 - I have not declared a major
22. Which of the following applies to you:
- I have one minor
 - I have more than one minor
 - I do not have a minor

DECLARED {MAJOR/MINOR 1/2}

[Repeat Q23.-Q28. for each major/minor, if answers to Q21. and Q22. are NOT "I do not have a major" or "I do not have a minor"]

23. From the list below, please select your major, or one of your majors.
Note: If you do not see your exact major, please select the option most closely related.
[List of majors]

[If Q23. is Other]

24. Please specify this major in the space below: _____

[If Q23. is NOT computing-related]

25. Does this major have a strong computing component? (Does not include basic use of computers for your major.)
- Yes
 - No

26. How committed are you to this major: **[Insert response from Q23.]?**

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

[For major and second major path only; do not display for minor and second minor]

27. Which of the following is true of this major: **[Insert response from Q23.]?**

- I have not started taking courses in my major yet
- I am currently enrolled in courses for my major
- I have completed all of the coursework for my major

[For major and second major path only; do not display for minor and second minor]

28. Why did you choose this major (**[Insert response from Q23.]**)? Choose up to 3 responses.

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

UNDECLARED MAJOR

[If Q21. is "I have not declared a major"]

29. Which of the following reasons explain why your major is undeclared? Select all that apply.

- My institution does not allow students to declare a major until later semesters.
- I am taking pre-requisite courses for the major.
- I do not know what I want to major in.
- I plan to graduate in general studies
- None of the above

30. If you had to choose a major today, what would it be?

Note: If you do not see your exact major, please select the option most closely related.

[List of majors]

[If Q30. is Other]

31. Please specify your major choice in the space below.

32. Which of the following reasons explain why you would choose this major (**[Insert response from Q30.]**)? Choose up to 3 responses.

- I like learning about this field
- My friends are majors in this field
- The courses required of this major are interesting
- Professors/faculty at my institution are encouraging me toward this major

- The major will allow me to make an impact on society
- This major will enable me to make a lot of money
- The job market for this field is promising
- My family is encouraging me toward this major
- I will be successful completing the courses required of this major
- Other; please specify: _____

33. How confident are you that you will declare this intended major: **[Insert response from Q30.]**

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

FOR NON-COMPUTING MAJORS/MINORS OR UNDECLARED: COMPUTING MAJOR/MINOR INTEREST
[If Q21. is "I have not declared a major" or Q22. is "I do not have a minor" or Q23. is a non-computing major or Q23. is a non-computing minor]

34. Please rate your agreement with the following:

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

- I am considering changing my major to a computing-related major [Display to non-computing majors]
- I am considering declaring a computing-related major [Display to undeclared majors]
- I am considering adding a computing-related minor [Display to non-computing minors or those without a minor]

[If Q34., item "I am considering changing my major to a computing-related major", "Somewhat agree" or "Strongly agree" is selected]

35. Why are you thinking about changing your major to a major to a computing-related major? Choose up to 3 responses.

- I like learning about computing
- The courses required of the computing major are interesting
- A computing major will allow me to make an impact on society
- The job market for the computing field is promising
- A computing major will enable me to make a lot of money
- I will be successful completing the courses required of the computing major
- My friends are majors in computing
- Professors/faculty at my institution are encouraging me to major in computing
- My family is encouraging me to major in computing
- Other; please specify: _____

SWITCHED MAJORS

36. How many times in your undergraduate experience have you switched majors?

- None
- Once
- Twice
- More than two times

[If Q36. is "Once" or "Twice" or "More than two times"]

37. From what majors have you switched? Select all that apply.

[List of majors]

[If Q37. is a computing-related major and current major(s) is/are NOT computing-related]

38. Of the reasons below, which best explain why you switched out of computing? Choose up to 3 responses.

- The courses are too difficult
- I am not interested in learning about computing and technology
- My non-computing major aligns with my future career goals better
- I do not have any friends in the major
- The professors are not supportive
- The department does not make me feel welcome
- I do not like the course material
- Too many people major in computing
- I do not meet the eligibility requirements to major in computing
- The math requirements are too hard
- Computing is not a valuable career
- The job market is not promising
- I wanted to try something new
- 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; _____

ONLINE DEGREE PROGRAM?

39. 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

PERSISTENCE

40. 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 Q40. is NOT "Never"]

41. 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 passes 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 Q40. is NOT "Never"]

42. 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

43. **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.

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 Q43. 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"]

44. Is your academic advisor a current/upcoming or former REU advisor?

- Yes, a current/upcoming REU advisor
- Yes, a former REU advisor
- No

[If Q43. 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"]

45. 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 Q43. 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"]

46. 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
- Research advice
- Graduate school advice
- Other reason

REU PROMPT (Questions 47. through 50. 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.

47. Up to this point in 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

48. During your college career so far, have you participated 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 have participated in at least one formal research experience while I have been in college [Answer Q50.; skip to PAST REU INFORMATION section]
- No, I have NEVER participated in a formal research experience **but I plan to** [Answer Q50.; skip to RESEARCH SKILLS AND KNOWLEDGE section]
- No, I have NEVER participated in a formal research experience **and I do not plan to** [Answer Q49.; skip to RESEARCH SKILLS AND KNOWLEDGE section]

[If Q48. is "No, I have never... and I do not plan to"]

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

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

[If Q48. is "Yes..." or "No, I have never... but I plan to"]

50. 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 Q48. is “Yes, I have participated in at least one formal research experience while I have been in college”]

PAST REU INFORMATION (COMPARISON GROUP)

51. Up to this point in your undergraduate program, how many formal REUs have you completed?

- 1
- 2
- 3
- 4 or more

[Repeat Q52. – Q60. for each REU]

52. In which year did your [first/second/third/fourth] formal REU start?

[List of years]

53. Was this REU funded by NSF?

- Yes [answer next question]
- No [skip to Q55.]
- I do not know [skip to Q55.]

54. 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

55. 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”]

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

[If "At a company..."]

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

58. 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 Q59. - 60. if received a stipend]

59. 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

60. 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 61. through 67. 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.

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61. Up to this point in 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]**.

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

(Not at all; A little, A moderate amount, Quite a bit, A great deal// Not Applicable [option for all except "...the PI"])

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

63. 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

64. 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

65. 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

66. Since completing this REU(s), have you ever worked on an REU in a supervisory or mentoring role?

- Yes
 No

67. Since [insert end date of REU], have you participated in any additional formal REUs?

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 have participated in at least one formal research experience since that time. [\[Go to Q69.\]](#)
 No, I have not participated in another formal research experience since that time **but I plan to.** [\[Go to Q69.\]](#)
 No, I have not participated in another formal research experience since that time **and I do not plan to.** [Go to Q68.\]](#)

[\[If Q67. is "No, ... and I do not plan to"\]](#)

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

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

[\[If Q67. is "Yes..." or "No, ... but I plan to"\]](#)

69. 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 Q67. is "Yes, I have participated in at least one](#)

formal research experience since that time.”]

PAST REU INFORMATION (NSF REU PARTICIPANTS)

70. Since your NSF REU that you participated in from [insert start date] to [insert end date], how many additional formal REUs have you completed? 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 Q71. – Q81. for each REU]

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

72. Was this REU funded by NSF?

- Yes [answer next question]
- No [skip to Q76.]
- I do not know [skip to Q76.]

73. 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

74. [If Q73. = “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

75. When did your formal REU take place?

- Academic year - fall semester only (5)
- Academic year - spring semester only (9)
- Academic year - across both fall and spring semesters (6)
- Academic year and summer (10)
- Summer only (7)

76. 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”]

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

[List of institutions]

[If "At a company..."]

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

79. 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 Q80. - 81. if received a stipend]

80. 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

81. 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

RESEARCH SKILLS AND KNOWLEDGE

82. 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

83. 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

Next, we would like to ask about your engagement in various activities.

84. How often have you been involved in each of the following during your current program?
{*Never; Once; Two or three times; Four or more times*}

- Visiting lectures related to computing
- Mentored students
- Taught courses
- Received study support in computing (e.g. received tutoring; supplemental Instruction [SI])
- Provided study support in computing (e.g. provided tutoring; supplemental Instruction [SI])
- Worked as a teaching assistant
- Jobs related to computing (not as a TA or RA)
- 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)

85. How often have you been involved in each of 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

86. How often have you been involved in each of the following during your current degree program?
{*Never; Once; Two or three times; Four or more times*}

- 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.)
- 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.)

DIVERSITY ACTIVITIES - STUDENTS

87. During your academic career to date, have you participated in any of the following conferences or programs? Select all that apply.

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)
- 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

SKILLS PROFICIENCY

88. 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

89. 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
- Writing scientific papers

90. 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
- Preparing graduate school application materials
- Identifying graduate school options

SCIENTIFIC IDENTITY

91. 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.

How true of you is the following statement:

{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

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

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

93. I am confident that I can...
{Strongly disagree; Somewhat disagree; Neither agree nor disagree; Somewhat agree; Strongly agree}
- pass my computing courses.
 - learn the foundations and concepts of computing.
 - do well in a computing-related contest (e.g., programming contest, robotics contest, hackathon).
 - quickly learn a new programming language on my own.
 - contribute to a research project in computing.
94. I am confident that I can...
{Strongly disagree; Somewhat disagree; Neither agree nor disagree; 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.
95. I am confident that I can...
{Strongly disagree; Somewhat disagree; Neither agree nor disagree; Somewhat agree; Strongly agree}
- complete an undergraduate degree in computing.
 - get admitted to a graduate computing program.
 - be successful in a graduate computing program.

MENTOR SUPPORT

96. **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; Somewhat; 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?
 - gives you insight into what graduate school is like?
 - provides information or advice about applying for graduate school?
 - Shows compassion for any issues you discussed with them?
 - shares personal experiences as an alternative perspective to your problems?
 - explores career options with you?
 - encourages you to do the best you can in your coursework?
 - supports your research ideas?
 - provides constructive feedback?
97. 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 current 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, religious leader, 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

98. 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}

- People whom you can ask professional development questions
- People with whom you can discuss graduate school opportunities.
- 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.

ENTITY BELIEFS

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

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

100. 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 am afraid I will not 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.

101. 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 an undergraduate
- Conducting research as a graduate student

- Learning more about computing
- Pursuing a master's degree in a computing field
- Pursuing a doctoral degree in a computing field
- Pursuing a research career
- Pursuing a non-research career
- Mentoring others on a future formal research project

102. How likely is it that you will enroll in a terminal master's program in a computing field?

Note: A terminal master's degree program is a program to which you apply to earn a master's degree only. You would graduate and finish the program with a master's degree.

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

103. How likely is it that you will enroll in a doctoral program in a computing field?

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

104. How much do you feel you know about the following:

Please answer these questions about your **current knowledge levels**, regardless of whether you are currently intending to pursue graduate school.

{Nothing, a little, a moderate amount, quite a bit, a lot}

- What to look for in a graduate research advisor
- The research areas you would pursue in graduate school
- What graduate admissions committees look for in an applicant
- How to choose graduate programs that are a good fit for you
- What being a graduate student would be like

105. How much do you feel you know about the following:

{Nothing, a little, a moderate amount, quite a bit, a lot}

- Career options in computing
- Career options in research
- What it would be like to work in academia

HIGHEST DEGREE ASPIRATIONS

106. 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.

- High school degree
- Technical certificate
- Associate's degree
- Bachelor's degree
- Graduate certificate
- Master's degree

- Doctoral degree

107. In which field do you intend to earn your highest degree? Select up to 2 responses. Note: If you do not see your exact field, please select the option(s) most closely related.

[List of fields]

FUTURE PLANS PROMPT

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

108. 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/or school
- Traveling
- Another plan
- I don't know at all [Exclusive answer]

[Display if Q108. is "Start working..." AND expected graduation date is current or subsequent year]

FUTURE PLANS – START WORKING

109. 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 [Go to Q111.]
- Accepted a part-time job offer [Go to Q111.]
- None of the above [Exclusive answer]

[If Q109. is "Received a job offer" or "Negotiated a job offer"]

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

[Display following section if Q109. is "Accepted a full-time/part-time job offer"]

FUTURE PLANS – WORKING, ACCEPTED JOB OFFER

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

111. How best would you describe your new job?

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

112. 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]

113. In what setting is your new job?

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

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

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

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

116. What is the starting annual salary for your job?

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

[Display following section if Q108. 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.

117. Where are you in the application process? 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 if Q117. is "Received waitlist notifications"]

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

[Display if Q117. is "Received acceptance letters"]

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

[Display Q120.-Q122. if Q117. is "Preparing applications" or "Submitting applications"]

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

120. 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]

121. 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

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

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

[List of fields]

[Display following section if Q117. is "Accepted an offer from a program to which I applied"]

FUTURE PLANS - GRAD SCHOOL, ACCEPTED OFFER

123. From which program did you accept an offer?

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

124. 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]

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

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

126. 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

127. 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 Q108. is NOT "Go back to school"]

FUTURE PLANS – WHY NOT GO BACK TO SCHOOL

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

128. 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: _____

129. How likely are you to apply for graduate programs in the future?

- Not at all
- A little
- Moderately
- Quite a bit
- Extremely

GENERAL JOB INTEREST

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

{Very uninterested; Somewhat uninterested; Neither uninterested nor interested; Somewhat interested; Very interested}

- 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
- 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

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

- Academia
- Industry

- Government
- Self-employment
- Something else

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

- Extremely unlikely
- Somewhat unlikely
- Neither likely nor unlikely
- Somewhat likely
- Extremely likely

133. How likely will your future career have a **research focus**?

- Extremely unlikely
- Somewhat unlikely
- Neither likely nor unlikely
- Somewhat likely
- Extremely likely

134. 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.):

CAREER VALUES

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

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

- Make a lot of money
- Work independently
- Work collaboratively
- Spend a lot of time with my family and friends
- Have a social impact
- Have a flexible work schedule
- Be a role model
- Become well-known in my field
- Help others
- Build a strong professional network

136. In your opinion, to what extent would a **career in computing** allow you to do the following...

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

- 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

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

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).

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]
- [If Q21. is NOT "I have not declared a major"] Major GPA (1)
- [If Q21. is "I have more than one declared major"] Major GPA (2)

TEST SCORES

138. Have you taken the GRE?

- Yes
- No

[If Q138. is "No"]

139. 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 Q138. is "Yes"]

140. 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*

141. 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

142. If you are interested in being entered in the CRA raffle to win 1 of 250 \$20.00(USD) gift cards to Amazon, please provide your email address. The email you provide will only be used to contact you if your

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).

name is drawn for the prize; it will not be used for any other purpose.

Email address:

OMB CONTROL NUMBER: 3145-0266

EXPIRATION DATE: 04/30/2025