RII Track-1: Data Analytics that are Robust and Trusted (DART): From Smart Curation to Socially Aware Decision Making

Broadening Participation Plan

Introduction

The Track-1 project DART has convened a large group of participants including undergraduate and graduate students, early career and tenured faculty, administrators, staff, and K12 educators. We firmly believe in the importance of diversity, equity, and inclusion, and acknowledge the difference in those three terms.

To remain updated on best practices in broadening participation and mentorship, DART's leadership team and external evaluator will conduct quarterly reviews of leading organizations such as Advancing Research in Society (ARIS) and the Center for the Improvement of Mentored Experiences in Research (CIMER), as well as resources such as the National Academies Science of Effective Mentorship in STEMM guide and the Institute for Broadening Participation Mentor Manual. These resources were used in the development of this plan.

Participant Diversity

DART's leadership will take into consideration the institutional, gender, ethnic, and other forms of diversity of all participant groups and role types, including established panels. DART does not plan to hire new faculty or postdoctoral associates but will utilize the planned activities described here to broaden participation in the project. We will also encourage recruitment of women and underrepresented minority (URM) faculty and students for open positions. We will commit to the following targets for each role type:

- Faculty- 45% female, 10% URM

- Graduate Students- 50% female, 20% URM

- Undergraduate Students- 50% female, 40% URM

- Advisory Boards- 50% female, 20% URM

Starting Participant Diversity*

- Faculty- 29% female, 6% URM

- Graduate Students- 38% female, 7% URM

- Undergraduate Students- 67% female, 25% URM

- Advisory Boards- 27% female, 12% URM

As self-reported by participants

Please see Appendix 1 for starting participant diversity by role, gender, and race/ethnicity.

Mentorship Program

We recognize the importance of mentorship in the formation of science identity and retention of students and early career faculty in STEM. DART plans to utilize individual development plans for summer (SURE) students, undergraduate research assistants (UGRA), graduate research assistants (GRA), and early career faculty. An Individual Development Plan (IDP) is a personal action plan designed to help students and postdocs clarify their academic responsibilities and expectations and take more ownership of their professional development. IDPs can be a useful advising tool, helping mentors and mentees align their goals and expectations, identify areas for improvement, and track progress.

During Year 1, DART will adapt versions of IDP templates for each of the four roles listed above. The IDP will be implemented starting in Year 2 at the beginning of the project participation for each role and reviewed at the end of each person's participation period, culminating in a survey. The SURE students will complete a skills assessment before and after the experience, and develop their IDPs with mentors during the ASRI. Graduate students will complete their IDPs at the Annual Retreat with their mentors, and evaluate it annually. Early career seed grant faculty will complete theirs at the beginning of their awards and evaluate them annually and/or at the end of the seed project. Interviews and focus groups will also be facilitated by the external evaluator to obtain qualitative feedback from both mentors and mentees regarding the mentoring experience.

Mentors will also complete an annual survey to reflect on their growth as mentors. DART leadership will review assessment data to continually improve mentee and mentor support. The central office will also support campus level efforts to implement or strengthen relevant mentorship programs.

DART Research Seed Grant Program

DART will fund research seed grants in emerging or transformative areas of research that align with, but do not overlap DART planned research activities. Seed grant proposals will be reviewed by external advisory board and industry advisory board members. Applications will be encouraged from underrepresented minority faculty, postdoctoral associates, and early career faculty. DART will utilize a number of communication channels to raise awareness of the seed grant program.

Each seed grant applicant will be required to submit a letter of support from an existing DART participant. Upon award, the SSC will assign mentors as appropriate to the awardees. Awardees will be invited to present their work during DART meetings such as the monthly webinar, Annual Conference, and Annual Retreat. The central office will foster collaboration discussions among seed grant awardees and DART participants. Milestones have been included in the strategic plan, and metrics have been included in the evaluation plan.

Career Development Workshops

DART will host at least three career development workshops annually with three rotating topics: mentorship, grantsmanship, and science communication. These workshops will be open to all project participants and free to attend. The central office will recruit presenters for these workshops from national leading organizations in the fields, or agency program officers as appropriate. Information on these workshops will be distributed through the DART faculty and student listservs, as well as social media and other channels. The workshops will be recorded with recordings posted on the @arepscor YouTube channel. Surveys will be distributed to workshop attendees which will provide feedback to inform the program. Milestones have been included in the strategic plan, and metrics have been included in the evaluation plan.

DART Summer Undergraduate Research Experiences (SURE) Program

In addition to the 15+ undergraduate research assistantships that are funded through the project, DART will fund summer undergraduate research experiences (SURE), for students belonging to groups that are underrepresented in computer science, information science, and data science related fields (as defined by NSF CISE). Students will be recruited through established campus-based programs such as the UARK Engineering Career Awareness Program (ECAP), UAPB STEM Academy, UAMS diversity office, and by faculty at participating institutions. DART faculty will apply for funds to host these students for 8 weeks, with a limit of $8,000 per award. $80,000 annually has been budgeted for this program. Funds will support student stipends, housing, student-specific supplies, and in-state travel. At the beginning of each project, the student will complete an individual development plan (IDP) in collaboration with their faculty host. Upon completion of their projects, students will review their IDPs and complete a survey about their experience. Each SURE student will be invited to participate in the DART Student poster competition and present their projects at DART monthly seminars. The SURE students will remain in contact with the DART project and will receive invitations to all future professional development opportunities. Milestones have been included in the strategic plan, and metrics have been included in the evaluation plan.

Arkansas Summer Research Institute (ASRI)

The ASRI will be hosted in partnership with the Arkansas School for Mathematics, Sciences, and the Arts (ASMSA). The ASRI is an intensive professional development experience for STEM students (seniors in high school up to graduate students). This 2-week event is of no cost for attendees and will provide training on technical skills and career skills. The main goals of ASRI are to a) build a diverse support network of peers for STEM students in Arkansas and b) provide summer bridge professional development to increase retention in STEM. Each year's program will be evaluated by the external evaluator. Participants will be added to ASRI alumni Facebook and LinkedIn groups to facilitate longitudinal tracking and communications. DART will conduct targeted outreach to recruit URM students to attend the ASRI. Students will be recruited at all Arkansas higher education campuses, on social media, through email, and in-person recruiting events. DART will also leverage existing and new relationships with the Arkansas Louis Stokes Alliance for Minority Participation (LSAMP), the McNair Achievement Program, local diversity offices, and other organizations that are connected with URM students. DART will utilize participant survey data to inform and improve the ASRI each year. Milestones have been included in the strategic plan, and metrics have been included in the evaluation plan.

Broadening participation Seed mini-grants

Broadening Participation Seed Grants: DART will solicit proposals for project related mini-seed grants for education, outreach, and broadening participation. Eligible entities will include school districts, post-secondary institutions, educational service co-ops, non-profits, or other entities supporting data science and computer science education and outreach activities in Arkansas. The central office will manage the solicitations which will be posted on the AEDC website, DART website, and emailed through higher education channels. The proposals will be reviewed by the central office, and outside experts as needed. Review criteria will include the audience or participants served and evaluation of the impact of the proposed activity. One awardee will be selected each year to present their project at the annual All-Hands meeting. Reports from these projects will be maintained in ER Core and the central office will foster collaboration discussions among awardees and DART participants. Milestones have been included in the strategic plan, and metrics have been included in the evaluation plan.

Appendix 1- DART Starting Participant Demographics: Role Type, Gender, Race/Ethnicity

DART leadership has reported the participant demographics below according to how the participants identified, which does not necessarily match the official NSF demographic categories in Participant Table B that is submitted with the annual report. During reporting, if a participant identifies with a category that is present on Table B, they will be assigned to that category. In past projects, we felt confined to rigid U.S. concepts of race and ethnicity, and were not able to report the true diversity of the participants. Many foreign-born participants don't know which options to choose or are not represented on Federal demographic surveys. We recognize we must report in accordance with NSF guidelines and will provide information both in Table B and in the report narrative with the self-reported demographic terms.

Various populations are considered underrepresented in computing by NSF CISE including women of any race or ethnicity, Black or African Americans, Hispanic or Latinos, American Indians, Alaska Natives, Native Hawaiians, Native Pacific Islanders, and persons with disabilities. DART participants also include one faculty member and one graduate student who are veterans, nine first-generation graduate students, and one first-generation undergraduate student.

		Faculty	Graduate	Undergraduate	Category Total	Percent of Whole
GENDER	Female	15	11	8	34	36.56%
	Male	36	18	4	58	62.37%
	Prefer Not to say	1			1	1.08%
RACE AND ETHNICITY	Asian	22	11	2	35	37.63%
	Asian, Caucasian		1		1	1.08%
	Black or African American*	1	1	3	5	5.38%
	Caucasian	11	3	1	15	16.13%
	Caucasian, Native American*	1			1	1.08%
	Caucasian, White or European American		1	3	4	4.30%
	Hispanic*	1			1	1.08%
	Hispanic, Latina / Latino*		1		1	1.08%
	Middle Eastern or North African	2	3		5	5.38%
	Middle Eastern or North African, White or European American		1		1	1.08%
	Prefer Not to Say	3			3	3.23%
	White or European American	11	7	3	21	22.58%
	TOTAL	52	29	12	93	
				Total Female	34	
				Total URM*	8	