

* **Have the results been disseminated to communities of interest? If so, please provide details.**

* **What do you plan to do during the next reporting period to accomplish the goals?**

Products

Books

Book Chapters

Moosmüller, Hans (2023). Optical Properties of Nonspherical, Light-Absorbing Particles: Black Carbon and Mineral Dust Aerosols. *Light, Plasmonics and Particles (Nanophotonics) 1*. M. Pinar Mengüç and Mathieu Francoeur. Elsevier Science and Technology Books. Chapter 16. Status = AWAITING_PUBLICATION; Acknowledgement of Federal Support = Yes ; Peer Reviewed = Yes ; ISBN: 9780323999014.

Inventions

Journals or Juried Conference Papers

View all journal publications currently available in the [NSF Public Access Repository](#) for this award.

The results in the NSF Public Access Repository will include a comprehensive listing of all journal publications recorded to date that are associated with this award.

Hui, Hongwen and Lin, Fuhong and Meng, Lei and Yang, Lei and Zhou, Xianwei. (2023). Many-to-many matching based task allocation for dispersed computing. *Computing*. . Status = Deposited in NSF-PAR [doi:https://doi.org/10.1007/s00607-023-01160-2](https://doi.org/10.1007/s00607-023-01160-2) ; Federal Government's License = Acknowledged. (Completed by Harris, Frederick on 02/17/2023) [Full text](#) [Citation details](#)

Sion, Brad and Samburova, Vera and Berli, Markus and Baish, Christopher and Bustarde, Janelle and Houseman, Sally. (2023). Assessment of the Effects of the 2021 Caldor Megafire on Soil Physical Properties, Eastern Sierra Nevada, USA. *Fire*. 6 (2) 66. Status = Deposited in NSF-PAR [doi:https://doi.org/10.3390/fire6020066](https://doi.org/10.3390/fire6020066) ; Federal Government's License = Acknowledged. (Completed by Harris, Frederick on 02/13/2023) [Full text](#) [Citation details](#)

Sengupta, Deep and Samburova, Vera and Bhattarai, Chiranjivi and Moosmüller, Hans and Khlystov, Andrey. (2023). Emission factors for polycyclic aromatic hydrocarbons from laboratory biomass-burning and their chemical transformations during aging in an oxidation flow reactor. *Science of The Total Environment*. 870 (C) 161857. Status = Deposited in NSF-PAR [doi:https://doi.org/10.1016/j.scitotenv.2023.161857](https://doi.org/10.1016/j.scitotenv.2023.161857) ; Federal Government's License = Acknowledged. (Completed by Harris, Frederick on 02/16/2023) [Full text](#) [Citation details](#)

Li, Jiaxin and Lin, Fuhong and Yang, Lei and Huang, Daochao. (2023). AI Service Placement for Multi-Access Edge Intelligence Systems in 6G. *IEEE Transactions on Network Science and Engineering*. 1 to 12. Status = Deposited in NSF-PAR [doi:https://doi.org/10.1109/TNSE.2022.3228815](https://doi.org/10.1109/TNSE.2022.3228815) ; Federal Government's License = Acknowledged. (Completed by Harris, Frederick on 02/13/2023) [Full text](#) [Citation details](#)

Liu, Yunchuan and Ghasemkhani, Amir and Yang, Lei. (2023). Drifting Streaming Peaks-over-Threshold-Enhanced Self-Evolving Neural Networks for Short-Term Wind Farm Generation Forecast. *Future Internet*. 15 (1) 17. Status = Deposited in NSF-PAR [doi:https://doi.org/10.3390/fi15010017](https://doi.org/10.3390/fi15010017) ; Federal Government's License = Acknowledged. (Completed by Harris, Frederick on 02/13/2023) [Full text](#) [Citation details](#)

O. Tawose, J. Dai, L. Yang, and D. Zhao, "Toward efficient homomorphic encryption for outsourced databases through parallel caching," in ACM SIGMOD 2023, Seattle, WA, USA, June, 2023.. Status = ACCEPTED.

J. Greenberg, A. Tavakkoli, L. Wade, S. Sarker, and G. Stone, "Part Segmentation of Synthetic Tree Pointclouds with Deep Learning," IEEE Transactions on Geoscience and Remote Sensing, 2023.. Status = SUBMITTED.

"Erik Marsh, Joshua Dahl, Alireza Kamran Pishhesari, Javad Sattarvand, Frederick C. Harris, Jr. A Virtual Reality Mining Training Simulator for Proximity Detection Proceedings of the 20th International Conference on Information Technology : New Generations (ITNG 2023) Advances in Intelligent Systems and Computing. April 24-26, 2023 Las Vegas, NV.". Status = AWAITING_PUBLICATION.

"Joshua Dahl, Erik Marsh, Christopher Lewis, Frederick C. Harris, Jr. uMuVR: A Multiuser Virtual Reality and Body Presence Framework for Unity, International Journal of Computers and Their Applications, Vol 30, No 1, March 2023.". Status = AWAITING_PUBLICATION.

Christopher Lewis, Frederick C. Harris, Jr., Virtual Reality: An Overview, and How to do typing in VR, International Journal of Computers and Their Applications, Vol 30, No 1, March 2023.. Status = AWAITING_PUBLICATION.

Licenses

Other Conference Presentations / Papers

Prateek Arora, Tolga Karakurt, Eleni Avlonitis, Stephen J. Carlson, Brandon Moore, David Feil-Seifer, Christos Papachristos (2023). *Deep Learning-based Reassembling of an Aerial & Legged Marsupial Robotic System-of-Systems*. IEEE International Conference on Unmanned Aircraft Systems (ICUAS). Warsaw, Poland. Status = OTHER; Acknowledgement of Federal Support = Yes

Sion, B., Berli, M., Samburova, V., Baish, C. J., Bustarde, J., Houseman-Lehman, S. M. (2022). *Effects of the 2021 Caldor fire (CA, USA) on soil hydraulic and thermal properties: a pilot study*. GSA Annual Meeting. Denver, CO. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

"Abdullah O. Yusufzai, Haroon Stephen, Sajjad Ahmad" (2023). *Review of flash flood susceptibility modeling derived from machine learning algorithms, with input data from remote sensing sources*. World Environmental & Water Resources Congress. Las Vegas, Nevada. Status = SUBMITTED; Acknowledgement of Federal Support = Yes

Other Products

Educational aids or Curricula.

GRA Mentorship Curriculum. This curriculum that has been developed for graduate research assistants on the HDRFS project. This curriculum includes readings, activities, and resources regarding entering research, and entering mentoring in the STEM field. This is disseminated through planned quarterly trainings, as well as monthly feedback discussions. This curriculum is used to facilitate knowledge-building in the best practices of STEM mentorship and entering research projects, to be implemented to strengthen mentorship relationships and success in the state of Nevada.

Educational aids or Curricula.

Green-Box Curriculum: This is a middle school level curriculum about fire ecology. The curriculum includes 4 lessons, teacher's aids, activities, and all required materials. The curriculum will be piloted in Fall 2024 in WCSD and CCSD, and will then be revised and published as one of DRI's Green Boxes. At that point, it will be available for all Nevada teachers to check out as a free curriculum resource.

Training Material.

Graduate Research Assistant (GRA) Onboarding Packet. This document includes summary narrative about the HDRFS project, Education and Workforce Development goals and pathways, and focused information regarding the Pathway 3 Mentorship Framework. This document specifies graduate research assistant

responsibilities, and expectations involved with building the Mentorship Framework goals involved with Pathway 3. Additional resources and informational links for GRA's are included for review to become acquainted with HDRFS.

Training Material.

Data Analytics Coordinator (DAC) Onboarding Packet. This document includes summary narrative about the HDRFS project, Education and Workforce Development goals and pathways, and focused information regarding the Pathway 2 Data Analytic Certification program. This document specifies DAC roles and responsibilities involved with the program. Additional resources and informational links are included for review to become acquainted with HDRFS, and best practices in higher education recruitment, and marketing.

Other Publications

Scotty Strachan (2023). *Cooperative Cyberinfrastructure & Team Science: what is the role of EPSCoR RII?*. Presentation to Arkansas EPSCoR team. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Vera Samburova, Brad Sion, Palina Bahdanovich, Kevin Axelrod, Yasaman Raeofy, Markus Berli, Hans Moosmüller. (2022). *Physical and chemical characterization of post-fire soil samples (2021-2022 mega-fires)*. Science Talk, Desert Research Institute, Reno, Nevada, USA. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Vera Samburova (2022). *Seeking answers from the wild-fire ashes*. Speaker to University of Rostock, Germany. Status = PUBLISHED; Acknowledgement of Federal Support = Yes

Patent Applications

Technologies or Techniques

Nevada Identity Fabric architecture: design and implementation of federating all Nevada high-education institutions with InCommon.

NevadaNet Science and Teaching DMZ architecture: design and implementation of secure and performant statewide data network for friction-free team science and education.

Thesis/Dissertations

Websites or Other Internet Sites

Participants/Organizations

What individuals have worked on the project?

| Name | Most Senior Project Role | Nearest Person Month Worked |
|-------------------|---------------------------------|------------------------------------|
| Harris, Frederick | PD/PI | 5 |
| Moosmuller, Hans | Co PD/PI | 6 |