



USDA-ARS Postdoctoral in Predicting Protein Function and Interactions Regulating Crop Climate Adaptability

Organization: U.S. Department of Agriculture (USDA)

Application Deadline: 9/30/2022

Application Website: <https://www.zintellect.com/Opportunity/Details/USDA-ARS-2022-0158>

ARS Office/Lab and Location: A postdoctoral research opportunity is available with the MaizeGDB project, USDA-ARS, Ames, Iowa.

Research Project: This research opportunity will be part of the MaizeGDB (<https://www.maizegdb.org>). Under the guidance of a mentor and in collaboration with scientists and support staff, the participant will have the opportunity to gain experience and learn about the challenges of using machine learning approaches to gain structural and functional insights into genes at a pan-genome level, including identifying genes associated with climate adaptability, using predicted protein structures to assess gene annotation quality, predicting trait-based protein-protein interaction and regulatory networks, and explore the genomes of wild progenitors or closely related species to identify novel target genes.

Learning Objectives: The participant will learn HPC computing technologies and will help develop and co-lead ARS-wide workshops, resulting in a community of scientific practice on the relationships between protein structure, function, and phenotype; recent advances in machine learning; and pan-genomic applications of machine learning. The participant will have the opportunity to collaborate with multiple USDA-ARS scientists on using machine learning and comparative genomic approaches with the maize genome and to write scientific papers.

Preferred skills:

- Experience in machine learning and artificial intelligence
- Experience in computer science, bioinformatics or computational biology
- Experience with working with genetics and genomic data
- Experience working with large, diverse datasets and data mining approaches
- Proficiency in Linux and computational programming
- Enjoy working with the Maize research community

Appointment Length: The appointment is full-time. Appointments for 1-2 years with possible 3rd year extension.

Participant Stipend: The participant(s) will receive a monthly stipend commensurate with experience. Stipends range from \$68,000 to \$75,000 per year (plus benefits). Annual travel budget up to \$9,000. Health and dental insurance allowance.

Citizenship Requirements: This opportunity is available to U.S. citizens only.

USDA-ARS Contact: If you have questions about the nature of the research, please contact Carson Andorf (carson.andorf@usda.gov).