



Alex Knigge
Team Manager

Major: Computer Science, Minor: Mathematics
Alex brings HPC experience from Sandia National Labs and prior competitions, guiding the team with expertise. She plans to pursue a PhD in sustainable computing to design greener HPC systems.



Carly Salazar
Member

Major: Computer Science & Statistics
Carly, a senior double majoring in Statistics and Computer Science, applies HPC to hydrology models that support groundwater research, bringing strong analytical and computational skills to the team.



Bianca Solano
Member

Major: Computer Science, Minor: Mathematics
Bianca, a first-generation American from a Mexican background applies her software development experience, gained from internships including at a nuclear power plant, to HPC.



Beckett Dunlavy
Member

Major: Computer Science & German
Beckett is a junior, exploring graduate studies in HPC and human-computer interaction, with a focus on designing technical systems that serve people, bringing a people-centered design perspective to the team.



Abdullah Ismail
Member

Major: Computer Science, Minor: Business
Abdullah, a first-generation American born in Iraq, brings prior industry experience at Intel, he contributes with expertise in benchmarking and scalable system design.



Dr. Matthew Fricke
Faculty Advisor

UNM HPC TEAM

The University of New Mexico (UNM) is a tier-one research institution located in Albuquerque, New Mexico:

- The UNM Roadrunners HPC team was founded in January 2023 under the leadership of Dr. Matthew Fricke.
- The team proudly represents UNM's diversity, with over half of the members identifying as part of traditionally underrepresented groups.
- The Roadrunners bring together five students united by a passion for HPC and real-world problem solving.



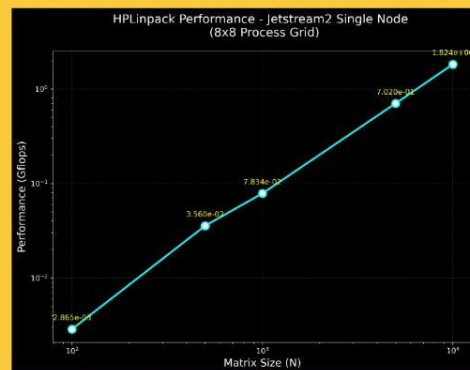
PARTICIPATION & STRATEGY

- Over the summer, the team met weekly to bring new members up to speed on essential HPC skills, including parallel computing, networking, hardware fundamentals, and benchmarking.
- During the academic year, the team meets twice a week to deepen their understanding and tackle competition-specific challenges.
- Many members are concurrently enrolled in UNM's HPC and Parallel Processing courses, allowing them to immediately apply classroom concepts to real-world scenarios.

RESOURCE MANAGEMENT

The Roadrunners practiced with Jetstream2 to streamline deployment and reduce configuration overhead:

- The team utilized Slurm and Warewulf to partition new compute nodes that can communicate with each other.
- All team members regularly create, configure, and shelf instances when not in use to avoid consuming unnecessary allocations.
- Team is also exploring different JS2 flavors and operating system setups to strike the right balance between flexibility and performance for the competition benchmarks.



The graph illustrates HPL performance trends with increasing matrix size on JS2.