



ABOUT US

The University of California (UC Merced), located in the heart of California, is a Hispanic-serving Tier 2 research institution and the youngest university to earn a Carnegie research classification. UC Merced supports high achieving and dedicated students from the Central Valley and throughout California.



Dr. Xiaoyi Lu

- Associate Professor of Computer Science and Engineering(CSE) at the University of California, Merced
- Research Interests: Distributed and parallel computing, high-performance communication and I/O technologies.
- Director of Parallel & Distributed Systems Laboratory.



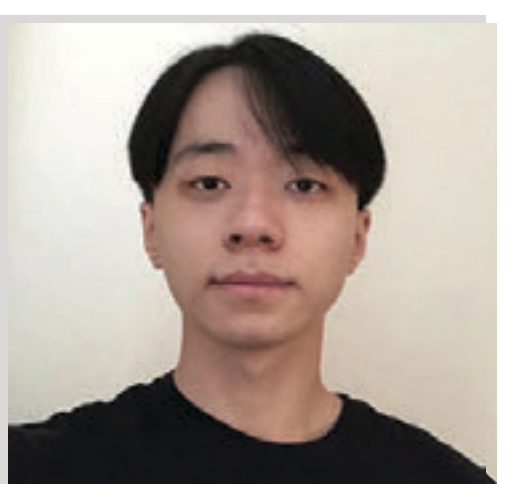
Alex Villa

- 3rd-year CSE Major, Applied Mathematics Minor
- Specialty: Parallel Computing Algorithms & Techniques
- Contributed to *FleCSI* at Los Alamos National Laboratory



Jeffrey Winters

- 4th-year CSE major
- Specialty: Networks
- Researched ways to improve the accessibility of *Spack* for non-technical users



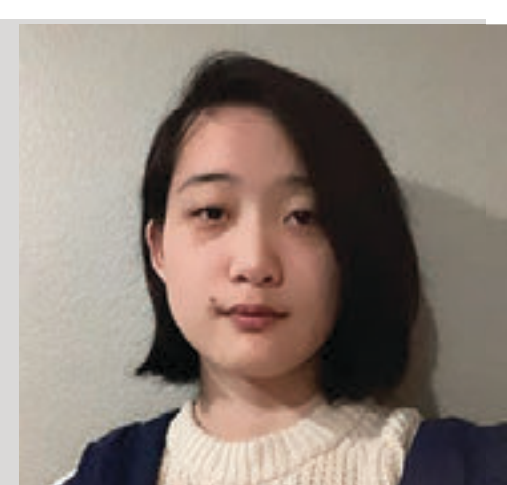
Daniel Xing

- 4th-year CSE major, Applied Mathematics minor
- Specialty: Full stack development, Bayesian optimization and group testing
- Undergraduate Researcher in PADSYS Lab



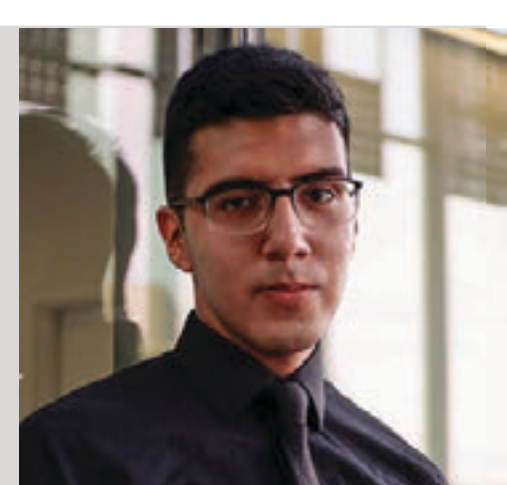
Munir Khan

- 4th-year CSE major
- Specialty: Algorithms design & Machine Learning
- First-generation student



Carolyn Cui

- 4th-year CSE major
- Specialty: Deep learning, foundation models
- Undergraduate research intern in PADSYS Lab



Draven Medina

- 5th-year CSE major
- First-generation student
- Specialty: Full stack development, energy-efficient data management
- Software engineer intern at Olixus Inc.

INTRODUCTION

HiBobCats is a first-time team of six students from UC Merced, driven by our search for new challenges and growth in competitive environments. With experience in undergraduate research, high performance computing (HPC) infrastructure, and software development, we are eager to push boundaries, expand our knowledge, and showcase our skills in this competition. We aim to inspire other UC Merced students to explore HPC and participate in future SC events.

STRATEGIES & PREPARATION

As we embark on our first IndySCC journey, we have extensively planned to ensure readiness and we have garnered support from various partners within our institution.

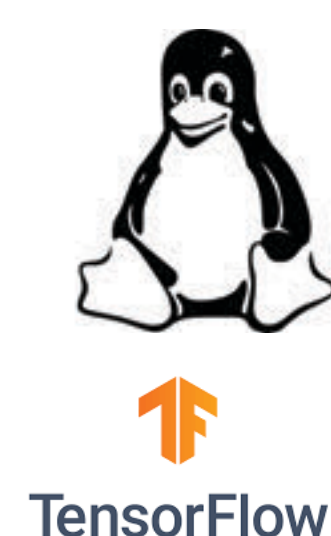
Summer Preparation

- Biweekly Zoom meetings with sub-teams focused on HPL and MLPerf
- Independent study of key parallel computing techniques, architectures, concepts: MPI, OpenMP, Infiniband, CUDA, parallelism strategies
- Familiarizing team with profiling tools (e.g. PerfTools, Intel Advisor, Nvidia Nsight)

Academic Year Preparation

- All-team meetings once per week to collaborate, coordinate, and report on progress, with the NAMD sub-team meeting twice per week and ICON sub-team meeting as needed
- Using campus' PINNACLES cluster to run benchmarks, maximize resource utilization, and further understand how concepts are put into practice
- Collaborating with CSE professors and staff involved with campus cluster for support and materials on distributed computing, computer architecture, and parallel computing
- Delivered presentations to enhance teaching skills
- Designate a team member toward Mystery Application

KNOWLEDGE & SKILLS



WHAT MAKES US UNIQUE?

Our team brings together individuals with various computer science backgrounds, each contributing unique abilities and passions within the vast field. We aim to combine these talents, enhancing the potential of every student involved, and by extension our team as a whole. For two-thirds of our team, this marks the first time they learn HPC concepts.

Our passion has driven us to

- Independently learn parallel computing, GPU programming, and networking concepts
- Gain research experience and contribute to major HPC software like *Spack* and *FleCSI*
- Bring valuable experience from National Labs, REUs and Industry, demonstrating our capability and determination as first-time IndySCC participants

DIVERSITY

UC Merced is a highly diverse institution that has always been focused on providing high-quality education and opportunities to communities around the Central Valley. The school consistently ranks in the top 5 for social mobility.

With an enrollment of 9,148 students last year, UCM boasts:

- 54% Hispanic students and 22% Asian students
- 65% first-generation students

Our team reflects this diversity, comprising:

- 50% first-generation students, mostly from the Central Valley
- Mostly underrepresented groups in general and within STEM

We will be sharing our experience with students at UC Merced to further encourage underrepresented groups to participate in HPC learning and engage with STEM in general.

ACKNOWLEDGMENTS

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