

Request for Campus Champion Allocation

Education Objectives

The learning curve to using high-performance computing resources is a significant factor hindering the widespread adoption and use of HPC in the engineering domain. Users already familiar with HPC know where to find resources, how to apply for allocations, how much computing power and time they need, and how to modify their code to work to take advantage of these systems. For users unfamiliar with HPC, getting started can be quite daunting. Several users need computing resources beyond their laptops and desktops, but not on the order of millions of core hours.

I am a new campus champion at the University of California San Diego. My background is in the engineering domain and the use of scientific computing in engineering design. I have been an active member of the Super Computing conference for the past 3 years. At SC21, I co-created and co-chaired the IndySCC [1]. IndySCC was developed to reduce entry barriers to HPC research and education and create a more inclusive and education-focused track.

I aim to expose engineering undergraduate and graduate students to computational research and tools, thereby developing the necessary pipeline for future research scientists and computing professionals. This will be achieved through seminars and mini-workshops where students will be guided all the way from creating an ACCESS account to running their first job on the cluster. I also aim to demonstrate and test the suitability of national HPC resources through ACCESS to researchers at UCSD who may be considering submitting a request for their own use.

Description Of Resources Needs

I am requesting a *discover* allocation. This allocation will allow me to request small allocations from a wide variety of resource providers. I will request four types of allocations: compute nodes, large memory compute nodes, GPU nodes, and storage. I intend to first request resources from SDSU's Expanse cluster as it is at UCSD, and will allow for easier support and training.

References

- [1] D. Sarojini and A. Gharbi, "Indyscc: A new student cluster competition that broadens participation," in *Practice and Experience in Advanced Research Computing*, 2022, pp. 1–4.

Darshan Sarojini
Postdoctoral Scholar

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(A) Professional Preparation

Institution	Location	Major/Area	Degree	Year
GATech	Atlanta, GA	Aerospace Engineering	Ph.D.	2021
GATech	Atlanta, GA	Computational Science & Engineering	M.S.	2021
GATech	Atlanta, GA	Aerospace Engineering	M.S.	2017
BMSCE	Bengaluru, KA	Mechanical Engineering	Ph.D.	2014

(B) Appointments

Title	Institution	Dates
Postdoctoral Scholar	LSDO lab, University of California San Diego	2022–present
Postdoctoral Fellow	ASDL, Georgia Institute of Technology	2021–2022
Project Assistant	M2D2 lab, Indian Institute of Science	2014–2015

(C) Significant Publications

- [1] D. Sarojini and A. Gharbi, “Indyscc: A new student cluster competition that broadens participation,” in *Practice and Experience in Advanced Research Computing*, 2022, pp. 1–4.
- [2] D. Sarojini, M. L. Ruh, A. J. Joshy, *et al.*, “Large-scale multidisciplinary design optimization of an evtol aircraft using comprehensive analysis,” in *AIAA SCITECH 2023 Forum*, 2023, p. 0146.
- [3] D. Sarojini and D. Mavris, “Structural analysis and optimization of wings subjected to dynamic loads,” *AIAA Journal*, vol. 60, no. 2, pp. 1013–1023, 2022.
- [4] C. Perron, D. Sarojini, D. Rajaram, J. Corman, and D. Mavris, “Manifold alignment-based multi-fidelity reduced-order modeling applied to structural analysis,” *Structural and Multidisciplinary Optimization*, vol. 65, no. 8, p. 236, 2022.
- [5] D. Solano, D. Sarojini, D. Rajaram, and D. N. Mavris, “Adjoint-based analysis and optimization of beam-like structures subjected to dynamic loads,” *Structural and Multidisciplinary Optimization*, 2022.

(D) Synergistic Activities

- UC San Diego campus champion (2022 – present)
- Co-chair of IndySCC at Super Computing 21 conference
- Vice-chair of IndySCC at Super Computing 22 conference
- Member of *AIAA Modeling and Simulation Technical Committee* (2022–present)