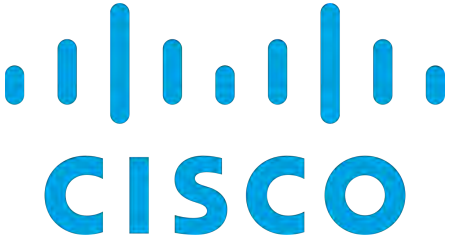
Howling HPC

NC State University

Berra Kara, Elijah Bouma-Sims, Janak Patel, Michael Kersting, Quinn Dibble, and Tri Nguyen



About the Team

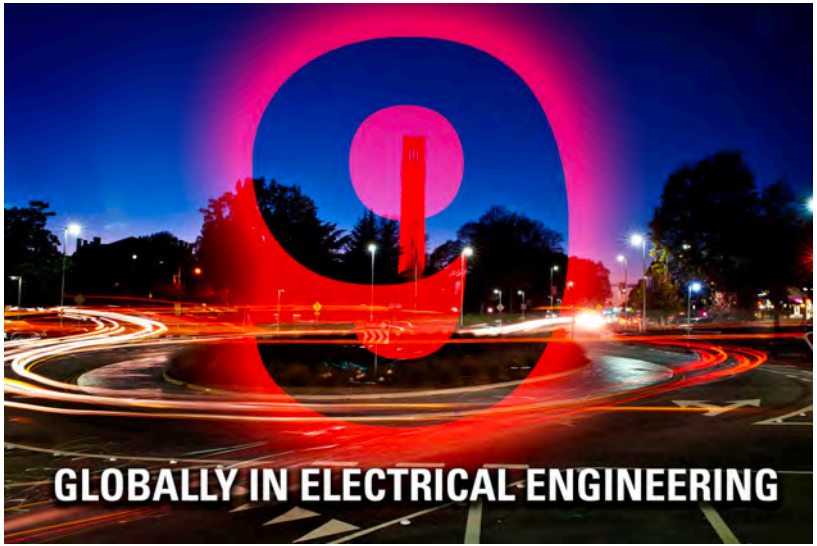
- Berra Kara
- Michael Kersting
- Janak Patel
- Elijah Bouma-Sims
- Tri Nguyen
- Quinn Dibble

Diversity

- We strive for diversity!
  - The team is being led by a female undergraduate student
  - Two of our team members represent the LGBTQ community
  - We represent 4 different countries: United States, Vietnam, Turkey, and India
  - We speak 6 spoken-languages! We won't even talk about programming languages ;)
  - We represent 4 majors: Electrical and Computer Engineering, Applied Mathematics, and History

We are from…

- We are from North Carolina State University located in Raleigh, North Carolina!
  - But… Our team members are from 4 different countries: United States, India, Turkey, and Vietnam



How We Formed Howling HPC

- Team was formed after Berra got back from Experiencing HPC for Undergrads at SC18
- John Ravi and Berra Kara formed the team with Dr. Greg Byrd's help.
- In March, Cisco became our official sponsor
- In April, we formed a seminar class for this competition
- In April, we took CSC 548– Parallel Programming in CSC – the only parallel programing class at the undergrad and grad level at NC State

Applications

- Berra Kara
  - Reproducibility Challenge
- Tri Nguyen
  - Reproducibility Challenge and IO-500
- Michael Kersting
  - SST and Mystery App
  - System Adm.
- Janak Patel
  - VPIC
- Quinn Dibble
  - HPL and HPCG
  - System Adm.
- Elijah Bouma-Sims
  - SST

Strategies

- SST on the cloud
  - Not GPU accelerated
- We had a high-power head node with two Nvidia T4 GPUs in April; however, we wanted to consume less power
  - We switched to Intel NUC to bring our power consumption down
- Run Reproducibility the first day to have enough time to write the paper and visualize the results
  - To have the availability of doing check-pointing
- Run VPIC the second day or if enough money left, run it on the cloud
  - CPU-accelerated

Acknowledgments

- Special thanks to
  - Mike Younkers, Tae Hwang, Steven Carter, and Jeff Squyres from Cisco
  - NC State Electrical and Computer Engineering Department
  - NC State Office of Undergraduate Research
  - RedHat
  - Nvidia

Acknowledgments Con’t

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  - John Ravi (secondary advisor)
  - Dr. Frank Mueller (secondary advisor)
  - Onkar Patil (Secondary advisor)
  - Dr. Michela Becchi (Secondary advisor)