Vijay Thakkar

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@DROP_All_TABLES
thakkarV

I Education

PhD student, Computer Science, Georgia Institute of Technology, 2021-Present.

Research area: Software-Hardware Codesign for Exascale Dense Linear Algebra Libraries

Advisor: Richard Vuduc

M.S., Computer Science, Georgia Institute of Technology, 2019-2021.

NOTE: Unfinished, matriculated into a PhD program.

Advisor: Richard Vuduc

B.S. cum Laude, Computer Engineering, Boston University, 2019.

II Employment History

2021-present	**NVIDIA Corporation**, Deep Learning Compute Architecture Intern. Role: Lead designer for Cutlass 3.0.
Summer 2020	**Cerebras Systems**, Parallel and distributed algorithms intern. Role: High performance compute kernels (fast kernels) team.
2020-present	**HPC Garage Lab**, GTA and GRA, Georgia Institute of Technology.
Summer 2019	**Arm Holdings**, Software engineering Intern. Role: Cycle accurate models compiler team.
Summer 2018	**Bloomberg L.P.**, Software Engineering Intern.
2016-2019	**Undergraduate Researcher** in deep learning, advisor: Brian Kulis.
2016-2018	**Boston University College of Engineering** Teaching Assistant for various engineering courses.

III Honors and Awards

November 2020 **Gordon Bell Prize Finalist**, ACM/IEEE Conf. Supercomputing 2020 (SC20).

November 2020 **3rd Place, Virtual Student Cluster Competition**, ACM/IEEE Conf. Supercomputing 2020 (SC20).

May 2020 **Daniel V. Jackson Fellowship**, College of Computational Science and Engineering, Georgia Tech.

May 2019 **Undergraduate Student Service Award**, Boston University College Of Engineering.

2016-2019 **Dean's List**, 7x awardee, Boston University College of Engineering.

IV Research

For citation counts per web-based indices, see
https://scholar.google.com/citations?user=XTVUpYcAAAAJ

IV-A Conference Presentations with Proceedings

[P1] P. Sao, H. Lu, R. Kannan, **Vijay Thakkar**, R. Vuduc, and T. Potok, "Scalable all-pairs shortest paths for huge graphs on multi-GPU clusters," in *Proceedings of the 30th International Symposium on High-Performance Parallel and Distributed Computing (HPDC)*, Stockholm, Sweden: ACM, Jun. 2021. [19%]

[P2] R. Kannan, P. Sao, H. Lu, D. Herrmannova, **Vijay Thakkar**, R. Patton, T. E. Potok, and R. Vuduc, "Scalable knowledge-graph analytics at 136 petaflop/s," in *Proceedings of the ACM/IEEE International Conference for High-Performance Computing, Networking, Storage, and Analysis ("Supercomputing" or SC)*, Atlanta, GA, USA, Nov. 2020. **Finalist, Gordon Bell Prize**

[P3] **Vijay Thakkar**, R. Manzelli, A. Siahkamari, and B. Kulis, "Conditioning deep generative raw audio models for structured automatic music," in *Proceedings of the International Society for Music Information Retrieval (ISMIR)*, Paris, France, Sep. 2018.

IV-B Workshop Papers

[W1] R. Manzelli, **Vijay Thakkar**, A. Siahkamari, and B. Kulis, "An end to end model for automatic music generation: Combining deep raw and symbolic audio networks," in *Proceedings of the 6th International Workshop on Musical Metacreation (MUME 2018)*, Salamanca, Spain, Jun. 2018.

IV-C Posters

[Q1] R. Manzelli, **Vijay Thakkar**, and B. Kulis, "Combining deep symbolic and raw audio models for improved automatic music generation," in *Proceedings of the 12th Women in Machine Learning Workshop (WiML 2017)*, Long Beach, California, Dec. 2017.

IV-D Talks

[T1] *Dense semiring linear algebra on modern cuda hardware*, SIAM CSE 2021 Mini Symposium - GraphBLAS: Tools, Algorithms, and Applications, Mar. 2021. [Online]. Available: https://bit.ly/thakkar-cse-21.

[T2] *Hpc industry roundup: 1st half 2020*, HPC & GPU Supercomputing Group of Boston, Aug. 2020. [Online]. Available: https://bit.ly/hpc1h20.

[T3] *Hpc industry roundup: 2nd half 2019*, HPC & GPU Supercomputing Group of Boston, Aug. 2019. [Online]. Available: https://bit.ly/hpc2h19.

IV-E Submitted Papers

[S1] P. Sao, L. Hao, **Vijay Thakkar**, R. Kannan, D. Herrmannova, R. Patton, R. Vuduc, and T. Potok, *Communication and memory-efficient all-pair shortest path (APSP) computation on GPU-accelerated clusters*, Aug. 2020.

V Volunteering

V-A Conference Program Committee Activities

November 2021 **12th IEEE International Workshop on Performance Modeling, Benchmarking and Simulation of High Performance Computer Systems**, Program committee.

November 2021 **ACM/IEEE Conf. Supercomputing 2021** (SC21), Lead student volunteer.

August 2021 **IEEE Hot Chips 33**, Student volunteer.

November 2020 **ACM/IEEE Conf. Supercomputing 2020** (SC20), Lead student volunteer.

August 2020 **IEEE Hot Chips 32**, Student volunteer.

November 2019 **ACM/IEEE Conf. Supercomputing 2019** (SC19), Student volunteer.

V-B Mentoring and Leadership

2019-present **Graduate Mentor**, Georgia Tech Student Cluster Competition - Team Phoenix

November 2019 **Peer Mentor**, ACM/IEEE Conf. Supercomputing 2020 (SC20).

2017-2019 **Found and President**, Boston University High Performance Computing Club.

V-C Open Source Projects

[F1] **Linux kernel contributions**. `perf` PMU counter support for AMD Zen1 and Zen2 processors.
[F2] **NVIDIA Cutlass**.
[F3] **RoB Size Tool** by Travis Downs - A microbenchmark reverse engineering tool for out of order CPUs.
[F4] **MemeOS** - 32bit x86 operating system built from the bootloader up with thread creation and management, curses like 4bit VGA color terminal, and UFS file system.