Michael E. Rowan

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https://mrowan137.dev

Employment

AMD

Senior Member of Technical Staff · Santa Clara, CA (2024 – Present)

Member of Technical Staff · Santa Clara, CA (2021 – 2024)

- Application performance optimization for the exascale supercomputer *El Capitan.*
- Spotlight Award (2024) for contributions to El Capitan June 2024 Top500 ranking.
- Spotlight Award (2024) for contributions to MI300 execution and product launch.
- Spotlight Award (2021) for on-site support at the exascale supercomputer *Frontier.*

Berkeley Lab

Postdoctoral Fellow · Berkeley, CA (2019 – 2021)

- Performance optimization of particle-in-cell code *WarpX* for GPU+CPU platforms.
- Improved load balancing in WarpX, achieving $4\times$ speedup in realistic use cases.
- Implemented GPU kernel timer using CUDA Profiling Tools Interface.
- Benchmarked AI/ML workloads run on HPC platforms.
- Co-organized *GPUs for Science 2020* training event.

Education

Harvard University

Ph.D. in Physics · Cambridge, MA (2013 – 2019)

- Dissertation: *Dissipation of Magnetic Energy in Collisionless Accretion Flows*
- Awards: Purcell Fellowship, An Wang Fellowship, Wallace Noyes Fellowship

Oberlin College

B.A.s in Physics and Mathematics · Oberlin, OH (2009 – 2013)

- Thesis: *Doppler-free Sat. Fluor. Spectroscopy of Lithium Using a Stabilized Freq. Comb*
- Awards: NSF S-STEM Award for Computation & Modeling, Weinstock Prize in Physics, Stern Merit Scholarship in Natural Sciences, Phi Beta Kappa, Sigma Xi

Skills

Research, GPU computing, Programming (HIP/CUDA, C, Python), Perf. tuning

Selected Publications

M.E. Rowan, A. Huebl, K.N. Gott, J. Deslippe, M. Thévenet, R. Lehe, & J.-L. Vay (2021). "In-situ Assessment of Device-side Compute Work for Dynamic Load Balancing in a GPU-accelerated PIC Code." In *PASC21: Proceedings of the Platform for Advanced Scientific Computing Conference 2021*.

M.E. Rowan, L. Sironi, & R. Narayan (2017). "Electron and Proton Heating in Trans-relativistic Magnetic Reconnection." In *The Astrophysical Journal* 850 29.