NOLAN BAKER

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EDUCATION

University of Delaware *May 2023, Newark, DE*
Bachelor of Science in Computer Engineering
GPA: 3.35
Relevant Course Work: Data Structures, Microprocessor Systems, High-Performance Computing

TECHNICAL STRENGTHS

Languages	C, C++, VHDL, Python, HTML/CSS, MIPS, Fortran
Technologies & Tools	OpenMP (GPU offloading), Cuda, Pthreads, MPI, Github, Linux

INTERNSHIP EXPERIENCE @ LAWRENCE BERKELEY NATIONAL LAB

Student Researcher Summer 2022
Undergraduate Researcher *Advised by Ronnie Chatterjee*

- Wrote, compiled and executed unit tests in C, C++ & Fortran to test and validate new OpenMP directives on NERSC's Perlmutter & Cori high-performance supercomputing systems.
- Conducted analysis of compilers on high-performance supercomputing systems to ensure compliance with OpenMP specification.
- Configured and maintained periodic test suite and module setup for tooling on supercomputing systems.

INTERNSHIP EXPERIENCE @ INDIANA UNIVERSITY

NSF Jetstream REU Project Summer 2020, 2021
Undergraduate Researcher *Advised by Winona Snapp-Childs*

Summer 2021

- Developed and configured a virtual machine on Jetstream Cloud system for testing of Verification and Validation (V&V) suite, including installation of compilers.
- Implemented unit tests in C, C++, and Fortran to validate newly introduced OpenMP directives on NSF Jetstream computing cloud infrastructure, including compilation and execution.
- Presented a poster at SC21 showcasing project work: https://bit.ly/3jWsOwB

Summer 2020

- Performed full-stack development for website which ranks >2000 high performance computing systems.
- Developed front-end using HTML, CSS, Javascript & back-end using PHP and MySQL database.
- Presented results in a poster and research article at the International Conference for High Performance Computing, Networking, & Analysis 2020 (SC20): https://bit.ly/3S23odr

RESEARCH PROJECT

Exascale Computing Project SOLLVE OpenMP Verification & Validation January 2021 - Present
Undergraduate Researcher *Advised by Prof. Sunita Chandrasekaran*

- Write unit tests in C, C++ & Fortran to test and validate new OpenMP directives (offloading i.e. 4.0 and above) targeting Oak Ridge National Laboratory's (ORNL) Summit & Crusher systems, Argonne National Laboratory's (ANL) Arcticus JSLE, & NERSC's Perlmutter system.
- Run and gather results of the ECP SOLLVE Valdiation and Verification (V&V) testsuite on Summit, Crusher, Arcticus, Perlmutter.

RESEARCH PAPER

Thomas Huber, Swaroop Pophale, Nolan Baker, et al. Nov. 15 2022

- ECP SOLLVE: Validation and Verification Testsuite Status Update and Compiler Insight for OpenMP
- https://doi.org/10.48550/arXiv.2208.13301