Peter Van Sandt

✉ peter.vansandt@gmail.com
eyepatchParrot.github.io
linkedin.com/in/petervansandt

WORK EXPERIENCE

October 2019 - Present **Dell-EMC Isilon**, *Senior Software Engineer*, Seattle, WA.
- Owned request validation, unmarshaling, dispatch, and error handling in development of forthcoming protocol stack.
- Identified and mitigated performance issues in development of new protocol stack matching the performance of an industry-leading NFS implementation.
- Guided strategy by authoring and presenting performance and architecture analyses of similar products for upper management.

June 2018 - October 2019 **Dell-EMC Isilon**, *Software Engineer - Performance*, Seattle, WA.
- Developed workload analysis tool with dtrace and SQL used to guide customer decisions and inform support engineers.
- Developed automated performance regression analysis tool with pandas to support performance team in root cause analysis.
- Root cause analysis of performance issues in an NFS protocol stack.

Fall 2016 - May 2018 **University of Wisconsin-Madison**, *Undergraduate Researcher*, Madison, WI.
- Developed interpolation search algorithms for uniform and non-uniform data improving throughput in numpy by 380% and LevelDB by 146%.
- Sped LevelDB with lock-free algorithms and cache using C++ improving read throughput by 45% .

May 2017 - August 2017 **Dell-EMC Isilon**, *Performance Engineering Intern*, Seattle, WA.
- Developed automated diagnosis of read path using pandas and identifying a 50% performance regression.
- Developed binary encoding for use in JSON using C++ improving throughput 100x.
- Modeled read path on distributed file system using internal C++ statistics framework highlighting reads that use caches inefficiently.

June 2016 - August 2016 **Jump Trading, LLC.**, *Software Developer Intern*, Chicago, IL.
- Eliminated algorithmic bottlenecks in 100KLOC internal application improving response time by 200%.
- Developed performance visualization and analysis tool for use internally.

May 2015 - August 2015 **Epic Systems Corporation**, *Software Developer Intern*, Verona, WI.
- Redesigned application to integrate multiple information streams for real-time location-tracking application using C# for preview at 18,000 person user's group meeting.
- Devised and implemented approximate space-filling algorithm for patient information dashboard in C#.

EDUCATION AND AWARDS

May 2018 **B.S., Computer Sciences, Honors, ΦBK**, *University of Wisconsin-Madison*, GPA: 4.0/4.0.
- Graduate Coursework: Algorithms, High Performance Computing, Distributed Systems
- Languages: C++, C, Python 2.7, dtrace, CUDA C

2019 Dell Global Storage Hackathon, Best in *AI/ML* and *Innovative Idea*

2019 Van Sandt, Peter, Yannis Chronis, and Jignesh M. Patel. "Efficiently Searching In-Memory Sorted Arrays: Revenge of the Interpolation Search?." *Proceedings of the 2019 International Conference on Management of Data.* 2019.

2017 DeWitt Undergraduate Scholarship for academic excellence and research in Computer Science

PERSONAL PROJECTS

2017 Developed B-tree index, buffer manager, and space efficient word search for database class covering database internals, design, and algorithms.

2017 Developed web application to provide guidance on low-cost healthy eating with linear programming.

2017 Developed and analyzed performance of optimized linear search, and base case sorting algorithms using C++ and AVX2.

2016 Vectorized insertion and rank order sorts of fixed-size arrays using C and AVX2 intrisics.

2016 Developed text-record sorting utility using trie-based burst-sort in C winning as the fastest in a class of $\tilde{3}00$.

2012 Developed GPU-accelerated, Toom-Cook multiplication bignum library in C++, and CUDA C.

2012 Developed 32-bit random number generator using 650X ASM for Commodore PET.