

EVERETT RUSH

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SUMMARY

I have a passion for developing high quality software with applications to basic scientific research and machine learning. I help build efficient, reliable, and scalable systems for moving, managing, and analyzing big data. I work well in an environment with agile development practices and continuous integration. I am used to working in a secure environment with strict security guidelines.

- Experience working with interdisciplinary groups of researchers to deliver high quality scientific software on-time.
- Experience developing machine learning applications using multi-modal data: text, DNA, and structured electronic health records
- Good oral and written communication skills
- Self-starter that is motivated to excel in data engineering

TECHNICAL SKILLS

I am able to handle the five V's of big data. I have training and experience in technologies that support my engineering role at the intersection of big data and HPC in a modern data center.

- **Machine Learning:** Pytorch, Spark ML, Tensorflow
- **Big Data Technologies:** Apache Spark, Hive, SQL Server, Parallel/Distributed File systems, Cassandra, Parquet
- **Software Engineering:** Agile Development, Gitlab, CI/CD, Unit Testing, Micro-service Architecture
- **Scalable Analytics:** MPI, Map-Reduce, GPGPU, Workflow systems
- **Containerization:** Docker, Podman, Singularity, Kubernetes
- **Computational:** Programming Languages(Python, C++, C, Java, Scala)
- **Metadata Management:** CKAN
- **Visualization:** Plotly, Tensorboard

WORK EXPERIENCE

Oak Ridge National Laboratory

Data Engineer I (TPO2)

- Led the Scientific Computing Team for MVP-CHAMPION
- Member of the Data Management Team for MVP-CHAMPION

Oak Ridge

Aug. 2017 to present

ORISE Intern

- Learned aspects of data management for scientific data
- Modernized and automated streaming data pipeline for atmospheric data
- Modernized visualization of historic atmospheric data

May 2016 to Aug 2017

EDUCATION

- **University of Tennessee**, Knoxville, TN
 - Ph.D. Candidate, Computer Science, Aug. 2020 - Present
- **University of Louisville**, Louisville, KY
 - Ph.D. Candidate, Computer Science, Aug. 2015 - Aug 2016
 - M.S., Computer Science, Aug. 2013 - Aug. 2015
 - B.A., Liberal Studies, Aug. 2007 - May 2013
 - * Concentration in Mathematics

TEACHING AND MENTORING EXPERIENCE

- 2014 to 2016 - Graduate Teaching Assistant for Operating Systems
- 2014 - Global Teaching Assistant for Edx: Software as a Service

AWARDS

- **University of Louisville**
 - University of Louisville Fellowship Aug. 2015
 - University of Louisville Trustee's Scholar, Aug. 2007

PUBLICATIONS

- [1] Everett Rush et al. "JSONize: A Scalable Machine Learning Pipeline to Model Medical Notes as Semi-structured Documents". In: *2020 AMIA Technology Summit, Houston, TX, USA*
- [2] Kathryn E Knight et al. "Standardized Architecture for a Mega-Biobank Phenomic Library: The Million Veteran Program (MVP)". in: *AMIA Joint Summits on Translational Science proceedings. AMIA Joint Summits on Translational Science 2020 (2020)*, 326–334. ISSN: 2153-4063. URL: <https://europepmc.org/articles/PMC7233040>
- [3] Everett Neil Rush. "Characterizing Sub-Cohorts via Data Normalization and Representation Learning". In: 2020. ISBN: 9781728194295
- [4] Benjamin Mayer et al. "Evaluating Text Analytic Frameworks for Mental Health Surveillance". In: *34th IEEE International Conference on Data Engineering Workshops, ICDE Workshops 2018, Paris, France, April 16-20, 2018*. 2018, pp. 39–47. DOI: [10.1109/ICDEW.2018.00014](https://doi.org/10.1109/ICDEW.2018.00014). URL: <https://doi.org/10.1109/ICDEW.2018.00014>
- [5] E. Tomes, E. N. Rush, and N. Altiparmak. "Towards Adaptive Parallel Storage Systems". In: *IEEE Transactions on Computers* 67.12 (2018), pp. 1840–1848
- [6] Everett Neil Rush et al. "Dynamic Data Layout Optimization for High Performance Parallel I/O". in: *23rd IEEE International Conference on High Performance Computing, HiPC 2016, Hyderabad, India, December 19-22, 2016*. 2016, pp. 132–141. DOI: [10.1109/HiPC.2016.024](https://doi.org/10.1109/HiPC.2016.024)
- [7] Everett Neil Rush and Nihat Altiparmak. "Exploiting Replication for Energy Efficiency of Heterogeneous Storage Systems". In: *24th IEEE International Symposium on Modeling, Analysis and Simulation of Computer and Telecommunication Systems, MAS-COTS 2016, London, United Kingdom, September 19-21, 2016*. 2016, pp. 79–84
- [8] Ranjeet Devarakonda et al. "Next-gen tools for big scientific data: ARM data center example". In: *2016 IEEE International Conference on Big Data, BigData 2016, Washington DC, USA, December 5-8, 2016*. 2016, pp. 3968–3970. DOI: [10.1109/BigData.2016.7841078](https://doi.org/10.1109/BigData.2016.7841078)
- [9] Giri Prakash et al. "HPC infrastructure to support the next-generation ARM facility data operations". In: *2016 IEEE International Conference on Big Data, BigData 2016, Washington DC, USA, December 5-8, 2016*. 2016, pp. 4026–4028. DOI: [10.1109/BigData.2016.7841098](https://doi.org/10.1109/BigData.2016.7841098)