

Alex B Buettner

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EDUCATION

Master of Science, Chemical Engineering

UNIVERSITY OF NEVADA, RENO

AUG 2016 – DEC 2018

Clinical Dataset Analysis and Patient Outcome Prediction via Machine Learning

Bachelor of Science, Chemical Engineering

UNIVERSITY OF NEVADA, RENO

AUG 2012 – MAY 2016

Process and Energy Emphasis. **Minor:** Mathematics

EXPERIENCE

BIG DATA AND MACHINE LEARNING

Senior Systems Programmer

BBVA APR 2020 – PRESENT

Senior big data engineer with an emphasis in data ingestion and backend management. Role involves use of common big data solutions, including HDFS file system, Spark, and managed cluster backend, with development in Scala and Python. Use of job scheduling tools for automation and batch processing. Team leader and manager in role hierarchy with compact groups of developers under my supervision. Weekly reporting to line of business and upper management to ensure project timelines are met.

Consultant Big Data Engineer

Everis/BBVA JAN 2019 – APR 2020

Data engineering consultant with an emphasis in data ingestion and backend management. Development of internal HDFS big data platform to centralize bank data and create new products and services for bank patrons and employees. Critical data delivery for a new bank product, Digital Work Place (DWP). The DWP application includes client management, pipeline development, and management of loan processes. Role included use of modern solutions and technologies such as Python, Scala, Spark, AWS, and Jupyter. Maintained role as a data team lead for the DWP project, which includes responsibilities such as team management, sprint planning, and workflow optimization.

Analysis, Characterization, And Prediction on Large Datasets

University of Nevada, Reno MAY 2017 – DEC 2018

Use of various machine learning methods for predictive analysis of large datasets, with an emphasis on dependency extraction. Performed data embedding and clustering on high-dimensional data for visualization and classification. Handled data using neural networks and conventional machine learning techniques.

Development of Clinical Process Models from Historical Data

University of Nevada, Reno MAY 2017 – DEC 2018

Use of semi-supervised machine learning methods for rapid extraction of process dependencies and relationships. Developing and testing of a self-consistent machine learning framework for optimization of large scale processes.

SCIENTIFIC COMPUTING

Metal Hexaboride Structure and Energetics Modeling

University of Nevada, Reno MAY 2014 – MAY 2017

Developed and assisted with the generation of inter-atomic pair potentials from density functional theory (DFT) and molecular dynamics (MD) simulations.

Structural Modeling of Reverse-Micelle Microreactors

University of Nevada, Reno MAY 2014 – MAY 2015

Performed MD study of the stability and morphology of AOT/water/iso-octane reverse micelles. Applications included the use of molecular dynamics codes for prediction and optimization of AOT/water/iso-octane reverse micelles in solution. Utilized common pair potentials for biological systems.

SOFTWARE SKILLS

PYTHON/SCALA	<i>Sever years of advanced studies using the Python languages in various computing settings, including machine learning, data engineering, custom scripting, and statistical simulation. Experienced in advanced numerical methods, statistical modeling, as well as object-oriented coding with multiprocessing applications. Designed and configured customized small-scale agent-based modeling framework for use in research applications. Two years of Scala development experience as applicable to big data and data engineering projects. Implementation of custom objects, configurations, and applications for custom ingestion of batch data to feed front-end applications.</i>
MACHINE LEARNING	<i>Three years of experience using machine learning frameworks such as sklearn, TensorFlow, and Keras for high-throughput data analysis. Development of various machine learning methods in both supervised and unsupervised learning environments, including hidden Markov models, mixture models, feed-forward neural networks, generative adversarial networks, convolutional neural networks, and time-series predictive networks (LSTM). Experience with GPU applications of each of these methods.</i>
BIG DATA	<i>Three years of experience working with Spark in big data settings. Deep understanding of Spark DataFrames and their associated tools, as well as schema development and data partitioning. Experience designing, configuring, and maintaining HDFS filesystems and HPC backend components.</i>
LINUX/BASH	<i>Used BASH language for pre and post-processing of datasets and generating input scripts. Five years of experience writing automated wrapper scripts for various optimization and simulation codes, with an emphasis in error handling and continuous processing. Utilized Awk and Sed utilities for advanced manipulation of text files and data files. Advanced experience in setup and management of numerous Linux-based operating systems, including RHEL/CentOS, Ubuntu, and Debian.</i>

PUBLICATIONS AND PROJECTS

2020	AI and Machine Learning Enabled Personalized Learning Framework <i>Personal Project, Current Work</i>
2018	Real-Time Clinical Process Optimization via Machine Learning and Big Data Analysis <i>Masters Thesis</i>
2015	Interatomic pair potentials from DFT and molecular dynamics for Ca, Ba, and Sr hexaborides K.M. Schmidt, A.B. Buettner, O.A. Graeve and V.R. Vasquez, <i>J Mater Chem C</i> , 2015, 3 , 8649–8658. <i>DOI:10.1039/C5TC01398D</i>
2014	Ionic effects on the stability and morphology of AOT/water/iso-octane reverse micelles <i>XXV International Materials Research Congress</i> <i>Cancun, Mexico, August 2014</i>