CHAITANYA BELWAL

Houston, TX • cbelwal@gmail.com • +1-832-965-6497

HIGHLIGHTS

- Coded an object-oriented Machine Learning library from scratch that encapsulated core statistics and ML algorithms.
- Did seminal research in software performance/ML resulting in 24 papers in IEEE/ACM journals & conferences.
- Converted climate modeling software to do parallel execution in a cluster reducing run time by over ~98%.
- 20+ years of hands-on coding and architecture experience in diverse platforms and programming languages.
- Designed and coded 27 Android apps in Java which got 500K+ downloads with 30k+ active users in 115 countries.

WORK EXPERIENCE

Tanium, Kirkland, WA *Technical Account Manager* (Jul. 2018 – Current)
- Wrote several Python modules to customize Tanium platform for customer use cases.
- Guided setup of SAML/SSO based IAM with integration with multiple IdPs (On-prem/Azure AD, Okta etc).
- Guided customers in feature engineering of ML models for automating security alerting from SIEMs.
- Built a distributed memory HPC framework over the Tanium platform and pitched idea to CEO.
- Built a automated way to triage security alerts using a Naive Bayes classifier.
- Debugged several issues related to software performance and network connectivity in challenging environments.
- Designed and coded an an object-oriented library in Python (v1) and C# (v2) to abstract Tanium's REST API saving. customer's several man-hours in automating their operation and security workflows.Recognized with SPOT award.

Halliburton, Houston, TX *Global Software Manager, Production Solutions* (Jun. 2017 – Jun. 2018)
- Built a data-science team from ground up leading to the successful completion of a gas-liquid pooling predictor using time-series ML algorithms opening a pipeline market worth 50+ million.
- Worked with data scientists to analyze several unsupervised learning methods to identify major impact factors in coiling tubing data.
- Guided teams on feature engineering and selection of ML models for failure prediction in artifical lift
- Applied PyTorch for digitization of data using OCR conversion from hand written notes
- Architected data pipelines from disparate data sources for coiled tubing and pipeline operations which includes raw text, SQL and MongoDB.
- Scaled the development organization to 40+ XFN team of developers, data scientists, QA, DevOps, scrum masters and product owners with budgetary responsibility of 8MM+.

Halliburton, Houston, TX *Software Development Manager/Chief Architect, Sensor Physics* (Jun. 2014 – May 2017)
- Designed the architecture of fiber-optic based Distributed Acoustic Sensing (DAS) system that had hard real-time constraints of processing data within 18 seconds with an upper bound data flowrate of 1.5 GB/s. Architecture made innovative use of Ramdrives, named pipes, CUDA and Meta's WDT tool to achieve all design objectives.
- Led the team that developed an PySpark based scalable HPC framework for binary Fortran/C++ DLLs leading to a significant improvement in the execution time of scientific algorithms and on-time delivery of analysis results to customers.
- Designed the scalable architecture and guided the implementation of a SOAP & REST based usage analytics webservice in C# to provide real time business intelligence.

Dasmic open-source machine-learning library, *Founder (part-time)* (Aug. 2017 – December 2019)
- Designed and coded from scratch a machine learning library in C#/.NET Core that implements several ML algorithms (Regression, ID3/C45, SVM, NN, CNN etc.) with an OOP design philosophy (https://github.com/cbelwal/CSharp).
- Implemented a full-feature matrix and statistics computation library for supporting core ML math. Matrix computations are parallelized using .NET Task Parallel Library and use jagged arrays for faster memory access.
- Developed an extensible framework for deep-learning neural networks using an encapsulated layer class with user specified neuron count.

Dept. of Computer Science, **University of Houston**, *Doctoral Researcher (part-time)* (Aug. 2006 – Aug. 2012)
- Using synthetic tasks sets built ML based models to predict response time in Functional reactive programs.
- Coded an extensible framework to generate synthetic data using pluggable domain-specific modules.
- Derived several mathematical relationships between program response times and real-time guarantees.
- Served in program committee / peer-reviews of several IEEE and ACM conferences and journals.

Weatherford International, **Houston, TX** *Software Development Manager* (Feb. 2013 – Jun. 2014)
- Conducted research on applying machine learning algorithms for failure prediction in Artificial Lift systems and helped set the roadmap for integration of predictive analytics in existing analysis tools.
- Helped build a Random Forest based ML model to predict failure in ESP pumps.
- Guided team in implementation of mathematical routines in C# for analysis of real-time artificial lift data.

Tradocly.com, Houston, TX *Founder / Programmer (part-time)* (Aug. 2017 – Aug. 2019)
- Coded a SaaS documentaton translation service in C# leveraging Azure Natural Language Processing APIs.

University of Houston-Clear Lake, Clear Lake, TX *Adjunct Professor (part-time)* (Aug. 2014 – Current)
- Teaching object-oriented programming to junior and senior level students.

EPCON International, Houston, TX *Software Development Engineer* (Jul. 2003 – Jun. 2008)
- Implemented several mathematical routines for solving differential equations, regression and matrix operations in C#, C++ and Fortran.
- Built a propriety script language to allow engineers quickly build commercial grade engineering applications.

Dept. of Computer Science, MichiganTech, Houghton, MI *Parallel Computing Researcher* (Jun. 2002 – Jul. 2003)
- Parallelized a single threaded climate modeling software to run in a distributed memory computing cluster.
- Integrated NASA-GSFC's Paramesh with legacy code to perform parallelization with dynamic load distribution.

coju.mobi™, *Chief Technology Officer and Founder (part-time)* (Aug. 2015 – Dec. 2019).
CGI, **Houston, TX** *Senior Software Engineer* (Jun. 2012 – Feb. 2013).
EPCON International, Houston, TX *Software Engineering Manager* (Jul. 2008 – Jun. 2012).
Dept. of Chemical Engineering, MichiganTech, Houghton, MI *Scientific Programmer* (Mar. 2001 – Jun. 2002).
Tata Communications, Pune, India *Team Lead - Web Development* (Feb. 1999 – Jan. 2001).
Tata Communications, Pune, India *Software Engineer* (Aug. 1998 – Feb. 1999).

EDUCATION

- *M.B.A.,* Data Analytics (In progress), Texas A&M University – Kingsville, TX, expected Fall 2023. 4.0/4.0
- *Ph.D.*, Computer Science (Software Performance/Machine Learning), University of Houston, Houston, TX. 3.8/4.0
- *M.S.*, Computer Science (Parallel Computing), MichiganTech, Houghton, MI. 3.8/4.0

CERTIFICATIONS

- Project Management Professional (PMP)
- Certified Ethical Hacker (CEH)
- Advanced Computer Security Certificate, Stanford University
- The Data Scientist's Toolbox, Coursera - John Hopkins University
- Practical Machine Learning, Coursera - John Hopkins University
- Computing for Data Analysis, Coursera - John Hopkins University
- Hadoop Amazon Cloud, Big Data University
- Big Data Analytics - Demos ,Big Data University

GITHUB: https://github.com/cbelwal   **PUBLICATIONS**: https://goo.gl/oNFBmF

LINKEDIN: https://www.linkedin.com/in/cbelwal/   **BLOG**: http://www.machinescanlearn.com

AFFILIATIONS: American Mensa Society, Golden Key International Honor Society, Beta Gamma Sigma