Vice President and Chief Technology Officer Vice President and Chief Technology Officer Vice President and Chief Technology Officer - TABS CONSULTING Friendswood, TX Work Experience Vice President and Chief Technology Officer TABS CONSULTING - Houston, TX October 2012 to Present High Performance Computing Consulting, Windows Application Architecting, Business Development   Led HPC consulting effort with Houston integrator for major geophysics corporation Code strategy, modifications & hardware to accelerate workloads on AMD hardware.   Worked with Houston integrator and major MNC on Department of Defense (DoD) o Synthesized requirements into work matrix and advised on software benchmarking. o Represented my client (the integrator) on technical side at MNCs bid team meetings. o Identified best interconnect hardware to bid for DoD's workload.   Re-architected TABS' flagship software for tracking & accounting of "perishable" items (PHS, Perishables Handling System) to run on private cloud Contract Python Developer ENVISION ENERGY, LLC December 2016 to May 2017 Software Development for analytics with Python, numpy, Pandas, MySQL   Agile development to bring cloud-based analytics windfarm application to market   Collaboration with domain experts under tight deadlines to debug prototype code and develop new features using Python, numpy, Pandas, MySQL   New Python development from R and Matlab for predictive & prescriptive analytics   Creation of MySQL queries with Pandas dataframes. HPC Research Scientist TOTAL E&P - Houston, TX May 2014 to December 2015 Code Optimization, Architecture, FORTRAN coding and expertise   Development of new features for major HPC software projects in FORTRAN   Internal code infrastructure evaluation and review under Agile framework   Investigation of new hardware and software architectures   Software kernel optimization for scalability and performance   File I/O optimization   Application benchmarking (MPI, OpenMP) Member Technical Staff - Field Application Engineering ADVANCED MICRO DEVICES (AMD) - Houston, TX September 2011 to October 2012 HPC focus - Oil and Gas multinationals, research labs, universities, large companies.   Owner HPC technical relationship: OEMs, ISVs, and Multinationals.   Developed new technology strategy for Geophysics codes on AMD technology.   Researched & optimized client benchmark codes in C & FORTRAN on AMD hardware.   Identified suitable CPU and GPU (Graphical Processing Unit) parts for RFPs.   Worked

with vendor teams to create custom hardware offerings. Carried out application and synthetic benchmarks on in-house hardware. Senior Consultant in HPC WIPRO TECHNOLOGIES - Houston, TX January 2010 to September 2011 On-site technical contact for Aspen PIMS in the Cloud Proof of Concept (PoC) effort. o Led brainstorming sessions for development of new User Interface and Workflow. o Led on-site troubleshooting efforts.. Oil and Gas Major Engagement o Troubleshooting of in-house HPC Python script for Reverse Time Migration o Wrote proposal to re-architect HPC Python script as SOA producer-consumer. o Wrote proposal, architecture and schema for HPC Cluster Manager package. Microsoft Technical Computing Group Engagement o Installed & tested beta versions of MG-ALPHA (actuarial modeling) on Windows HPC o Created "canned" demos of MG-ALFA & new features of Windows HPC 2008 R2. o Created documentation for installers and presenters. HPC Technology Evangelist Engagement Architected Windows HPC workflows for NASA Goddard, National Instruments, Austin CUG, Pemex, HP Enterprise Printing division Created & delivered original sales materials, value propositions for Windows HPC Conducted training courses in English and Spanish in US, Mexico, and Europe. Technical Support Engineer ROGUE WAVE, INC - Houston, TX 2007 to 2009 Provided timely and knowledgeable bilingual technical support for this embedded mathematical and statistical software company. Contributed to product documentation with technical writing. Researched, rewrote, and parallelized algorithms (regression, clustering, and others) for Version 7.0 release of the IMSL C Numerical Library using OpenMP. Optimized performance using BLAS and Intel Math Kernel Library (Intel MKL). Created & delivered technical, sales presentations in English/Spanish in US & Latin America. Participated in consulting proposals in US and Latin America. Computational Scientist CSC, INC - Vicksburg, MS 2004 to 2007 Benchmarking of supercomputer applications in support of Department of Defense (DoD) High Performance Computing (HPC) initiatives; provided critical proposal evaluation assistance to Benchmark Team; conducted mathematical research. Successfully benchmarked more than thirty DoD supercomputers (Sun, Cray, IBM, HP) across the country in support of DoD HPC Modernization Office (DoD HPCMOD). Mastered large MPI/OpenMP applications (WRF, HYCOM) written in C and FORTRAN. Wrote specialized scoring

program in Perl and gnuplot for proposal evaluation.   Published paper on meshless methods for solving Partial Differential Equations. Vice President ATHENA TECHNOLOGY CONSULTANTS, INC - Houston, TX 2000 to 2004 Procured Government Contracts and Small Business Innovative Research (SBIR) Grants   As an 8(a) company, bid on numerous NASA government contracts. Researched, wrote/co-wrote and completed submission of three SBIR grant proposals: o Development of 3-D unsteady meshless method based on dissertation work o Development of new rocket fuel/oxidizer mixture (diethyl ether and hydrogen   peroxide)   o Proposal to apply manufacturing cost-accounting principles to agricultural production through combined software/hardware system.   TOTAL ANSWER BUSINESS SYSTEMS, Miami, Florida 1986 - 2000 Vice President Assisted in development, sale, and installation of proprietary multi-user ERP vertical market database applications for produce brokerages, cooperatives and packing houses. Installed Local Area Networks.   Researched, implemented automatic generation and transmittal of business documents   Formulated database schemae for custom application customers. Education Doctor of Philosophy in Mechanical Engineering Rice University - Houston, TX 2001 Master of Science in Mechanical Engineering Rice University - Houston, TX 1994 Bachelor of Science in Mechanical Engineering Rice University - Houston, TX 1992 Skills HIGH PERFORMANCE COMPUTING (10+ years), HPC (10+ years), FORTRAN (5 years), MPI (4 years), CRAY (3 years) Additional Information SKILLS SUMMARY   High Performance Computing (HPC) and Parallel Computing HPC expertise Linux & Windows: Cray, SGI, IBM, HP, Supermicro, Penguin Parallel / Multicore programming experience (OpenMP / MPI) HPC application workflow re-architecting by changing application patterns   Full stack application optimization and benchmarking Applications: synthetic and application-based benchmarking at node and cluster level Hardware: part selection, thread affinity, cache utilization, SIMD, computational intensity I/O: overlap communication & computation, packet sizes, file system parameters Software: optimization flags (AVX, SSE), refactoring to eliminate false sharing, "first touch".   Client-facing experience Delivery of value propositions & client roadmaps to senior level C-suite clients and prospects On-site representative for clients in the Oil and Gas sector Performance Proof points and hardware debugging on-site   Technical

presentations to internal management teams   Multi language developer with multiple HPC tools and IDEs Fortran, Python, C, Java, C#, Perl, Matlab, gnuplot Visual Studio, Eclipse Intel Vtune, gprof, Valgrind, STREAM Bash, perl scripting languages   Technical / Back-end development in multiple industries Wind energy - prescriptive analytics, issue detection Oil & Gas - Geophysical modeling Weather modeling, fluid dynamics   Mathematical and Scientific Libraries/Applications Intel MKL, AMD ACL Python Pandas and Numpy   Applied Mathematics, Neural Networks Linear/Nonlinear optimization Nonlinear Regression Supervised Neural NetworkTraining, Neural Network bootstrapping   Databases - relational, post-relational, NoSQL MySQL, Couchbase, OpenInsight ALVARO A. FERNANDEZ, PH.D.

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