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Contents

Joseph Pareti's resume.

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Overview

Job title	**Company, functional area or institution**	**Time interval**
Artificial Intelligence activities	Preparation for a freelance activity	2018 -to date
Sr. Presales Consultant/ HPE Servers	HP Enterprise. Pre-sales is a unit of sales in the German organization	2015 - 2017
Sr. Presales Consultant/ HP Industry Standard Servers	HP, Enterprise Servers Storage and Networks	2010 – 2015
Sr. Technology and Business Consultant, software development & industry verticals	HP, Technology Solutions Group Pre-sales	2004-2010
Sr. Consultant, High Performance Computing	HP, Compaq, Digital Equipment Corporation	1991-2004
MCAD/MCAE segment consultant	Digital Equipment Corporation, competence center for the manufacturing industries	1989-1991
Application Engineer	SKF Germany	1986-1989
Engineering Analyst & Project Manager	SKF Group Engineering & Research, Netherlands	1978-1986
Jr. COBOL programmer	Techno Consult, Italy	1977-1978
Engineering University student	Politecnico di Torino, Italy	1972-1977

Artificial Intelligence Consultant

I am working on a freelance basis on Artificial Intelligence / Deep Learning application focusing on use cases in the manufacturing industry and Computer Aided Engineering space. In this role, I am acting as a contractor of theubercloud.com and have been working since the beginning of 2018 on 2 use cases:

1. A Predictive Maintenance model running in Microsoft Azure Cloud
2. Computation Fluid Dynamic applications that benefit from deep learning to accelerate time-to-solution, such as "Data-driven synthesis of smoke flows with convolution neural networks-based feature descriptors"

Currently the 2 above use cases run in the Azure Cloud. The next steps will be to propose them to the Ubercloud users in order to accelerate their adoption of AI technologies for engineering applications.

Last assignments at HPE / Technologies for Infrastructure as a Service

I delivered presentations and demonstrations of converged/composable infrastructure for customers. This effort is primarily based on HPE OneView management software for Software Defined Datacenter. It includes elaborating on complex environments requiring SAN connectivity in addition to Ethernet connectivity, and integration with Vmware vcenter and Microsoft System Center. It also includes REST API which supports integration with Chef, Ansible, OpenStack and similar tools that target Infrastructure As Code. In addition, I am advising customers on configuration and consolidation using HPE composable architecture/ HPE Synergy. These technologies support traditional workloads as well as cloud native applications.
Many of my customer's engagements as a presales consultant are workshops on current and future HPE server portfolio. These include technologies like accelerators, NVMe, persistent memory, network connectivity options such as RDMA, RoCE, Infiniband, as well as high performance storage and object storage. These engagements are either for the enterprise or High Performance Computing segment, requiring a close collaboration with Mellanox, Intel, Qlogic, Panasas, Seagate, DDN, Scality, RedHat, etc.
Another task is helping responding to customers' requests for proposal by delivering technical contents for relevant hardware and software products.
Leveraging my past exposure to Artificial Intelligence, I am developing competences in Deep Learning including Nvidia and Intel technologies.

Sample projects

1. **Enterprise customer in telecommunications space**: PoC on Solaris/HP Proliant for a telephony charging application:
    a. 2010 time-frame
    b. Platform deployment using customer's own installation framework
    c. Work with product engineering on network interface cards issues.
    d. Work with product engineering on HP Integrated Light-out issues
2. **Enterprise customer in the travel and transportation segment**: PoC on Infiniband and PCIe accelerators to improve database performance:
    Feasibility study on FusionIO/SANDISK and Mellanox technologies for a custom application requiring HA and low latency. We focused on accelerating database I/O performance in comparison to traditional SAN solutions and standard SSDs:
    a. We worked on 2 major objectives, (i) high availability, and (ii) high performance and specifically on single thread I/O latency which is critical for database operations such as redo logs.
    b. 2011 time-frame results are single- thread, end-to-end latency of 60-70 usec (compared to millisecond range in traditional SAN solutions).
3. **Enterprise customer in the travel and transportation segment:** porting to Linux and optimization of a custom application for searching flights options:
    a. Working with customer's development department on porting from AIX to Linux
    b. Working with competence center on platform definition and benchmarking
    c. Scale-out farm design and deployment for production to process up to 20 million low-fare transactions per day in 2008.

   d. Working on Linux memory subsystem aspects under heavy transaction processing and I/O load
   e. Business impact: over hundred servers (HP Integrity/Linux) in production.
4. **Enterprise customer in the travel and transportation segment,** business development activities: By leveraging the successful relation between HP and the customer, and the HP proven record for in deploying customer's software on open systems, we have jointly addressed some opportunities in the airlines segment:
   a. Joint bid by a triage consisting of HP, the customer, and a system integrator for an airline RFP in 2008 time-frame.
   b. Working on the proposal in collaboration with the customer's Airline Business Group, HP Corporate and the system integrator.
   c. Competitive analysis of applications and platforms in the airline industry in order to evaluate synergies from a collaboration between HP and its customer.
5. **HPC Project for a research institute**: 2001 timeframe. Benchmarks of scientific codes, including home-grown and ISV's application on COMPAQ Alpha-servers running Tru64UNIX, OpenMP and MPI. The project included porting to the target operating system, and it included *optimization*, profiling and debugging of the MPI codes for massive scale-out parallelism: *we achieved the required performance, while validating the results of the parallel application against the sequential application*.
6. **HPC: development and delivery of a parallel programming workshop for engineers and scientists.** I developed a tutorial including FORTRAN and C sample codes that are parallelized using MPI, OpenMP along with profiling parallel program debugging. I also delivered workshop to several research institutes and universities.
7. **Sabbatical work.** Deep dive in some aspects of Linux, Open Source Software and J2EE; PoC on networked x86 computers. JBOSS was chosen because of its rapid growth in many business critical, J2EE environments across industry segments, and also because of its availability as an OSS Application Server and a mature Enterprise Java Bean (EJB) Container, suitable for supporting the business logic tier of web-based client/server applications. An EJB 2.1 based web application was deployed: the novelty of this work is in the choice of tools, as well as in the troubleshooting effort required to actually implement the POC.
   The project is organized in 3 major components:
   (i) installation and configuration of RHEL and services for network computing
   (ii) an APACHE/TOMCAT demo using a simple servlet
   (iii) and finally a POC of J2EE/JBOSS/EJB using code from a published demo.

Older assignments

MCAD/MCAE consultant (Digital Equipment Corporation / Competence Center for the Manufacturing Industries)

1990 timeframe; focus on Mechanical Computer Aided Engineering (MCAE) and Finite Elements Methods (FEM):

- **Consulting for international Clients**
- **Demonstrations on CAE applications packages**: MSC NASTRAN, HKSI ABAQUS, SDRC I-DEAS, PDA PATRAN, MDTV Euclid, I-CAD, Schlumberger BRAVO3, AVL FIRE, DYNA3D, etc.

- **Concurrent Engineering**: preparation of an integrated CAD/CAM demonstration for product development, engineering change order and manufacturing control at different trade shows in Italy, UK and France.
- **Application development** of a product data management subsystem as plug-in module for Matra DataVision-EUCLID in co-operation with MDTV.

Engineer at SKF/ SKF R&D, SKF Germany/ Application Engineering

- Modeling of the internal bearing load distribution in slewing rings (large bearings for cranes, etc) using FEM and other algorithms.

- Assessment of catalogue rating speeds for rolling bearings based on power dissipation in standard applications and on heat generation in Elasto-Hydrodynamic Lubricated rolling contacts. Implementation of the theory in a FORTRAN program for SKF-group wide usage.
- Co-development of a novel fatigue model for a constant velocity joint in an automobile hub bearing unit. Project work in collaboration with the Chalmers Engineering School, Gothenburg, Sweden to define and solve a system of equations describing the static equilibrium of the joint under its service load.

- Statistical and elasto-hydrodynamic modeling for rolling bearing life prediction. White-paper at a conference for fatigue of materials and structures, 1986, Sheffield, UK (co-authored by Dr Ioannides of SKF, AB) focused on the 3D stress field.

- Development of an "expert system" to select lubricants for rolling bearings using a software tool from Teknowledge, Inc. (1983-1985), and in collaboration with a senior bearing lubrication specialist out of the SKF labs in Gothenburg, Sweden.

- Support SKF Application Engineering in projects for Original Equipment Manufacturers of rolling mills, gearboxes, & heavy duty machinery. Tasks included application design review, bearing selection and technical calculations, including FEM. I also carried out some activities on bearings post-mortem analyses.

- Definition of the required hardness for rolling bearings races based on the 3D stress distribution induced by rolling contacts, and implementation of the model in a FORTRAN program.

Whitepapers

"A hardware-independent Proof of Concept using Open Source Software and J2EE" (2009)

Parallel Computing Conference "PARCO", 1997 (Germany), 1999 (Netherlands), 2001 (Italy), 2003 (Germany)

Institution of Mechanical Engineers - 1991 White paper on CAE tools. (Coventry, UK)

Automotive Simulation Symposia – 1991, 1995 (Schliersee, Germany); papers on vector and scientific computing at Digital Equipment Corporation.

Co-author of the “Digital Equipment MCAD/MCAE guide” with Peter Thompson. (1990).

Stress calculations in rolling contacts for the new SKF bearing fatigue life theory (co-authored with Dr Ioannides, Sheffield, UK 1986)

Degrees

Mechanical Engineering degree 'cum laude' at the Technical University of Turin -Italy, October 1977. Thesis on a mathematical model solving the equations that describe the thermodynamic behavior of a turbine power plant.

Engineering Management post graduate at the Institution of Mechanical Engineers, London, UK. Curricula on Finance & Accounting, Organization, Managing People, Labor Law, Quantitative Methods for Decision Making, Marketing.

Skills

Operating Systems and programming

Primarily in Linux environments and primarily using FORTRAN.

High Performance Computing

Working knowledge of major hardware architectures for parallel and vector computing, accelerators and GPUs, and of sofware environments including libraries, profiling and debugging tools.

Artificial Intelligence (AI)

I worked on a pilot project while at SKF in the eighties: lubricant selection for rolling bearings and analysis of bearing failure in service.

Languages

Italian (native), English (fluent), German, French.