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Joseph Pareti's resume.

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Overview

Job title	**Company, functional area, or institution**	**Time interval**
Artificial Intelligence Consultant	freelance activities	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 / Machine Learning application focusing on use cases in the manufacturing industry and Computer Aided Engineering space. My focus area has been recently expanded to include AI for health sciences. Even though I was significantly involved in hardware-related projects, ***I see my role going forward as totally hardware and vendor neutral, and with an exclusive focus on AI and HPC.*** Here is more detail.

1. Demonstrate a Predictive Maintenance model running in Microsoft Azure Cloud in collaboration with www.theuberlcoud.com

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"
3. Nano degree with udacity.com : Machine Learning Introduction
4. Certificates with coursera.com / deeplearning.ai (prof. Andrew Ng):
    a. Neural Networks and Deep Learning
    b. Improving Deep Neural Networks (tuning, optimization)
    c. Structuring Machine Learning Projects
    d. Convolutional Neural Networks
5. Certificates with coursera.com / University of Michigan
    a. Getting started with Python
    b. Python Data Structures
6. Nvidia Deep Learning Institute: workshops on:
    a. Image classification
    b. Object detection
    c. Object Segmentation
    d. Transformers
    e. Predictive Maintenance
7. Participation in several trade shows and conferences such as International Supercomputing, SuperComputing, Mobile World Congress, Hannover Messe, SMAU, SPS Parma, Microsoft Azure conferences, NVIDIA GTC, plus many other virtual events organized by IBM, Google, Fraunhofer, Siemens, as well as meetups and more.
8. Blogs in linkedin on AI, ML, and other technologies

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.

Latest 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. *Image classification* using PyTorch, within the Udacity training
2. *Customer Segmentation* using Unsupervised Machine Learning algorithms, within the Udacity Training
3. *Finding Donors for Charity* – A ML project using ensemble methods such as Random Forests, etc.
4. **2010-2015 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
5. **2011-2015 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).
6. **2004-2010 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.
7. **2004-2012 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.
8. **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*.
9. **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.

10. **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

Programming

I have programmed in Fortran and Basic for many years in the past; now I am becoming a Python programmer. I can handle various flavors of Unix, Linux, Windows, and legacy systems including VMS, HP-UX and Solaris.

High Performance Computing

Hands-on work on benchmarks & scientific applications including porting, profiling, debugging of MPI and OpenMP parallel applications, and delivered training classes to Max Plank and other Universities on such topics.

Artificial Intelligence & data science

Working experience with Pytorch, numpy, pandas, SciKit Learn, and to some extent Tensorflow.

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

Languages

Italian (native), English (fluent), German, French. Some knowledge of Dutch and Swedish.