Bachar Bouazza

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Profile

Good working experience with functional and object oriented programming languages such as Python, R, C/C++. Sound knowledge of applied mathematics in solving business and scientific problems. Ability to translate complex mathematical blueprints, models, into equivalent computer programs.

Professional Experience

Self Employed **Montreal, Quebec,**

Analytics/Research Scientist *2013–today*

My research project consists on integrating 3 domaines of knowledge: management science, applied mathematics, and computer science. The following topics where carefully studied and analyzed:

- Tensor calculus (multidimensional data representation), machine learning models review, Stochastic processes, Levy processes, Probability theory, Stochastic differential equations(SDE), multivariate statistical analysis, Monte Carlo simulation
- Supply chaine management systems, Entreprise resource planning (ERP)
- Design patterns, Architectural patterns, Archetype patterns and their applications to solve complex problems.
- C++/C, Python and R languages, TensorFlow and neural networks
- Market models, Portfolio theory, Fixed income models, Derivative analytics, Financial risk measures

Markit Analytics **Calgary, Alberta**

Software developer *2012–2013*

- Tied together numerical simulation and mathematically complex report generation
- Performed I/O and computation on very large data sets basically using HDF data model
- Optimized time and memory performance of parallel, distributed portfolio calculation runs.
- Designed and Implemented the credit risk measure CVA/DVA using appropriate market curves to estimate the probability of default of the counter-party
- Added new features to account for specific exposures in the VaR (Value at Risk) framework

AESO (Alberta Electric System Operator) **Calgary, Alberta**

Software developer *2010–2012*

- Designed and maintained functional, performance, stress and endurance tests
- Developed a simulation model in Java, using Tibco and activeMQ event management systems technologies, to simulate events in the system, used for stress tests
- Lead regular interaction between the performance testing team and the infrastructure services team supporting the platforms
- Initiated a comparative study of economic dispatching models as used in the energy markets

MatchMine, Kraft Group **Boston, MA, USA**

Quantitative developer *2007–2009*

- Developed a multidimensional content model for document classification and clustering purpose
- Bayesian, neural networks, and vector support machine models research
- Proposed state of the art models to enhance content scoring: kernel methods, Bayesian models
- Designed and implemented, in Java, a multithreaded, context-directed web crawler

Pfizer Inc **Groton, CT, USA**
Consultant *2005–2007*

- Parallelized large computational chemistry applications using Matlab, Python, R, PVM, MPI
- Performed software installation and configuration on the GRID
- Acted as technical interface between different users of the GRID
- Automated manual back-office processing through scripting and automation engine
- Improved the performance of straight-through processing by adding caching mechanisms

Gulf University for Science and Technology **Kuwait, Kuwait**
Assistant professor *2002–2005*

- Thought university grad computer science courses: Java/C++/C languages, relational database management systems, operating systems, and software design
- Mentored and supervised students in their final projects

Hewlett-Packard **Manalapan, NJ, USA**
Software Engineer *1999–2002*

- Maintained representation of HP in UNIX Base Working Group and Linux Standard Base
- Coordinated the UNIX branding process: interacting with many groups to handle issues, fixing UNIX bugs, continuous integration test-suits planning and reporting
- Designed and implemented a console management facility, in Posix C/C++ and Java, to monitor a park of alpha server cluster machines

Statistics Canada **Ottawa, Ontario**
Programmer/Analyst *1996–1999*

- Implemented statistical imputation algorithms to handle outliers and missing data in survey data sets in UNIX environment
- Designed and implemented Oracle stored procedures and tables
- Assumed DBA responsibilities
- Designed and developed a client/server application to automate the survey workflow process, in Java/Oracle

Skills

Programming: C/C++, boost, Java, Python (NumPy, Pandas, Matplotlib), R, Unix Scripting

Software Methodologies : Test Driven Design, UML, Domaine/Design Patterns, Agile

Operating Systems: Linux, UNIX, Windows

Database systems: Oracle, MySQL, SQL Servers

Quantitative Methods: Multivariate statistical analysis models, stochastic processes, Monte Carlo methods, Multidimensional Calculus, Time series analysis, optimization

Education

Université De Montréal **Montreal, Canada**
Masters's degree *1998*
Computer Science

Université Laval **Québec, Canada**
MBA, Master's in Business Administration *1994*
Decision Systems (Operational Research)

Université Mohammed V **Rabat, Morocco**
Master Mathematics *1991*
Functional Analysis

Languages

English: Very good

French: Very good

Publications

1998: B. F. Lamond et B. Bachar: Une étude numérique de la discrétisation des apports aléatoires pour un réservoir non saisonnier. INFOR 36, pp. 247-260.