

# DIMITRI PAPAIOANNOU

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28 Valletta Ct., San Francisco, CA 94131  
Phone: (415) 994-8171 email: [dimitri@tecacet.com](mailto:dimitri@tecacet.com)

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## HIGHLIGHTS

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- 15+ years Enterprise Software Architecture and Software Development experience, including significant work in the Financial Industry.
  - Math and Data Analysis skills: Statistical Analysis, Machine Learning, Reinforcement Learning, Mathematical Modeling, Optimization Algorithms. Familiar with multiple Data Analysis packages in Python, R, Java, and more.
  - Excellent communication and presentation skills. Skilled in adapting presentations for different audiences: developers, researchers, management, and business specialists.
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## EXPERIENCE

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**TECACET Inc., Founder**, San Francisco, CA

**Trizic Inc., Chief Scientist**, San Francisco, CA April 2015 – present

At Trizic I am designing and implement cutting-edge algorithms in automated portfolio management. My work includes mathematical modeling of financial problems, mainly in terms of Discrete and Continuous Optimization Problems. Monte Carlo simulations, Backtesting, and statistical analysis are used to evaluate the quality of the algorithms. I am also programming the final production code in Java. I take great care to guarantee the quality of the core components by creating layers of unit, integration, and performance tests.

**Redi2 Technologies, Software Architect and Agile Consultant**, Boston, MA June 2009 – July 2015

Designed the two flagship billing products using a Spring-based technology stack: Java , Spring, Hibernate JPA, Spring Data, Quartz, Junit, Mockito, REST and SOAP web services.

The older product, in production since 2010, currently supports the processing of over two million accounts. Key features include:

- Powerful multi-threaded, batch-oriented fee calculation engine.
- Framework for batch-oriented memory caches based on EHCACHE: reduced database I/O
- Framework for batch process specifically designed for multi-threading.
- Job Framework built on top of Quartz that enables monitoring and control of all automated system tasks.

In addition to architecture and design, I promote successful development practices, advice the development teams, and recommend tools for Testing, Continuous Integration, and Code Quality metrics. From the inception of each project, installed Jenkins as a CI tool and established high thresholds for JUnit test coverage using Cobertura. Monitor other code quality metrics using PMD and Findbugs.

**Vobile Inc, Data Analysis Consultant**, Santa Clara, CA June 2013 – Sept 2013

Helped the client visualize and understand historical data of online movie viewing activity.

- Used Unsupervised Learning to identify clusters of data that exhibits similar behavior.
- Principal Component Analysis and Data Visualization to gain insight in data relationships.
- Visualized data with R tools, and R time series analytics to characterize the patterns of histories of online view counts (for example, YouTube).

**Devon Way, Software Architecture Consultant**, San Francisco, CA      January 2012 – July 2012

Documented Coding and Development standards tailored to the objectives of the development team. Documented architectural infrastructure around layering, transaction management, logging, interfaces, web services, exception handling, et cetera.

**Adept Technology Inc, Agile Trainer (certified Scrum Master)**, Pleasanton, CA

Designed and presented a training course on **Agile Development Practices** that focuses on practical implementation of Agile coupled with the benefits of Continuous Integration. The course covers different options for implementing Scrum, coaching of the development team, quantitative project management, and adapting Agile Methodology to real-life situations.

**Barclays Global Investors, San Francisco, CA**

Software Architect - January 2007 to June 2009

Implemented new practices to help the team produce modular, object oriented, and testable code. Redesigned key components of the legacy Securities Lending system.

- The new codebase is 25% the size of the old. Test coverage increased from 0% to 90%.
- Promoted good programming practices via presentations and articles.
- Defined the target application layering strategy with Spring and iBatis.
- Replaced a great deal of infrastructure with better open source solutions.

Other activities: Headed the organization's Architecture Council, presented metrics to management, presented new technologies to development, performed POC work, reviewed all new requirements, and worked with Business Analysts to design solutions.

Senior Software Developer - May 2005 to December 2006

Rewrote the automated trading module (AutoBorrow) to increase performance:

- Throughput increased from 10 trades per minute to over 2000 orders per minute. This will enable trade volume to grow for several years.
- Used Queueing Theory to estimate expected queue sizes, and order expiration rates.
- Parallelized order processing with JMS and optimized database access.
- Consolidated several codepaths into a single module & eliminated unnecessary remote EJB calls

Worked as part of an Agile team in developing a brand new trading platform driven by Research, Strategy, and Trading. The technology stack: Spring, Hibernate and iBatis for the Data Access Layer, Quartz for job scheduling, Swing, Jide and JGoodies for the client.

**University of Nevada, Las Vegas, Las Vegas, NV**

Technical Director, Image Processing Lab - Dec 2003 to March 2005

Headed a document processing and handwriting recognition project for the US Department of Energy. Combined innovative research in the field of Optical Character Recognition (OCR).

- Managed a team of undergraduates, graduate students, and professional researchers.
- Responsible for product requirements, design, and development, as well as researching and implementing algorithms in the fields of Image Processing and OCR.
- Delivered tutorial presentations to the students covering Optimization, Function Approximation, Probability Theory, and Extreme Programming practices.
- Introduced Machine/Adaptive Learning methods to replace ad-hoc algorithms,
- Implemented key software development practices such as source control and unit testing.
- Consolidated the existing disjointed pieces of code into a layered Java architecture.
- Developed packages for Artificial Intelligence, Image Processing & Document Processing.

## **Redi2 Corporation, Oakland, CA**

Java Architect (Independent Consultant) - November 2002 to July 2003

Designed a Java engine to replace an existing proprietary system. Helped hire, train, and manage the development team, oversaw the development process, and wrote most of the code.

- Created reusable components, abstracted the database access layer, and preserved seamless integration with the company's legacy platform.
- The new product far surpassed in performance and robustness the one it replaced and stayed in production until November of 2008 without any bugs.

## **Allstate Insurance, San Francisco, CA**

Development Manager/Architect - Jan 2003 - Dec 2003

Headed a team which developed and supported the technology for the Independent Agents line of insurance business. Responsible for the full life-cycle development: gathering requirements, designing new features, and overseeing the development and release process.

- Improved performance and robustness across all tiers.

## **TenFold Technologies, San Francisco, CA**

Development Manager - Dec 1999 - Oct 2002

Trained, managed and lead a team of developers working on multiple concurrent projects to deliver custom C and C++ business modules on aggressive timelines. Abstracted the database model and software architecture to enhance reusability. Team achievements include:

- Improved performance of data-intensive modules up to 1000%.
- Successfully passed client's performance benchmark for one of TenFold's largest projects.
- Developed generic shared memory caching module.
- Reduced maintenance costs and quality risks by consolidating the code base.

Senior Software Developer (full life-cycle) - April 1998 to December 1999

Developed C and C++ modules for diverse business areas: Investment Management, Inventory Control, Billing and Invoicing, Test Automation, and Statistical Data Analysis.

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## **EDUCATION**

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**Massachusetts Institute of Technology** (Cambridge, MA) **GPA: 4.7/5.0**

Master of Science in Electrical Engineering and Computer Science

Thesis: *Channel Allocation and Admission Control in Cellular Communications Networks*

**Research Assistant:**

- Applied Reinforcement Learning techniques to large-scale problems.
- Programmed a cellular communications network simulator in C++.

**Head Teaching Assistant** (*Mathematics for Computer Science*)

- Supervised four teaching assistants and six graders.
- Helped coordinate and organize Mathematics for Computer Science course.
- Designed homework assignments and exams. Directed tutorial sessions.

**Tufts University** (Medford, MA) **GPA: 3.91/4.00** - **Graduated first in class.**

Bachelor of Science in Electrical Engineering and Physics. Minor in Mathematics.

Thesis: *Stability results for a class of nonlinear systems described by delay-differential equations using a Lyapunov functional.*