Scientific Curriculum Vitae

Marco Pasquali

Personal Information

Name	**Dr. Marco Pasquali**
Date of birth	October 3th, 1980
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Education

2008	Ph.D. in *Computer Science and Engineering* at the IMT Lucca Institute for Advanced Studies. Thesis title: *"Design and evaluation of scalable approaches to schedule a stream of batch jobs in large-scale grids"*.
2004	Master Degree in Computer Science at the University of Pisa. Thesis title: "*Supports to Grid-aware programming - dynamic allocation experiences of ASSIST programs based on component technology*".
2002	Bachelor's Degree in Computer Science at the University of Pisa. Thesis title: "*Monitoring of high performance networks*".

Teaching Activities

2005 – 2006 2004 – 2005	Assistant of Prof. Giovanni Manzini, University of Pisa. The class *"Fondamenti di programmazione"* was part of the Bachelor's Degree in Mathematics.
2002 – 2003	Assistant of Prof. Stefano Chessa, University of Pisa. The class *"JAVA Parallel Programming Laboratory"* was part of the Bachelor's Degree in Computer Science.
2001 – 2002	Assistant of Prof. Maria Eugenia Occhiuto, University of Pisa. The class *"JAVA Parallel Programming Laboratory"* was part of the Bachelor's Degree in Computer Science.

Professional

He received the Bachelor's Degree in Computer Science in the 2002, the thesis topic is *"Monitoring of high performance network"*, under the assistance of Dr. Luca Deri. In the 2004, he received the Master Degree in Computer Science, the thesis topic is *"Supports to Grid-aware programming - dynamic allocation experiences of ASSIST programs based on component technology*, under the assistance of Prof. Marco Vanneschi. In the 2008, he received the Ph.D. in Computer Science and Engineering from the IMT Lucca Institute for Advanced Studies, under the supervision of Dr. Ranieri Baraglia. The Thesis title is *"Design and evaluation of scalable approaches to schedule a stream of batch jobs in large-scale grids"*.

Winner of a research grant financed by the Sun Microsystems™. He was involved in the "*Scheduling Under the Sun*" project from the 2006 to the 2008. He belonged to the High Performance Computing laboratory at Istituto di Scienze e Tecnologia dell'Informazione A. Faedo (ISTI-CNR), in Pisa. He was teaching assistant for some courses organized by Universita di Pisa.

The research area he is interested in concerns with Grid and Parallel Computing. In particular, he is interested in job scheduling algorithms and Autonomic Computing. He has experience with C/C++/Java programming languages.

Current Position

Currently, he is Post-doc researcher at the University of Zurich. He is member of the Grid Computing Team, in the Baldridge Group. He belongs to the project "*Distributed Computing for Reinsurance Related Calculations - Design, Algorithms and Runtime Experience*", in conjunction with Swiss RE.

Organizing Abilities

He coordinated the work of some students working on their MD Thesis. He participated to the orchestration of the activities of the people involved in the "*Scheduling Under the Sun*" project. He organized the classes of the courses he was assistant.

Technical Skills

He knows some programming languages: Java, C, C++. He uses both Microsoft Windows and Linux Operating Systems. He knows some developing frameworks: DevC++, .Net, Eclipse.

Languages

Italian	Mother tongue.
English	Fluent.

Scientific Publications

Chapters in Books

M. Pasquali, P. Dazzi, A. Panciatici, R. Baraglia, *"Self-Optimizing Classifiers: Formalization and Design Pattern"*. In From Grids to Service and Pervasive Computing. Springer Verlag. 2008.

D. Klusáček, H. Rudová, R. Baraglia, M. Pasquali, G. Capannini, "*Comparison of Multi Criteria Scheduling Techniques*". In CoreGRID Integration Workshop 2008. Integrated Research in Grid Computing. CoreGRID series, Springer Verlag.

A.D. Techiouba, G. Capannini, R. Baraglia, D. Puppin, M. Pasquali, L. Ricci, "*Backfilling Strategies for Scheduling Streams of Jobs on Computational Farms*". Making Grids Work, CoreGRID series, Springer Verlag. June, 2008.

Articles in Conference Proceeding

Marco Pasquali, Ranieri Baraglia, Gabriele Capannini, Laura Ricci, and Domenico Laforenza, "*A two-level scheduler to dynamically schedule a stream of batch jobs in large-scale Grids*". HPDC: ACM/IEEE International Symposium on High Performance Distributed Computing, Boston June 23-27, 2008.

D. Klusáček, H. Rudová, R. Baraglia, M. Pasquali, G. Capannini, "*Comparison of Multi Criteria Scheduling Techniques"*. In CoreGRID Integration Workshop 2008. Integrated Research in Grid Computing. Heraklion-Crete, April 2-4, 2008, Greece.

G. Capannini, R. Baraglia, D. Puppin, L. Ricci, M. Pasquali, "*A Job Scheduling Framework for Large Computing Farms*". In SC'07 ACM/IEEE Computer Society International Conference for High Performance Computing, Networking, Storage, and Analysis, Reno, NV November 13-17, 2007.

P. Dazzi, F. Nidito, M. Pasquali, "*New perspectives in autonomic design patterns for stream-classification-systems"*. In Automated Software Engineering archive. Proceedings of the 2007 workshop on Automating service quality: Held at the International Conference on Automated Software Engineering (ASE). Atlanta, Georgia. ACM New York, NY, USA.

A.D. Techiouba, G. Capannini, R. Baraglia, D. Puppin, M. Pasquali, L. Ricci, "*Backfilling Strategies for Scheduling Streams of Jobs on Computational Farms*". In CoreGRID Workshop on Grid Programming Model, Grid and P2P Systems Architecture, Grid Systems, Tools and Environments. June 12-13, 2007, Heraklion - Crete, Greece.

M. Coppola, M. Pasquali, L. Presti, M. Vanneschi, "*An Experiment with High Performance Components for Grid Applications*". In IPDPS: Proceedings of the 19th IEEE International Parallel and Distributed Processing Symposium 2005.

Talks

"*A two-level scheduler to dynamically schedule a stream of batch jobs in large-scale Grids"*. 7th Meeting of the Institute on Resource Management and Scheduling, CoreGrid WP6, March, 2008, Dortmund, Germany.

"*A Job Scheduling Framework for Large Computing Farms"*. International Research Workshop on Scheduling WS 07, Cetraro, Italy June 25th – 29th, 2007.

Research Experience

2008 – On-going Post-doc researcher at the University of Zurich.
Member of the "Grid Computing Team", in the Baldridge Group
Research theme: "Distributed Computing for Reinsurance Related Calculations - Design, Algorithms and Runtime Experience".

2006 – 2008 Graduate Fellow at Information Science and Technology Institute (ISTI) of Italian National Research Council (CNR), Pisa – Italy
Member of the "High Performance Computing Lab"
Research theme: "Design and evaluation of scalable approaches to dynamically schedule a stream of batch jobs in high-performance Grid platforms".

2005 – 2006 Graduate Fellow at University of Pisa, Computer Science Department, Pisa – Italy
Member of the "Parallel Architecture Lab"
Research theme: "Study of autonomic aspect applied to the Grid Component Model".

On-going Project

Distributed Computing for Reinsurance related calculations – Design, Algorithms and Runtime experience

Swiss Re, within its RATOS framework, operates an application to perform Natural Catastrophy (NatCat) computations, including calculating and storing the expected losses for earthquakes, tropical cyclones, floods, and windstorms worldwide. The software, NatCat, is limited in usage since each calculation is bound to one Java Virtual Machine (JVM) on a single computer, thereby causing performance and stability-related issues and reducing scalability. NatCat is not enabled for parallel and distributed computation on multiple instances, and the calculation jobs cannot be split across multiple versions of RATOS. The final goal of this project is thus to build a new version of the RATOS NatCat application enabling parallel and distributed computation, so that it will use several JVMs on multiple physical servers to distribute the load and increase the processing speed. It is expected that this will result in performance improvements , providing a scalable structure capable of increasing the performance of single and multiple jobs by the addition of CPUs and memory, as well as enabling automation of the management of several NatCat instances.

Past Projects

Scheduling Under the Sun (2006 – 2008) – 24 Months

The goal of this research is to design and evaluate scalable approaches to dynamically schedule a stream of batch jobs in a large-scale Grid for utility computing. The project is supported by the Sun Microsystems™ in collaboration with the Italian National Research Council (CNR), Pisa – Italy

CoreGRID (2004 – 2008) – EU NoE Project:

The CoreGRID Network of Excellence (NoE) aims at strengthening and advancing scientific and technological excellence in the area of Grid and Peer-to-Peer technologies. To achieve this objective, the Network brings together a critical mass of well established researchers (161 permanent researchers and 164 PhD students) from forty one institutions who have constructed an ambitious joint program of activities.