

P. S. Alefragis Curriculum Vitae

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Personal Data

Name	Alefragis Panayiotis
Home Address	Thirasias 29 GR-26334 Patras Greece
Date of Birth	June 24, 1971
Nationality	Greek
Military obligation	Completed
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Education

- Ph.D. degree in Electrical and Computer Engineering, Electrical and Computer Engineering Department, University of Patras, Greece, April 2000.
Thesis subject: Efficient solutions to human resource scheduling problem.
Supervisor: Prof. E. Housos (email: housos@ee.upatras.gr)
The doctoral was financially supported by two EU ESPRIT projects for a period of four (4) years.
- Diploma degree in Electrical and Computer Engineering, Electrical and Computer Engineering Department, University of Patras, Greece, November 1995. (5 years studies)
Diploma Thesis: Domain specific languages for resource scheduling problems.
Supervisor: Prof. E. Housos (email: housos@ee.upatras.gr)

Professional Experience

- **Independent Consulting & Development**
 - Ø Project assignment on development and maintenance of the Lufthansa DAYSYS Legality Checker from Kernel Software SARL, Fontainebleu, France for the real time rescheduling of crew assignments to flights at Lufthansa Airlines. The project lasted from February 2004 to May 2007.
 - Ø Project assignment for the design of an e-commerce platform using object oriented methods by Instance Ltd, Patras, Greece. The platform is currently in use for the development of B2B applications. The project was performed in two phases from 01/08/2002 - 31/12/2002 & 01/06/2003 - 31/07/2003.
 - Ø Project assignment by TAHOE, Athens, Greece for the deployment of a high performance parallel system at the University of Patras (01/09/00 – 31/12/00) and the introduction of wireless networks at various clients (01/08/01 – 31/12/01) and (01/04/02 – 15/07/02).

- **LYSEIS Ltd. Advanced Information Technology Systems (December 1998 – November 2004)**

Founding member and managing director of LYSEIS Ltd Advanced Information Technology Systems. LYSEIS was a spin-off company dedicated primarily to build, market and support complex legality and scheduling information systems. The main product of Lyseis was fREeDOM (fast REgulation Definition and On-line Manipulation) system, a descendant of the DAYSYS Rule Handling System, developed in the context of the DAYSYS ESPRIT project at University of Patras.

- **Department of Electrical and Computer Engineering, University of Patras, Greece**

- **Ø Research project “PLEIADA – 99ED614” (December 1999 – August 2000)**

Senior member of the research and development team, which objective was the development of a human-resource scheduling system exploiting scattered computing resources found all over the Internet. Consultancy on regulations handling, parallel/distributed computing and crew scheduling issues was my main contribution. PLEIADA was supported by the Greek General Secretariat for Research and Development.

- **Ø Research ESPRIT/HPCN project “PAROS – EP20.115” (April 1996 – December 1999)**

Senior member of the research and development team, which designed and implemented parallel algorithms for the efficient solution of the crew pairing problem that appears in the solution process of the airline crew scheduling problem. In PAROS the objective was to improve the automatic crew scheduling system produced and marketed by Carmen Systems AB (Sweden) with the use of high performance computing and modeling techniques, in collaboration with Lufthansa German Airlines, and Chalmers University of Technology (Sweden). As a main contribution the crew-pairing problem was successfully solved on a loosely connected network of workstations (NOW) using advanced computational techniques and efficient communication patterns. The implementation of the parallel system was based on the PVM and MPI message passing libraries and the ANSI C++ programming language.

- **Ø Research ESPRIT project “DAYSYS - EP8402” (Feb 1995 – March 1996)**

Junior member of the research and development team, which designed and implemented a generic rule handling system to be used in resource scheduling applications. In DAYSYS (Day-to-day Resource Management Systems) project the problem of day-to-day resource management in the airline domain was confronted in collaboration with Lufthansa German Airlines, Sema Group SA (France) and Cosytec SA (France). The main contribution was in the development of an application specific programming language that allows the flexible expression of legality rules, and the implementation of the corresponding rule handling system. The design of the system was based on a generic meta-model of the resource-scheduling problem derived from the object-oriented paradigm (OMT methodology). As a consequence, the new language can be applied to different scheduling application domains with a minimum degree of effort and difficulty. The implementation of the rule handling system was based on the UNIX environment (HPUX) and the C++ programming language.

- **Industrial Systems Institute, Patras, Greece**

- **Ø Research project “PAVET-NE – Airlift SA” (June 2002 – Sep 2004)**

Senior member of the research and development team, which objective was the development of an web technologies distributed integrated resource scheduling system for scheduling the enterprise resources of the company, that operate helicopters for transferring people around Greece. Consultancy and development on regulations handling,

parallel/distributed computing and crew scheduling issues was my main contribution. The project was supported by the Greek General Secretariat for Research and Development.

- **Technological Educational Institute of Mesolonghi, Mesolonghi, Greece**

- **Ø Research project "Methodica" (April 2006 – May 2008)**

Senior member of the research and development team, which objective was the development of methodologies for the support of the change of a traditionally operated company to a spatially distributed model. The main focus was a distributed software engineering collaboration platform. The project was supported by the Greek General Secretariat for Research and Development.

- **Ø Research project "Havi" (September 2006 – May 2008)**

Senior member of the research and development team, which objective was the development of an intrusion prevention and load balancing system for an IMS platform. My main focus was the creation of a distributed load balancing system for the IMS server cluster. The project was supported by the Greek General Secretariat for Research and Development.

- **Ø Research project "Scamstop" (January 2010 – December 2012)**

Senior member of the research and development team, which objective is the development of a fraud detection and prevention system for an IMS platform. My main focus is the creation of a distributed fraud detection algorithm using neural networks. The project is supported by grants of the 7th Framework for SMEs of the European Union.

Teaching Experience

- Joint Postgraduate Programs, University of Patras, Greece
 - Laboratory Assistant on "Compilers" for the postgraduate program "Integrated Hardware/Software Codesign" during the academic year 1998 - 1999.
 - Laboratory Assistant on "Compilers" for the postgraduate program "Digital Signal Processing" during the academic year 1998 - 1999.
- Department in Electrical and Computer Engineering, University of Patras, Greece
 - Lecturer on "Programming Languages Principles" (4hr/week) during the spring semester of 2004-2005.
- Hellenic Open University, Greece
 - Educational Supervisor at PLI24 «Software Engineering» during the academic years 2003-2010.
- Technological Educational Institution of Messolonghi
 - Professor of Applications in Software technology at the Department of Telecommunications Systems & Networks from May 2008 teaching "Object Oriented Programming - Java", "Operating Systems" & "Distributed Programming".
 - Scientific Associate at the Department of Telecommunications Systems & Networks during the academic years 2006-2008 teaching "Object Oriented Programming - Java", "Operating Systems" & "Distributed Programming".

- Scientific Associate at the Department of Applied Informatics in Management and Finance during the academic years 2002-2006 teaching “ Programming I – The C Language”, “ Programming II – The C++ Language”, “Object Oriented Programming - Java”, “Operating Systems” & “Compilers”.
- Postgraduate Programs of Technological Educational Institution of Messolonghi
 - Lecturer on “Object Oriented Software Systems Engineering” (4hr/week) during the winter semester of 2004-2005.

In addition, I have taught in various seminars and post higher education programs on the following subjects: “Software Engineering”, “Programming Language Principles” and “Object Oriented Languages”.

Research interests

Software engineering, parallel/distributed computing and systems, grid computing, programming languages and compilers, business rules modeling, resource scheduling algorithms, algorithm engineering, integer and combinatorial optimization, wireless / mobile network applications, embedded design optimization.

Publications

Books

Thematic Section, 9, 9.1, « **Compilers – Laboratory Exercises** », P. Pintelas & P. Alefragis, ISBN 960-538-209-1, Hellenic Open University, 2003.

Scientific Journal Articles & Internation Conference Proceeding (Full Review)

1. Christos Gogos, George Goulas, **Panayiotis Alefragis**, Vasilios Kolonias, Efthymios Housos (2010), Distributed Scatter Search for the Examination Timetabling Problem, In: 8th International Conference on the Practice and Theory of Automated Timetabling, Belfast, p211-223.
2. Christos Gogos, **Panayiotis Alefragis**, Efthymios Housos (2010), An Improved Multi-Stage Algorithmic Process for the Solution of the Examination Timetabling Problem. Annals of Operations Research, Special Issue on the Practice and Theory of Automated Timetabling, <http://dx.doi.org/10.1007/s10479-010-0712-3>.
3. **Panayiotis Alefragis** and Nikos Chondros (2009), "BAL: A language for component based distributed applications development", 35th EUROMICRO Conference on Software Engineering and Advanced Applications (SEAA), August 26-29, 2009, Patras, Greece.
4. Christos Gogos, George Goulas, **Panayiotis Alefragis** and Efthymios Housos (2009). Pursuit of Better Results for the Examination Timetabling Problem Using Grid Resources. 2009 IEEE Symposium on Computational Intelligence in Scheduling (CI-Sched), Nashville, Tennessee, USA, 30 Mar-2 Apr 2009.

5. Goulas G., Gogos C., **Alefragis P.** and Housos E (2009). SchedScripter: Workflows for Grid-based Human Resources Scheduling Applications, 4th EGEE User Forum/OGF 25 and OGF Europe's 2nd, Catania, Sicily, Italy, 2-6 March 2009.
6. Christos Gogos, **Panayiotis Alefragis**, Efthymios Housos(2008), A Multi-Staged Algorithmic Process for the Solution of the Examination Timetabling Problem In: The 7th International Conference on the Practice and Theory of Automated Timetabling August 20 -26, 2008, Montreal, Canada.
7. C. Gogos, **P. Alefragis**, E. Housos (2007) Sensor enabled rule based alarm system for the agricultural industry In: Emerging Technologies & Factory Automation, 2007.
8. Christos Gogos, **Panayiotis Alefragis**, Efthymios Housos (2007), Application Of Heuristics, Genetic Algorithms & Integer Programming At A Public Enterprise Water Pump Scheduling System, In: 11th Panhellenic Conference on Informatics (PCI 2007) at Patras, Greece, 18-20 of May 2007.
9. **Panayiotis Alefragis**, Vassilis Triantafillou and Nickolaos Voros (2007), Mobile based e-Democracy: The IBB/PMA e-Voting System, In: 11th Panhellenic Conference on Informatics (PCI 2007) at Patras, Greece, 18-20 of May 2007.
10. G. Goulas, V. Barkayannis, S. Gianoulis, C. Gogos, **P. Alefragis**, P. Foundas, C. Valouxis, S. Koubias, E. Housos (2006) ERMIS: A Helicopter Taxi Company Software Support System based on GPS, GSM and Web Services In: Emerging Technologies and Factory Automation. ETFA '06.
11. Christos Gogos, **Panayiotis Alefragis**, Efthymios Housos (2005) Public enterprise water pump scheduling system, 10th IEEE International Conference on Emerging Technologies and Factory Automation, Facolta' di Ingegneria, Catania, Italy, 19-22 September 2005, L.L. Bello & T. Sauter Eds, ISBN 0-7803-9402-X, IEEE Press
12. G. Goulas, **P. Alefragis** and E. Housos (2005), SchedSP: A Grid – based application service provider of scheduling solutions, Software: Practice & Experience, 35:1-22,2005, ISSN 0038-0644, John Wiley & Sons Ltd.
13. G. Goulas, **P. Alefragis**, E. Housos(2005), SchedSP-WS: adaptation of an application service platform for scheduling solutions to web services and grid standards, Proceedings of the 5th IEEE International Symposium on Signal Processing and Information Technology, Athens, Greece, 18 – 21 December, 2005, p94- 98 , DOI:10.1109/ISSPIT.2005.1577076
14. **P.S. Alefragis**, V.D. Triantafillou, K.E. Tsatsaronis and N.S. Voros (2005), Specification and Design of an advanced Hot Spot Controller Based on Radius Authentication Server , EUROMEDIA'2005, Toulouse, France, Apr 11-13.
15. **P. S. Alefragis**, S.K. Lounis, V.D. Triantafillou, N.S. Voros (2005) Electronic democracy in Practice: A Web based voting system relying on Identical Ballot

Boxes with physical multiple administration , IADIS International e-Society 2005, Qawra, Malta, Jun 27- 30 2005.

16. **P. S. Alefragis**, S.K. Lounis, V.D. Triantafillou, N.S. Voros (2004), An Electronic Voting Scheme with Physical Multiple Administrators and identical ballot boxes, in Pedro T. Isaías, Nitya Karunakar, Luís Rodrigues, Patrícia Barbosa (Eds) Proceedings of the IADIS International WWW/Internet 2004, Madrid, Oct 6-9 2004, ISBN 972-99353-0-0, IADIS.
17. **P. Alefragis**, P. Sanders, T. Takkula and D. Wedelin (2000), Parallel Integer Optimization for Crew Scheduling”, Annals of Operations Research, 99(1), 141-166, ISSN 0254-5330, Kluwer Academic Publishers.
18. **P. Alefragis**, E. Housos (1999), Performance Improvements of the DAYSY Legality Checking System for Real Time Rescheduling Applications, 5th International Conference of the Decision Sciences Institute (DSI-99), p.216-218, ISBN 0-9667118-1-5, 1999.
19. **P. Alefragis**, C. Goumopoulos, E. Housos, P. Sanders, T. Takkula and D. Wedelin (1998), Parallel crew scheduling in PAROS, EuroPar '98, September 1-4, 1998 Southampton, UK, LNCS 1470, p.1104-1113, ISBN 3-540-64952-2, ISSN 0302-9743, Springer-Verlag.
20. C. Goumopoulos, **P. Alefragis**, E. Housos (1998), Parallel Algorithms for Airline Crew Planning on Networks of Workstations, International Conference on Parallel Processing (ICPP-98), Aug 10-15, 1998, Minneapolis, Minnesota, IEEE CS PR08650, p70-78, ISBN 0-8186-8650-2, ISSN 0190-3918, IEEE Computer Society.
21. C. Goumopoulos, **P. Alefragis**, K. Thrampoulidis, E. Housos (1998), A generic Legality Checker and Attribute Evaluator for a Distributed Enterprise Environment, IEEE International Symposium on Computers and Communications (ISCC '98), June 29 - July 2, 1998, Athens, Greece, IEEE CS PR08538, p286-292, ISBN 0-8186-8538-7, IEEE Computer Society.
22. C. Goumopoulos, **P. Alefragis**, E. Housos (1998), High Performance Airline Crew-Pairing Optimization”, European Parallel and Distributed Systems Conference (Euro-PDS98), July 1-3, 1998 Vienna, AUSTRIA, p.237-243, ISBN 0-88986-266-4, IASTED/ACTA Press.

Scientific Articles in Conference Proceeding with extended abstract review

1. P. Alefragis, K. Papoutsis, C. Valouxis and E. Housos (2002) A Parallel Column Generation based Solver for Airline Crew Pairing, *15th Conference of the Greek Operations Research Society*, Tripoli, Greece, 31 Oct. – 01 Nov., 2002.
2. Goulas G., Gogos C., **Alefragis P.** and Housos E. (2009) SchedScripter: Workflows for Grid-based Human Resources Scheduling Applications, *4th EGEE User Forum/OGF 25 and OGF Europe's 2nd*, Catania, Sicily, Italy, 2-6 March 2009

Also, author or co-author of several technical reports for the participated projects.

Computer related skills

Platforms: UNIX (HPUX & Linux), MS Windows flavors

Programming languages: C/C++, Java, SQL, Pascal, Basic, Fortran, Assembly (Z80/8080)

Object Oriented Software Engineering tools: Rational Rose, Visual Paradigm

Application development tools: Microsoft Visual Studio, Borland C++Builder, Borland JBuilder, HP Softbench, Rational Purify & Quantify, Compiler Development Tools (lex/flex, yacc/bison and antlr), PVM, MPI, Netbeans, Web Services

Administrative tools: MS Office, CorelDRAW!, Adobe Photoshop

Memberships

National Technical Chamber of Greece, Greek Computer Society, Institute of Electrical and Electronics Engineers.

Foreign languages

English (fluent, First Certificate in English, Cambridge University, 1988 & Proficiency in English, University of Michigan, 2003).

Hobbies

Traveling, movies, table tennis