

# Arnaud Contes

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## Education

- 2001 - 05 **Ph.D in computer Science** : University of Nice Sophia-Antipolis  
*Subject : An Hierarchical, Versatile and Dynamic Security Architecture for the Grid*
- 2000 - 01 **Master Degree in Computer Science**: Networks and Distributed Systems  
*DEA Réseaux et Systèmes Distribués*: University of Nice Sophia-Antipolis
- 1998 - 00 **Bachelor Degree in Computer Science**  
*Licence & Maîtrise d'Informatique*: University of Nice Sophia-Antipolis
- 1996 - 98 **General Study in Mathematics and Computer Science**  
*DEUG Mathématiques et Informatique*: University of Nice Sophia-Antipolis

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## Experience

- 2005-06 **Research Associate, Cardiff University, Wales, UK**  
18 months *EU Provenance Project*  
The main concept behind Provenance is to enable the recording of the process by which a result was generated. That knowledge is fundamental for many real life applications (science, engineering, medical domain, supply management, etc). Without such information, users cannot reproduce, analyse or validate processes or experiments. I have been involved in the Tools Work Package whose aim is to provide a set of tools allowing the analysis of an application workflow and the visualization of that workflow. The analysis engine makes use of the JESS rule engine to validate a workflow.  
keywords : Data Provenance, Rule Engine (JESS), Java, Web Services, XML and related technologies, eXo Portal.
- 2001-05 **Ph.D. at INRIA Sophia-Antipolis - OASIS Project**

- 37 months    *High-Level Security for Distributed Applications*  
 My Ph.D thesis presents a decentralised security model which takes care of security requirements expressed by all actors (resource providers, administrators, users) involved in a computation. The model is implemented outside the application source code allowing to set application's security according to its deployment. In addition, the model can handle specific behaviors which could happen during a distributed application life-cycle like the use of newly discovered resources or remote object creation. The implementation within the ProActive library has validated the approach and has demonstrated its advantages. Thanks to its implementation through a meta-level protocol, the security framework is transparent and seamlessly integrated with the other features of the library (migration, group communications, components, peer-to-peer). Benchmarks have consolidated the validity of the approach. During my Ph.D, I have also maintained the code base of ProActive, initiated the migration from CVS to SVN, supervised several interships, taught at the University of Nice, was involved in program committee of several conferences, designed team and conference web sites, managed the linux-based computers of the team.  
keywords : Distributed Systems Security, Meta-Object Programming, Self Defending Objects, Adaptable and Secured Application Deployment, Java, XML, SPKI.
- 2001            **Research internship at INRIA Sophia-Antipolis - OASIS Project**  
 6 months    *Security Architecture for Mobile Active Objects*  
keywords : Java, PKI, X.509, Meta-Object Programming, Distributed Systems.
- 2000-01        **Sasloo SARL**  
 18 months    *Co-founder, Webmaster, System Administrator (Linux), Database Administrator, Developer.*
- 2000            **Research internship at INRIA Sophia-Antipolis - CHIR Project**  
 2 months    *Application for Visualizing a Human heart in 3D + Time.*  
 enables users to segment artery centerlines on an image, while being constrained by the multiscale response map. In other words, it allows the user to trace artery from free breathing angiograms (a combination of the cardiac contraction and respiratory motion of the heart). Tracing the same arteries on, at least two images, allows the software to compute a 3D+time coronary tree model.  
keywords : GTK+, C, XML, 3D modeling, Stereoscopic Vision.

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## Technical Skills

Operating Systems	Unix/Linux, Windows.
Languages & APIs	Java : J2EE, JSP, servlets, AWT, Swing, JMX, Hibernate, Ant, JDO, Portlets, JAXP, JAXB, C#, C, Python, Perl, Shell scripts, UML, SQL, XML, XML Schema, XSLT, GTK+, Qt, LaTeX, ProActive.
Security-related notions	(S)PKI, X.509, bouncycastle,
Web and Web Service technologies	(X)HTML, JavaScript, PHP, CSS, CGI. SOAP, AJAX (GWT)
Eclipse Framework	Eclipse RCP, SWT, GEF.
Server technologies	Apache, Jakarta Tomcat, Jboss, eXo portal, MySQL, PostgreSQL.
Rule Engine	Java Expert System Shell (JESS).
Development tools	JBuilder, Eclipse, Visual Studio .Net, Emacs, GForge or similar, autotools.
Collaborative tools	CVS, Subversion, Mercurial, Wiki.
Spoken language	French : mother tongue English : fluent Italian : basic level
Miscellaneous	Administration of Unix systems. Driving Licence (A&B)

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## Publications

### ► Thesis :

- [1] Arnaud Contes. *Une Architecture de Sécurité Hiérarchique, Adaptable et Dynamique pour la Grille*. PhD thesis, University of Nice Sophia-Antipolis, September 2005.

### ► Book (Chapter) :

- [2] Laurent Baduel, Françoise Baude, Denis Caromel, Arnaud Contes, Fabrice Huet, Matthieu Morel, and Romain Quilici. *Grid Computing: Software Environments and Tools*, chapter Programming, Deploying, Composing, for the Grid. Springer-Verlag, 2004.

### ► Conferences :

- [3] Isabelle Attali, Denis Caromel, and Arnaud Contes. Hierarchical and Declarative Security for Grid Applications. In *Proceedings of the International Conference On High Performance Computing*, volume 2913/2003 of *Lecture Notes in Computer Science*, pages 363–372, Hyderabad, India, December 2003. Springer Verlag.
- [4] Isabelle Attali, Denis Caromel, and Arnaud Contes. Une architecture de sécurité déclarative et hiérarchique pour les grilles de calcul. In INRIA, editor, *2ème rencontre francophone sur le thème Sécurité et Architecture Réseau*, pages 203–212, Nancy, France, July 2003.
- [5] Isabelle Attali, Denis Caromel, and Arnaud Contes. Deployment-Based Security for Grid Applications. In *The International Conference on Computational Science (ICCS 2005)*, Atlanta, USA, volume 3514/2005 of *Lecture Notes in Computer Science*, pages 526–533. Springer Verlag, May 2005.
- [6] Vikas Deora, Arnaud Contes, Omer F. Rana, Shrija Rajbhandari, Ian Wootten, Kifor Tamas, and Laszlo Z. Varga. Navigating Provenance Information for Distributed Healthcare Management. In *International Conference on Web Intelligence*, pages 859–865, Los Alamitos, CA, USA, 2006. IEEE Computer Society.
- [7] Shrija Rajbhandari, Arnaud Contes, Omer F. Rana, Vikas Deora, and Ian Wootten. Establishing Workflow Trust Using Provenance Information. In *MACE 2006, 1st IEEE International Workshop on Modelling Autonomic Communications Environments*, Dublin, Ireland, October, 25-26 2006.
- [8] Shrija Rajbhandari, Arnaud Contes, Omer F. Rana, Vikas Deora, and Ian Wootten. Trust Assessment Using Provenance in Service Oriented Application. In Inderscience Publishers, editor, *Service Intelligence and Service Science Workshop - SISS 2006*,

*collocated with Enterprise Distributed Object Computing Conference (EDOC 2006), Hong Kong, pages 1–8, October, 16-20 2006.*

► **Others :**

- [9] Isabelle Attali, Denis Caromel, and Arnaud Contes. Security for Distributed and Mobile Active Objects with the ProActive Library. ERCIM News No.49, Special Theme : Information Security, April 2002.
- [10] Laurent Baduel, Françoise Baude, Denis Caromel, Arnaud Contes, Fabrice Huet, Matthieu Morel, and Romain Quilici. Components for numerical GRIDs. Invited paper in European Congress on Computational Methods in Applied Sciences and Engineering, ECCOMAS, July 2004.
- [11] Arnaud Contes. Mécanisme de sécurité pour intergiciel à objets actifs mobiles. Master's thesis, DEA RSD, University of Nice Sophia-Antipolis, June 2001.

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## Research Activities and Related

► **Communications**

I have had the possibility to present my works in the following conferences :

- ▷ **EJCP 2002** Summer School of Young Students in Computer Science,
- ▷ **IPDPS 2003** as student volunteer,
- ▷ **SAR 2003, HiPC 2003**, presentation of [4] ,
- ▷ **RenPar 2003** as member of the conference organization team,
- ▷ **Intech'Sophia 2003** (Sophia Antipolis),
- ▷ **Ubiquitous Security Workshop - Sophia Antipolis 2004**, presentation of my Ph.D. work,
- ▷ **Séminaire Sécurité ObjectWeb 2003** ObjectWeb Security Workshop, presentation of my Ph.D. work,
- ▷ **Ubiquitous Security Workshop** Organizer and speaker, Sophia-Antipolis, 2004,
- ▷ **ProActive UserGroup, PlugTest & Contest 2004** member of the organization team and speaker,
- ▷ **EC Bridge 2004** as speaker and exhibitor,
- ▷ **Journée INRIA-EDF 2005** Presentation of the research done by the OASIS team,
- ▷ **Grid@Work 2005** Organizing committee member, presentation of my Ph.D work, the EU Provenance Project and their possible integration,
- ▷ **ICCS 2005**, presentation of [5],

▷ **EDOC 2006**, presentation of [8],

### ► **Administrative Tasks**

▷ I have reviewed articles for the following conferences: CCGrid, Asian, FMOODS, EuroPar, HPDC.

▷ I have been involved in several projects including CoreGrid WP3 and WP4 - European Project), EU Provenance (WP6 - European Project), Passerelle Internet Sécurisée et flexible (PISE - French Project RNRT). In addition of being member of the technical board, I have also participated in the redaction of technical reports, project deliverables and european project proposals.

▷ I have been involved in the organization of the following events :

- RenPar 03,
- ProActive UserGroup, PlugTest & Contest 2004,
- Ubiquitous Security Workshop - Sophia Antipolis,
- Security and High-Performance Systems Workshop - HPCS 2006

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## Teaching Activities

I have given more than 150 hours of supervised practical work at the University of Nice Sophia-Antipolis in the following domains:

- *2001 - 02*  
Computer Science (Unix)- DEUG (33h)  
Java - DEUG (26h)  
Travaux d'Etudes - Licence (4h)
- *2002 - 03*  
Computer Sciences (Unix) - (33h)  
Introduction to TheGimp - (22h)  
Lexical Analysis - (27h)
- *2003 - 04*  
Distributed programming & software engineering - (10h)
- *2004 - 05*  
Lecture : Distributed programming : Java & RMI - (2h)

I supervised many student research works. These works are about home automation (low-level protocols, home systems, existing applications).

I also supervised several internships in my research project during my Ph.D., on the following topics : Jobs Monitoring, Web-Services, P2P networks.