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Curriculum Vitae  
&  
Academic Publications

*Dimitrios Zissis*

December 2011

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## **A. Curriculum Vitae**

### **1. Personal Details**

Name:	Dimitrios
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### **2. Education**

- **PhD**, Computer and Information System Security, Department of Product and System Design Engineering, University of the Aegean, Greece (2011) .
- **MBA**, Degree of Master in Business Administration, General Management, City University, USA (2007).
- **MSc**, Degree of Master of Science, Computing and Information Systems, John Moore's University of Liverpool, UK (2005)
- **BSc** Computer Science (Hons), Bachelor of Science, The University of Liverpool, UK (2004)

### **3. Experience**

#### *3.1 Research Experience*

- **e-Pass PKI**, "Design and Implementation of the Public Key Infrastructure services for the e-Passport" (2009). This research project included the design, development and implementation of the security infrastructure, the Public Key Infrastructure, for the e-electronic passport deployment in Greece.
- **e-UNIVERSITY PKI**, "Design and Implementation of the Public Key Infrastructure services for the e-University", Information Society (2006-2007). This research project included the design, development and implementation of the security infrastructure, the Public Key Infrastructure, for the e-University initiative which is involved in the integration of daily business processes conducted by university level educational services in Greece.

- **e-SCHOOL PKI**, "Design and Implementation of the Public Key Infrastructure services for the e-School", Information Society (2006-2007). This research project included the design, development and implementation of the security infrastructure, the Public Key Infrastructure, for the e-School initiative which is involved in the integration of daily business processes conducted by primary and secondary level educational services in Greece.

### *3.2 Membership of Editorial Boards of Scientific and Scholarly Journals*

- International Journal of Cloud Computing and Services Science

### *3.3 Reviewer*

- **Reviewer**, International Journal of Cloud Computing, Inderscience Publishers, 2012
- **Reviewer**, Journal of Internet Services and Applications, Springer
- **Reviewer**, International Journal of Artificial Intelligence and Soft Computing, Inderscience Publishers
- **Reviewer**, International Journal of Communication Networks and Distributed Systems (IJCND), Inderscience Publishers
- **Reviewer**, Computers & Security, Elsevier
- **Reviewer**, Scientific Research and Essays, Academic Journals
- **Reviewer**, Second International Conference on e-voting and identity, VOTE-ID 2009, Luxembourg, September 7-8, 2009.
- **Reviewer**, E-Governance and Civic Engagement: Factors and Determinants of E-Democracy, IGI Global, 2011
- **Reviewer**, International Conference on Information and Communication Technologies and Applications ICTA 2011
- **Reviewer**, 12th European Conference on e-Government, ECEG 2012
- **Reviewer**, The 3rd International Multi-Conference on Complexity, Informatics and Cybernetics: IMCIC 2012, Orlando, Florida, USA

### *3.4 Conference Committees*

- **ECEG 2012**, 12th European Conference on e-Government – ECEG 2012 Conference Committee
- **ICDS 2012**, The Sixth International Conference on Digital Society, January 30 - February 4, 2012 - Valencia, Spain
- **ICDS 2013**, The Seventh International Conference on Digital Society, February 24 - March 1, 2013 - Nice, France

- **ICIW 2012**, 7th International Conference on i-Warfare and Security- Center for Information Assurance and Cybersecurity, University of Washington, Seattle, USA, 22-23 March 2012

### *3.5 Teaching Experience*

Adjunct Lecturer at the Department of Product and Systems Design, University of the Aegean. Modules taught are described below,

#### **Undergraduate Courses:**

- Instructor, Department of Product and System Design Engineering, University of the Aegean, “**Informatics I**”, 2008-2011. The course aims at introducing the main concepts of Information Technology (IT) so as to highlight its importance in the design of interactive products and systems. The main objective for the students is to understand the scope, value and capabilities of information technology, while special emphasis is given on principles, concepts and trends in information systems.
- Co-Teaching Instructor, Department of Product and System Design Engineering, University of the Aegean, “**Informatics II**”, 2008-2011. According to the approach of this course, computers are not just tools, but they are a powerful means of data representation and information handling and transmitting. The purpose and the technologies of computer networking and specifically the structure, the evolution and the capabilities of the Internet are presented.
- Instructor, Department of Product and System Design Engineering, University of the Aegean, “**Analysis & Design of Information Systems**”, 2011. In any software project, the *analysis* stage - documenting and *designing* technical requirements for the needs of users is vital to the success of the project. The course starts with a quick introduction to information systems analysis and design explaining why analysis and design are important in the development of computerized systems and introduces fundamental concepts such as those of systems theory organizations. It then presents and discusses the stages of information system development, using basic principles from software engineering. Students are introduced to the basic notation of the Unified Modeling Language (UML). In it we introduce use cases, class diagrams, sequence diagrams, collaboration diagrams, activity diagrams, and state-chart diagrams.
- Co-Teaching Instructor, Department of Product and System Design Engineering, University of the Aegean, “**Programming Methodologies & Techniques I**”, 2009-2011. Students learn how to solve problems using computers and they will acquire basic programming skills, focusing on the best development practices. Various problems are analyzed as exercises and their solution is designed in order to be

executed on a computer. Program flow diagrams and pseudo-code are used as initial tools to depict a solution. An introduction on the functionality of compilers is made and practical exercises are based on the programming language C. Students will learn the syntax of C, the loops, the conditional execution and the structuring of a program into smaller modules.

- Co-Teaching Instructor, Department of Product and System Design Engineering, University of the Aegean, “**Internet Technology and Programming**”, 2011. The aim of this course is to teach students technologies and methodologies necessary for programming for the world wide web. This course includes: Internet application development, Computer networks: principle concepts, topologies, architecture, interfaces, Introduction to web and web services: TCP/IP architecture, IP addressing, routing, services, Web based applications: client-server model, application development, connection with databases, Markup Languages, Databases for web applications, Server- & Client-Side Programming

**Graduate Courses:**

- Master of Science (MSc) in Design of Interactive and Industrial Products and Systems . Co-Teaching Instructor, “ Informatics and Interactive Media”, 2011.

## **4. Scientific Publications**

### *4.1 Journal Publications*

1. Zissis, D, Lekkas, D, and Papadopoulou. A.E, “Competent Electronic Participation Channels in Electronic Democracy.” *Electronic Journal of e-Government* Volume 7 Issue 2 2009, (pp195 - 208)
2. Dimitrios Zissis and Dimitrios Lekkas, "Securing e-Government and e-Voting with an open cloud computing architecture", *Government Information Quarterly*, Elsevier, 2010 (In print). doi: 10.1016/j.giq.2010.05.010
3. Dimitrios Zissis and Dimitrios Lekkas, "Addressing Cloud computing Security Issues", *Future Generation Computer Systems: The International Journal of Grid Computing and eScience*, Special Issue on Infrastructure and Network-aware Grids and Service Oriented Architectures, 2011. doi:10.1016/j.future.2010.12.006.
4. Argyris Arnellos, Dimitrios Lekkas, Dimitrios Zissis, Thomas Spyrou, John Darzentas. Fair Digital Signing: The Structural Reliability of Signed Documents, *Computer & Security* 2011

#### 4.2 *Conference Publications*

5. Dimitrios Zissis, Dimitrios Lekkas, Thomas Spyrou, Security Services in e-School and their role in the evaluation of educational processes, International Conference on Institutional Evaluation Techniques in Education, ICIETE, Samos 2007
6. Dimitrios Zissis, Anastasia-Evangelia Papadopoulou, Dimitrios Lekkas, "Enhancing security in the integration of e-Government: The e-School initiative", In 4th International Conference on Web Information Systems and Technologies, WEBIST'08, Madeira - Portugal, May 2008
7. Dimitrios Zissis, Dimitrios Lekkas, Anastasia-Evangelia Papadopoulou, "Competent electronic participation channels in electronic democracy", In 8th European Conference on e-Government - ECEG'08, Lausanne, Switzerland, July 2008
8. Dimitrios Zissis and Dimitrios Lekkas, "The security paradox, disclosing source code to attain secure electronic elections", Proceedings of the 9th European Conference on e-Government, p. 741, University of Westminster, London, UK, 29-30 June 2009
9. S. Tasoudis, S. Kanis, D. Lekkas, D. Zissis, "Proposed design of a model e-book digital reader, aiming at its optimal application in education (Anthropocentric Approach)", In the Greek Free / Open Source Software Society (ELLAK) Conference, Athens 15-16 May 2010
10. Dimitrios Zissis, Dimitrios Lekkas and Panayiotis Koutsabasis, "Cryptographic Dysfunctionality-A Survey on User Perceptions of Digital Certificates", In 7th International Conference in Global Security Safety and Sustainability(ICGS3)/4th International Conference on e-Democracy, Thessaloniki, August 2011 .
11. Dimitrios Lekkas and Dimitrios Zissis, "Leveraging the e-passport PKI to achieve interoperable security for e-government cross border services", In 7th International Conference in Global Security Safety and Sustainability(ICGS3)/4th International Conference on e-Democracy, Thessaloniki, August 2011.

#### 4.3 *Book Chapters*

12. Dimitrios Zissis, Dimitrios Lekkas, Argyris Arnellos, "A systems theory approach to electronic voting complexity", *Active Citizen Participation in E-Government*, IGI Global, 2011 (In Print)

## **5. Distinctions**

- SciVerse- Science Direct, Elsevier included “Addressing Cloud computing Security Issues” in the TOP 25 Hottest Articles in Computer Science, January to March 2011
- SciVerse- Science Direct, Elsevier included “Addressing Cloud computing Security Issues” in the TOP 25 Hottest Articles in Computer Science, April to June 2011
- SciVerse- Science Direct, Elsevier included “Addressing Cloud computing Security Issues” in the TOP 25 Hottest Articles in Computer Science, July to September 2011

## **6. Memberships**

- Member of Interactive Systems Design Lab (ISDL). The Interactive Systems Design Laboratory of the Department of Product and Systems Design Engineering (DPSD) - University of the Aegean specializes in Interactive Media fields including Human-Computer Interaction of Information Systems, of Complex Systems and of Audiovisual Arts.
- Professional member of the Association for Computing Machinery (ACM)
  - Special Interest Group on Security, Audit and Control (SIGSAC)
- Member of the British Computer Society (BCS). 2009-2010
- Member of the Internet Society (ISOC)
  - ISOC England

## **7. Recommendation Letters**

- **Professor Ioannis Darzentas**, Head of Department at the Department of Product and System Engineering, University of the Aegean.  
Email: idarz@aegean.gr, Contact Number: +30 22810 97100
- **Assistant Professor Dimitrios Lekkas**, Assistant Professor at the Department of Product and System Engineering, University of the Aegean.  
e-mail: dlek@aegean.gr, Contact Number: +30 22810 97100
- **Dr. Panayiotis Koutsabasis**, Lecturer at the Department of Product and System Engineering, University of the Aegean.  
e-mail: kgp@aegean.gr, Contact Number: +30 22810 97124



## **B. Detailed research interests and publication record**

### **1. Areas of Specialization and Research**

- Information Systems Design and Development
- Information Systems Security
- Information and Communication Security
- Secure Electronic Voting
- Electronic Governance and Electronic Democracy
- Public Key Cryptography and Digital Signatures
- Autonomic Computing
- Cloud Computing
- HCI

### **2. Publication Abstracts and Citations**

#### *2.1 Journal Publications*

1. **Zissis D.**, Lekkas D., Papadopoulou. A.E., “Competent Electronic Participation Channels in Electronic Democracy.” *Electronic Journal of e-Government*, Vol.7, No.2, pp.195 - 208, 2009

**Abstract:** Electronic Democracy is appearing in political agendas across countries and borders. This paper refers to electronic participation channels implemented to digitalize decision processes in an electronic democracy. Electronic participation includes the sub processes of information acquisition and formation of an opinion. The function of efficient electronic participation in electronic democracy is crucial and indispensable. Electronic Democracy provides citizens with the opportunity to engage efficiently in democratic processes. Current technology can be perceived as an evolution of traditional communication linkages between political representatives and citizens. These can provide an “extensive library” of information and a “meeting point” for political debate. A surplus of existing technologies provides the means to enhance the unidirectional and bidirectional communication paths between citizens and involved political entities. Such a technological deployment though must meet a number of requirements ranging from usability issues to electronic security. An in depth analysis and review of social and technical requirements of such channels is provided in this paper. Solutions are presented which meet previously identified needs and through their comparison the fulfillment of the requirements will be met. This paper's objective is to identify the custom design for efficient and competent electronic participation channels in electronic democracy. This goal will be achieved through a comparison of the current technological tools used in e-participation, called e-methods. For each one of these e-methods a SWOT analysis will be provided, listing the Strengths, Weaknesses, Opportunities

and Threats, that this particular tool may have. Eventually a comparison is made after the establishment of criteria regarding many aspects such as: security, privacy, accessibility, user's or developer's viewpoints. Proficiently deployed technological infrastructures which enhance the bidirectional communication pathways will lead to engaged and better informed citizens, and evidently to a stronger democracy. Findings of this paper should be considered by parties interested in deploying electronic democracy infrastructures and fellow researchers in the field.

**Cited by 4:**

- [Ci1]. Staiou, E., Gouscos, D. Socializing E-governance: A Parallel Study of Participatory E-governance and Emerging Social Media. Comparative E-Government, 2010 – Springer
- [Ci2]. Hamdan O. Alanazi, Rafidah Md Noor. The Guide of Implementing Chat Protocol: Study Case on Using the Socket Programming Concept and Object Oriented Programming. Journal Of Computing, Volume 2, Issue 10, October 2010, Issn 2151-9617
- [Ci3]. Rushton., A. Future of Interactive Media in Government: Redefining Relationships. Masters Thesis, Elon University. 2009
- [Ci4]. Demirhan, K., Öktem K. "Electronic Participation In The Policy Making Process:A Case Study", International Journal Of Ebusiness And Egovernment Studies Vol 3, No 1, 2011 ISSN: 2146-0744

2. **Zissis D.** and **Lekkas D.**, "Securing e-Government and e-Voting with an open cloud computing architecture", *Government Information Quarterly*, Volume 28, Issue 2, April 2011. DOI: 10.1016/j.giq.2010.05.010

**Abstract:** The idea, the concept, or the term, that is cloud computing, has recently passed into common currency and the academic lexicon in an ambiguous manner, as cloud dust is being sprinkled on an excess of emerging products. Exorcising complexity and protecting against the caprice of the moment, this paper explores the notion behind the hype of cloud computing and evaluates its relevance to electronic government and electronic voting information systems. This paper explores increasing participation and sophistication of electronic government services, through implementing a cloud computing architecture. From an Information and Communication Security perspective, a structured analysis is adopted to identify vulnerabilities, involved in the digitalization of government transactions and the electoral process, exploring the notion of trust and transparency within this context. In turn, adopting a cloud computing approach for electronic government and electronic voting solutions is investigated, reviewing the architecture within the previously described context. Taking a step further, this paper proposes a high level electronic governance and electronic voting solution, supported by cloud computing architecture and cryptographic technologies, additionally identifying issues that require further research.

**Cited by 3:**

- [Ci5]. Smith, Daniel J., Beaulier, Scott Alex and Sutter, Daniel, Technology and the Architecture of Emergent Orders, Working Paper Series, (October 3, 2011)
- [Ci6]. Wang, Yu-Hui , The impact of credibility trust on user acceptance of software-as-a-service, Nano, Information Technology and Reliability (NASNIT), 2011 15th North-East Asia Symposium on, 24-26 Oct. 2011. Doi: 10.1109/NASNIT.2011.6111113

[Ci7]. Leif Skiftenes Flak, Hans Solli-Sæther, "The Shape of Interoperability: Reviewing and Characterizing a Central Area within eGovernment Research," *hicss*, pp.2643-2652, 2012  
45th Hawaii International Conference on System Sciences, 2012

3. **Zissis D.** and **Lekkas D.**, "Addressing Cloud computing Security Issues", *Future Generation Computer Systems: The International Journal of Grid Computing and eScience*, Volume 28, Issue 3, March 2012, Pages 583-592, doi:10.1016/j.future.2010.12.006.DOI:10.1016/j.future.2010.12.006

**Abstract:** The recent emergence of cloud computing has drastically altered everyone's perception of infrastructure architectures, software delivery and development models. Projecting as an evolutionary step, following the transition from mainframe computers to client/server deployment models, cloud computing encompasses elements from grid computing, utility computing and autonomic computing, into an innovative deployment architecture. This rapid transition towards the clouds, has fuelled concerns on a critical issue for the success of information systems, communication and information security. From a security perspective, a number of uncharted risks and challenges have been introduced from this relocation to the clouds, deteriorating much of the effectiveness of traditional protection mechanisms. As a result the aim of this paper is twofold; firstly to evaluate cloud security by identifying unique security requirements and secondly to attempt to present a viable solution that eliminates these potential threats. This paper proposes introducing a Trusted Third Party, tasked with assuring specific security characteristics within a cloud environment. The proposed solution calls upon cryptography, specifically Public Key Infrastructure operating in concert with SSO and LDAP, to ensure the authentication, integrity and confidentiality of involved data and communications. The solution, presents a horizontal level of service, available to all implicated entities, that realizes a security mesh, within which essential trust is maintained.

**Cited by 12.**

- [Ci8]. Jianxin Li, Bo Li, Tianyu Wo, Chunming Hu, Jinpeng Huai, Lu Liu, KP Lam, CyberGuarder: A Virtualization Security Assurance Architecture for Green Cloud Computing, *Future Generation Computer Systems*, 2011
- [Ci9]. Seyrek, "Bulut Bilişim: İşletmeler için Fırsatlar ve Zorluklar", *Gaziantep University Journal of Social Sciences*, 2011.
- [Ci10]. Yang, C., Goodchild M., Huang Q., Nebert D., Raskin R., Xu Y., Bambacus M., Fay D., 2011 (in press), *Spatial Cloud Computing: How geospatial sciences could use and help to shape cloud computing*, *International Journal on Digital Earth*.
- [Ci11]. Snehi Jyoti, Snehi Manish and Gill Rupali. Virtualization as an Engine to Drive Cloud Computing Security. *High Performance Architecture and Grid Computing Communications in Computer and Information Science*, 2011, Volume 169, Part 1, 62-66, Springer-2011
- [Ci12]. Pardeep Sharma, Sandeep K. Sood and Sumeet Kaur. Security Issues in Cloud Computing. *High Performance Architecture and Grid Computing Communications in Computer and Information Science*, 2011, Volume 169, Part 1, 36-45, Springer-2011
- [Ci13]. Singh, G., Sharma, A., Singh M., Security Apprehensions In Different Regions Of Cloud Captious Grounds, *International Journal of Network Security & Its Applications (IJNSA)*, Vol.3, No.4, July 2011

- [Ci14]. P.G. Dorey, A. Leite, “Commentary : Cloud computing – A security problem or solution?”, Information Security Technical Report, September 2011. doi:10.1016/j.istr.2011.08.004
- [Ci15]. Thomas Robertazzi , Grid and Cloud Computing, Basics of Computer Networking, Springer Briefs in Electrical and Computer Engineering, 2012, 65-68, DOI: 10.1007/978-1-4614-2104-7\_8
- [Ci16]. Guifen Chen, Xu Wang, Hang Chen, Chunan Li, Guangwei Zeng, Yan Wang and Peixun Liu, “Research on Digital Agricultural Information Resources Sharing Plan Based on Cloud Computing”, Computer and Computing Technologies in Agriculture V, IFIP Advances in Information and Communication Technology, 2012, Volume 368/2012, 346-35
- [Ci17]. Saurabh Sharma, Randeep Kaur Chhabra, Ashok Verma “Cloud computing: A security problem or solution” International Journal of Emerging Technology and Advanced Engineering, Volume 2, Issue 1, January 2012
- [Ci18]. Alexandra Carpen-Amarie, Alexandru Costan, Catalin Leordeanu, Cristina Basescu, Gabriel Antoniu, Towards a Generic Security Framework for Cloud Data Management Environments, International Journal of Distributed Systems and Technologies, 3(1), 17-34, January-March 2012
- [Ci19]. P Stephanow, M Kulicke, Marcel Kulicke, and Matthias Aumüller Maturity Of Cloud Computing Technology Components Within Infrastructure-as-a-Service: A Practical Approach, March 2012

4. Argyris Arnellos, Dimitrios Lekkas, **Dimitrios Zissis**, Thomas Spyrou, John Darzentas. “Fair Digital Signing: The Structural Reliability of Signed Documents”, *Computer & Security*, Volume 30, Issue 8, November 2011, Pages 580-596 , Elsevier, 2011

**Abstract:** The exchange of digitally signed data inherits all the problems related to the indeterminacy of human communication, which are further intensified by the legal implications of signing. One of the fundamental intrinsic weaknesses of digital signatures is that the signer creates a signature on a series of bits, which may be differently transformed and perceived by the verifier (or relying party), due to the inevitable differences in the intention and the purpose of the two agents. As a result, syntactic and semantic distance is introduced between a signer and a relying party. In this paper we suggest a framework that models the process of digital signing, using several virtual and interrelated levels of communication, thereby promoting the analytic and synthetic exploration of the entities and the transformations involved. Based on this exploration, it is possible to indicate the favourable conditions for mutual understanding between the signer and the relying party. We focus on the syntactic and presentation levels of the communication process and we introduce the notion of structural reliability of a syntactic component, as a measure of how securely and accurately a signed document can be used. It is argued that structural reliability depends on a quantitative metric, such as the structural informativeness along with other qualitative characteristics of the syntactic component. The structural reliability of several document representation protocols is evaluated and it is concluded that the higher the informativeness of the protocol, the less the semantic distance produced, provided that the communicating parties have the capacity to handle this protocol.

## 2.2 Conference Publications

5. **Zissis D.**, Lekkas D., Spyrou T., “Security services in e-School and their role in the evaluation of educational processes”, *International Conference on Institutional Evaluation Techniques in Education, ICIETE'07*, Samos, Greece, July 2007

**Abstract:** This paper presents the e-School initiative which is involved in the integration of daily business processes conducted by primary and secondary level educational services in Greece. It deals with the aspects of security services in e-School and their role in the evaluation of educational processes. In addition it describes the way in which cryptography is used to ensure the authentication, integrity and confidentiality of information and examines the benefits gained.

6. **Zissis D.**, Papadopoulou A.-E., Lekkas D., “Enhancing security in the integration of e-Government: The e-School initiative”, *4th International Conference on Web Information Systems and Technologies, WEBIST'08*, Madeira - Portugal, May 2008

**Abstract:** This paper presents a security infrastructure design which is implemented to ensure safety in the e-School initiative that can escalate to meet the requirements of the entire electronic government system. The e-School initiative offers a number of ways that increase the effectiveness of education, student involvement in the process and is an element of the e-Government effort in Greece. A combination of existing technologies comprises the security solution presented, including Public Key Infrastructure, Shibboleth, Smart cards and Lightweight Directory Access Protocol. In this system, Pki is responsible for binding a public key to an entity, Ldap is the repository of keys and certificates and SSO is a method of access control that enables a user to authenticate once and gain access to the resources of multiple independent web services.

7. **Zissis D.**, Lekkas D., Papadopoulou A.-E., “Competent electronic participation channels in electronic democracy”, *8th European Conference on e-Government - ECEG'08*, Lausanne, Switzerland, July 2008

**Abstract:** This paper presents a security infrastructure design which is implemented to ensure safety in the e-School initiative that can escalate to meet the requirements of the entire electronic government system. The e-School initiative offers a number of ways that increase the effectiveness of education, student involvement in the process and is an element of the e-Government effort in Greece. A combination of existing technologies comprises the security solution presented, including Public Key Infrastructure, Shibboleth, Smart cards and Lightweight Directory Access Protocol. In this system, Pki is responsible for binding a public key to an entity, Ldap is the repository of keys and certificates and SSO is a method of access control that enables a user to authenticate once and gain access to the resources of multiple independent web services.

8. **Zissis D., Lekkas D.**, “The security paradox, disclosing source code to attain secure electronic elections”, *9th European Conference on e-Government - ECEG'09*, London, UK, July 2009

***Abstract:*** In recent years we have witnessed the amalgamation of government services and electronic systems. Citizens and state interactions have changed focus towards human centered electronic approaches, introducing citizens with electronic services that have simplified bureaucratic mechanisms and reduced response time. All efforts of implementing electronic governance have led to the next step in this process, digitalization of the decision making process, electronic voting. Electronic voting is an evolutionary step in the integration of electronic governments which will inevitably be introduced by all democracies across borders. This paper will view the opportunity of introducing electronic voting and explore the characteristics of such a system to provide a secure and trustworthy platform. Setting the field and clarifying disambiguation will result in viewing the critical issues involved in such a system. Transparency and audit ability may be one of the most decisive rudiments of such a system as it is directed in increasing citizen's confidentiality ,focal point of this research is the selection involving the “disclosability” of e-voting system source code. Approaching the issue from information's systems security perspective and taking into account relations with the open source initiative, it is evaluated that for electronic voting to harness the power of scientific review and secure coding, security must not depend on obscurity.

9. **S. Tasoudis, S. Kanis, D. Lekkas, D. Zissis**, "Proposed design of a model e-book digital reader, aiming at its optimal application in education (Anthropocentric Approach)", In the Greek Free / Open Source Software Society (ELLAK) Conference, Athens 15-16 May 2010

10. **Dimitrios Zissis, Dimitrios Lekkas and Panayiotis Koutsabasis**, “Cryptographic Dys functionality-A Survey on User Perceptions of Digital Certificates”, In 7th International Conference in Global Security Safety and Sustainability(ICGS3)/4th International Conference on e-Democracy, Thessaloniki, August 2011

***Abstract:*** In this paper we identify and define cryptographic dysfunctionality and within this context we perform a study to evaluate user perceptions of public key cryptography concepts. The study makes use of user testing, questionnaires and wrap-up interviews with 121 young, but experienced Internet users during their interactions with selected secure Internet locations. The results show that the vast majority of users are not familiar with fundamental concepts of cryptography, and that they are not capable of efficiently managing digital certificates. This case study serves as first evidence supporting our hypothesis that user interface design is deteriorating cryptographic solutions effectiveness due to usability issues.

11. **Dimitrios Lekkas and Dimitrios Zissis**, “Leveraging the e-passport PKI to achieve interoperable security for e-government cross border services”, In 7th International Conference in Global Security Safety and Sustainability(ICGS3)/4th International Conference on e-Democracy, Thessaloniki, August 2011

***Abstract:*** Electronic governments across Europe, but also globally, are moving towards increasing participation in democracy by offering services that improve collaboration and effective participation. These initiatives, target at achieving cross border interoperability and scalability, while leveraging existing resources and knowledge, and in doing so overcoming economic, social and environmental challenges. A critical factor to the success of these initiatives, is achieving these goals securely. As an increasing amount of security sensitive processes and data are being digitalized, current electronic government authentication measures are becoming inadequate to meet with the scaling demands. Public Key Infrastructure is identified as the essential architecture upon which security and trust are built, in order to provide authentication, identity verification, encryption and non-repudiation in electronic transactions. Cross border availability of e-government services requires such a security infrastructure to provide a horizontal level of service across all implicated entities. This paper identifies the unique characteristics of a necessary interoperable security infrastructure and towards this goal explores the restrictions of current authentication approaches. Following this, the ability of the electronic passport PKI solution to extend and meet the demands of an interoperable cross border e-id solution is examined, as the requirements of such an authentication mechanism correlate to the characteristics of the deployed e-passport infrastructure. This paper proposes leveraging the e-passport infrastructure, to build a secure cross border authentication mechanism.

### 2.3 *Book Chapters*

12. **Dimitrios Zissis**, Dimitrios Lekkas, Argyris Arnellos, "A systems theory approach to electronic voting complexity", *Active Citizen Participation in E-Government*, IGI Global, 2011 (In Print)

***Abstract:*** Information and Communication Technologies are being evaluated as an efficient and effective way to modernize the electoral process. These initiatives have initially been met with skepticism, as a number of affecting fields operate in concert, to structure what is perceived as the dimensions of electronic voting. This chapter adds to the existing body of knowledge on e-voting, while attempting to exorcise complexity and reevaluate under a perspicacious vision, the conflictual issues, by adopting a methodology with the ability to tackle highly unstructured problem settings. For this, systems theory is employed to provide a framework for perceiving and analyzing highly complex systems in an interdisciplinary method, as well as, for designing within and for them. In this context, electronic voting is identified as a 'soft' ill-structured human activity system, and soft systems thinking is applied to bring about improvement by resolving complex issues and providing a clearer perspective of related interdependencies.