M. Masoom Alam (PhD)

masoom.alam@gmail.com
Assistant Professor,
Institute of Management Sciences Peshawar
www.imsciences.edu.pk,
Director
Security Engineering Research Group (SERG)
www.imsciences.edu.pk/serg

I have graduated from University of Innsbruck Austria, with a PhD in computer science in November 2007 funded by HEC, Pakistan. Prior to that, I was working as lecturer in IMSciences. I have a total of 10 years expierience in teaching, system administration and research and development. I am able to work on own initiatives as well as part a team. Having good leadership skills in research and development, I am leading a research group with over 35 graduates and under graduates

MAJOR ACHIEVEMENTS:

- Got best PhD thesis award in the PhD Symposium of Models 2006 conference Genoa, Italy – Invited for Springer LNCS publication. (In PhD Symposium of IEEE/ACM Models 2006, Italy Genoa. LNCS 4364)
- Higher Education Commission of Pakistan (HEC – www.hec.gov.pk) Award PhD full bright scholarship holder since November 2003 till Nov 2007
- To have two consecutive projects from National ICT R&D Fund – A Highly reputable national funding agency for research and development Projects in Pakistan
- Introduce a full specialization called "security engineering" at graduate (MS) level where both CS and IT students are enrolled

ACADEMIC PROFILE

- PhD in Model Driven Security Engineering from university of Innsbruck Austria 2003-2007
- MSc Computer Sciences from university of Peshawar 1998-2000
- BSc Computer Sciences from university of Peshawar 1996-1998
- Higher Secondary School Certificate from BISE Peshawar 1994-1996
- Secondary School Certificate from BISE Peshawar 1994

PROFESSIONAL CERTIFICATES

- Oracle Certified Data Base Administrator
- Cisco Certified Network Analyst (CCNA)
- Java Certified Programmer (JCP) from Sun Micro Systems

PUBLISHED BOOKS:

- **M.Masoom Alam, "**Model Driven Security for the Realization of Dynamic Security Requirements *http //www.amazon.com/Driven-Security-Realization-Dynamic-Requirements/dp/3836471345/ref=sr_1_1?s=gateway&ie=UTF8&qid=1285828915&sr=8-1*

- Tamleek A, M.Nauman, **M.Masoom Alam** "Integrity Based Access Control: A Case Study in Remote Attestation " *http://www.amazon.com/Integrity-Based-Access-Control-Attestation/dp/363910661X/ref=sr_1_2?s=gateway&ie=UTF8&qid=1285829014&sr=8-2*

PATENT INFORMATION:

Title:	METHOD AND SYSTEM FOR EXTENDING SELINUX POLICY MODELS AND THEIR ENFORCEMENT
Application No.:	11/969,778
Filed:	January 4, 2008
SISA Ref. No.:	CSL07-TC01
Our Ref. No.:	SAM2A.PAU.59

(confidential documents can be realeased upon request)

TEACHING INTRESTS:

- Formal Methods for Software Engineering
- Advance Theory of Computation
- Access Control Systems
- Advance Software Engineering
- Model Driven Architecture
- Model Driven Security
- Work flow Managment Systems

TEACHING PROFILE:

1. **Position** Assistant Professor
   Dates 2002- to date
   Organization Institute of Management Sciences Peshawar (www.imsciences.edu.pk)

   Courses Taught

   - Secure and Trusted Computing
   - Advance Theory of Computation
   - Advance Web Technologies
   - Work Flow Management System
   - Object Oriented Programming
   - Advance Software Engineering

2. **Position** Assistant Professor (visiting faculty)
   Dates May2008- Aug2009
   Organization International Islamic University Islamabad (www.iiu.edu.pk)

Course Taught

- Secure & Trusted Computing a PhD course

3. **Position** Lecturer
   Dates 2001-2002
   Organization Brains Post Graduate College (www.brains.edu.pk)

   Courses Taught

   - Programming language
   - Database
   - Web Technology
   - Operating System

4. **Position** Lecturer
   Dates July 2001-December 2001
   Organization COMSATS Computer Institute Peshawar (http://www.cci.edu.pk)

   Course Taught

   - Java (JCP)

5. **Position** Lecturer (visiting faculty)
   Dates August 2001-October 2001
   Organization Pakistan Air force BADABER

   Course Taught

   - Java (JCP)

6. **Position** Lecturer
   Dates March2001-June2001
   Organization Preston University Peshawar (www.prestonpak.edu.pk)

   Course Taught

   - Data Communication and Networking
   - Data Base Management System

INDUSTRY PROFILE:

1. **Position** Assistant System Administrator (Evening Job)
   Dates Jan 2003-Oct2003
   Organization Max online (PVT) Ltd

   Responsibilities:

   - Handling of Proxy Machine on free BSD and Linux platform
   - Handling of remote Access Server and Cisco Routers
   - Provided systems administration in an office and Configured security and patch management
   - Installed, Troubleshot wireless access point configurations and RF interference
   - Applying operating system updates, patches, and configuration changes.
   - Perform regular security monitoring to identify any possible intrusions.

2. **Position** Project Director
   Dates June2010-to date
   Organization Institute of Management Sciences, Peshawar (www.imsciences.edu.pk)

   Deployment of open ERP for IM|Sciences

   Responsibilities
   - Functional consultant of open ERP
   - Customize different module of open ERP

RESEARCH & DEVELOPMENT:

I am the director of Securiry Engirneering Research Group **(SERG).** SERG is a research group focuses on highly specialized topics of security such as trusted computing, access control and security in opensource mobile platforms. We are doing research in the following areas:

AREAS OF INTERESTS:

- Trusted computing
- Access Control Systems
- Formal Methods
- Model Driven Security
- Software Engineering
- Secure Mobile Computing
- Secure Web Services
- Cloud Computing & ERP Systems

AREAS IN WHICH PROJECTS ARE CONDUCTED:

TRUSTED COMPUTING AND REMOTE ATTESTATION:

Trusted computing, a recent initiative by the Trusted Computing Group (TCG), is a technology, which enable platforms to give assurance of the platform's integrity to its own users and to remote parties. Trusted Computing enables this capability using a special hardware chip, which forms the basis of trust. This concept is termed as "a core root of trust" and the chip is called the Trusted Platform Module (TPM).

RESEARCH PROJECT PROFILE

1. **Project Name:** Dynamic Behavioral Attestation for Mobile Platforms (DBAMP) **(www.imsciences.edu.pk/serg/projects/dbamp/)**

   Project Director: Masoom Alam
   Designation: Assistant Professor
   Organization: Institute of Management Sciences, Peshawar (ww.imsciences.edu.pk)

   Joint Project Director: Xinwen Zhang (www.list.gmu.edu/zhang/)
   Designation: Senior Research Engineer.
   Organization: Samsung Information Systems America

   Funding Agency: National ICT R&D Fund (http://www.ictrdf.org.pk)
   Project Cost: PKR 11.9 million
   Duration: 2 years (Oct 2008 - Oct 2010)

   Activities

   - To develop a dynamic remote attestation technique for diverse computing environments such as mobile platforms
   - To implement remote attestation on mobile platforms
   - To derive a mechanism for generating trusted usage logs

   PROJECT PUBLICATIONS
   CONFERENCE

   Masoom Alam, Xinwen Zhang, Mohammed Nauman, Tamleek, Jean-Peirrre Seifert, *" Model based behavior attestation"*
   http://portal.acm.org/citation.cfm?id=1377836.1377864&coll=Portal&dl=ACM&type=series&idx=SERIES10694&part=series&WantType=Proceedings&title=SACMAT

   M.Nauman, **Masoom Alam, "***Remote Attestation of Attribute Updates and information Flows in a UCON System",* at International Conference on Technical and Socio-economic Aspects of Trusted Computing (Trust 2009)
   http://csrdu.org/pub/nauman/pubs/nauman-trust09.pdf

Shabaz Khan, Sanaullah Khan, M.Nauman, Tamleek Ali, and **Masoom Alam, "***Realizing dynamic Behavior Attestation for Mobile Platforms"*at FIT/ACM 2009
http://delivery.acm.org/10.1145/1840000/1838008/a5-khan.pdf?key1=1838008&key2=8406485821&coll=GUIDE&dl=GUIDE&CFID=106731602&CFTOKEN=97672852

Imran Khan, M.Nauman, **Masoom Alam,** Furqan Azis, "*SAuthMash: mobile agent based self authorization in Mashups"*at FIT/ACM 2009
http://csrdu.org/pub/nauman/pubs/sauthmash-fit09.pdf

Tamleek Ali Tanveer, **Masoom Alam**, and M.Nauman, "*Scalable Remote Attestation with Privacy Protection"* in Trust 2009
http://www.springerlink.com/content/u3n075m200g47017/

Tamleek Ali Tanveer, **Masoom Alam** M.Nauman, M.Amin, "*Scalable, Privacy-preserving Remote Attestation in and through Federates Identity Management Frameworks* "Accepted in ICISA 2010)
http://csrdu.org/pub/nauman/pubs/tshib-icisa10.pdf

JOURNALS

Tamleek Ali, **Masoom Alam**, M.Nauman. "*A Scalable and Privacy Preserving Remote Attestation Mechanism*" Accepted in Special Issue of INFORMATION - AN INTERNATIONAL INTERDISCIPLINARY JOURNAL. Indexed ISI/SCI-E, Accepted October, 2010

JOURNALS (UNDER REVIEW)

Model Based Behaviour Attestation is under review at Enterprise information system

Dynamic Behavioral Attestation for Mobile Platforms is under review at international journal of innovative computing information and control

Multi stack holder policy model is under review at international journal of innovative computing information and control

SECURE MOBILE COMPUTING:

For the past few years, the popularity of mobile devices has been increasing at a rapid pace. Mobile devices have turned into ubiquitous and hand held devices in the form of PDAs, smart phones and portable media centers. Android is one of the most anticipated smart phone operating systems, introduced by Google as an open source operating system that provides a complete software stack. Android an operating system, system utilities, middleware in the form of virtual machine, and key applications. All applications on the Android platform executes on top of a virtual machine. Android has its own *register-base virtual machine* called Dalvik that achieves memory optimization, which is not possible with Java's *stack based virtual machines*. Dalvik supports

advanced optimization in places with its own intermediate code that was not possible with *Java byte code*.

2. **Project Name:** Extending Android Security for Intent Policy (EASIP) (**www.imsciences.edu.pk/serg/projects/easip/**)
   Project Director: Masoom Alam
   Designation: Assistant Professor
   Organization: Institute of Management Sciences, Peshawar (ww.imsciences.edu.pk)

   Joint Project Director: Xinwen Zhang (www.list.gmu.edu/zhang/)
   Designation: Senior Research Engineer.
   Organization: Samsung Information Systems America

   Funding Agency: National ICT R&D Fund (http://www.ictrdf.org.pk)
   Project Cost: PKR 14.7 million
   Duration: 2 years (Sep 2009 - Sep 2011)

Activities

- To develop a comprehensive access control framework and a policy language for the Android platform
- To implement a policy enforcement framework and a policy writing tool to facilitate the policy writing for the application owners and developer
- To extend Android VM with advanced access control features such as restricted calls, sms, download/upload limit etc

PROJECT PUBLICATIONS
CONFERENCE

Masoom Alam, Hammad Bannuri, Shearyar Khan, Jawad Manzoor, Bahar Ali, Mohsin Yaseen, M.Yasir, Tamleek Ali, Xinwen Zhang, Quratulain "*Android Runtime Security Policy Enforcement Framework"* Accepted for being presented at The 2010 International Workshop on Smartphone Applications and Services (Smartphone 2010) *(http://www.ftrai.org/smartphone2010).*

JOURNALS

Masoom alam, Hamad et al, "*Android Runtime Security Policy Enforcement Framework"* Accepetd for publication in Personal and Ubiqutos computing, impact factor 1.5 *http://www.springer.com/computer/hci/journal/779*

SECURE WEB SERVICES:

Web services are typically application programming interfaces (API) or web APIs that can be accessed over a network, such as the Internet, and executed on a remote system hosting the requested services. The security requirements for these service providers are of paramount importance. Web Services Security (WS-Security) is the emerging security standard designed to address these issues

3. **Project Name:** Towards Trusted Web Services(TTWS)

Project Director: Masoom Alam
Designation: Assistant Professor
Organization: Institute of Management Sciences, Peshawar (www.imsciences.edu.pk)

Joint Project Director: Tamleek Ali Tanveer
Designation: Assistant Professor
Organization: Institute of Management Sciences, Peshawar

Funding Agency: Institute Of Management Sciences Peshawar
Project Cost: PKR 1.8million
Duration: 1 year

Activities

- Behavior of a policy model is attested rather than a software or hardware platform
- The attestation feature is not tied to a specific software or hardware platform
- Take a model driven approach to consume low-level techniques invented by researchers

PROJECT PUBLICATIONS
Conference

Masoom Alam, "*Behavior Attestation for Business Process"* accepted in Proceedings of the 2009 IEEE International Conference on Web Services, Pages: 343-350, Year of Publication: 2009, ISBN: 978-0-7695-3709-2
http://ieeexplore.ieee.org/xpl/freeabs_all.jsp?arnumber=5175842

Masoom Alam, Xinwen Zhang, Mohammed Nauman, Sohail Khan, *"Fine-grained, User-Centric Permission Delegation in Multi-Mashup Web Services"*in SERVICES 2010
http://www.computer.org/portal/web/csdl/doi/10.1109/SERVICES.2010.112

JOURNALS

Masoom Alam, M.Nauman, Xinwen Zhang ,Tamleek Ali, Patrick C. K. Hung, *"Behavioral Attestation for Web Services Based Business Processes"* Published in International Journal of Web Services Research (IJWSR),
Pages 52-72, DOI: 0.4018/jwsr.2010070103, ISSN: 1545-7362, EISSN: 1546-5004
http://www.igi-global.com/bookstore/Article.aspx?TitleId=45176

ERP SYSTEM SECURITY:

The emerging trend of globalization strongly characterizes the need for Service Oriented Architecture (SOA) for Enterprise Resource Planning (ERP). SOAs with underlying technologies like web services and web services orchestration have opened the door to a wide range of novel application scenarios, especially in the context of inter-organizational cooperation and business process integration for ERP solutions. Model-driven software engineering refers to the systematic use of models as primary engineering artifacts throughout the engineering lifecycle. In MDSE, models are considered as first class entities. According to "model driven engineering techniques offer a promises approach to address the inability of third generation language, the complexity of the platform and express domain concepts effectively".

4. **Project Name:** Models @ Work Framework (ModelsAtWork)

Project Director: Masoom Alam
Designation: Assistant Professor
Organization: Institute of Management Sciences, Peshawar (www.imsciences.edu.pk)

Joint Project Director: M.Ali
Designation: Assistant Professor
Organization: Institute of Management Sciences, Peshawar

Funding Agency: Applied for funding
Project Cost:
Duration: 2 years

Activities

- OpenERP is selected as target architecture. The analysis include – Understanding the functionality of some of the existing modules in openERP and to understand how to develop a new module in openERP.
- OpenERP comes with a number of different modules. Each module has its own security requirements. A thorough analysis of the security mechanism of these modules is required to acquire knowledge about the security mechanisms.
- A high level language to represent the underline knowledge of the target application will be developed using the Model Driven Engineering (MDE) techniques.
- A practical use case for the organizational workflows will be modeled according to the newly designed language in the previous step.

JOURNAL (UNDER REVIEW)

Masoom Alam, Sohail Khan, Tamleek Ali and Quratulain Alam, "*Towards Trusted Information Sharing in Enterprise Information Systems"* is under review at Enterprise Information Systems Journal

THESIS SUPERVISION:

Tamleek Ali Tanveer	PhD Student (near to completion)	Institute Of Management Sciences Peshawar
Qurat-Ul-Ain Alam	MS-Student	Institute Of Management Sciences Peshawar
Muhmmad Amin	MS-Student	Institute Of Management Sciences Peshawar
Markus Miiter	Bachelors Student	University of Innsbruck Austria
Muddasir Ali Khan	Bachelors Student	Institute Of Management Sciences Peshawar
M. Ibrahim	Bachelors Student	Institute Of Management Sciences Peshawar

CONFERENCE PRESENTATION

Conference	Presented at
INMIC 2004	Lahore, Pakistan
IASTED 2005	Innubruck, Austria
Models 2006	Genoa, Italy
PST 2006	Markhan, Ontario, Canada
ARES 2006	Vienna, Austria
TrustBus2006	Krakow, Poland
EDOC 2007	Maryland, USA
SACMAT 2008	Colorado, USA
ASIACSS 2008	Tokyo, Japan
SWS,CCS 2008	Washington, USA
ICWS 2009	Los Angeles, USA
ICISA 2010	Seoul, Korea

CONFERENCE & JOURNAL REVIWING

- Journal of Secure Computing
- Enterprise Information System
- IETE technical review
- SACMAT 08,09,10
- Clouds 2010
- Services 09, 10
- FIT 09, 10
- STC 08,09

COUNTRIES VISITED:

- Korea
- Austria
- Italy
- USA
- Canada
- Japan
- Spain
- UK
- Switzerland
- Germany
- France
- Poland

PhD PUBLICATIONS

JOURNAL PUBLICATIONS:

Masoom Alam, Ruth Breu, and Michael Hafner, "*Model-Driven Security Engineering for Trust Management in SECTET*. Published in the special section of JOURNAL OF SOFTWARE (JSW), devoted to extended versions of ARES 2006 Papers.
http://www.academypublisher.com/jsw/vol02/no01/jsw02014759.pdf

Masoom Alam, Michael Hafner, Ruth Breu "*Constraint based role based access control in the SECTET-framework A model-driven approach*" published in Journal of Computer Security
Pages: 223-260, Year of Publication: 2008, ISSN: 0926-227X (Print) 1875-8924 (Online)
http://iospress.metapress.com/content/1757228404204088/

Ruth Breu, Gerhard Popp, and **Masoom Alam**. "*Model Based Development of Access Policies"*Accepted in the special section international Journal on Software Tools for Technology Transfer (STTT) devoted to extended versions of FASE04 and FASE05 papers, Volume 9, Numbers 5-6, 457-470, DOI: 10.1007/s10009-007-0045-y
http://www.springerlink.com/content/h680646234467145/

CONFERENCE PUBLICATIONS:

Masoom Alam, Michael Hafner, and Ruth Breu. "*Model Driven Security for Web Services (MDS4WS)",* In INMIC 2004,Digi Obj Id 10.1109/INMIC.2004.1492930.
http://ieeexplore.ieee.org/xpl/freeabs_all.jsp?arnumber=1492930

Masoom Alam, Michael Hafner, and Ruth Breu.*"Modeling authorization in an SOA based application scenario",* In IASTED Conf. on Software Engineering, pages 79–84, 2006.
http://www.actapress.com/PaperInfo.aspx?PaperID=23326

Masoom Alam and Ruth Breu and Michael Hafner. "*Modelling Permissions in a (U/X) ML World*". In IEEE ARES 2006. ISBN: 0-7695-2567-9.
http://ieeexplore.ieee.org/Xplore/defdeny.jsp?url=/iel5/10823/34117/01625374.pdf?code=2

Amir Hayat, S.Khan, **Masoom Alam** *"Identity Management System for Electronic Government Processes in Pakistan"* published in High Capacity Optical Networks and Enabling Technologies, 2008. *http://ieeexplore.ieee.org/xpl/freeabs_all.jsp?arnumber=4810248#*

A. Hayat, T. Rössler , **Masoom Alam** : " *Proposed Framework for Achieving Interoperable Services Between European Public Administrations ":* ARES 2006 - International Conference on Availability, Reliability and Security
http://ieeexplore.ieee.org/xpl/freeabs_all.jsp?arnumber=1625339

Masoom Alam, Michael Hafner, and Ruth Breu. "*Constraint based Role Based Access Control for modelling administrative constraints in the SECTET*", In Proceedings of the ACM PST 2006 – International Conference on Privacy, Security and Trust, October 30th, 2006 – November 1st, 2006. 146
http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.86.6336&rep=rep1&type=pdf

Masoom Alam, Michael Hafner, and Ruth Breu. "*A Constraint based Role Based Access Control in the SECTET A Model-Driven Approach*", In proceedings of the ACM PST 2006 – International Conference on Privacy, Security and Trust, October 30th, 2006 – November 1st, 2006.

Masoom Alam, Michael Hafner, Ruth Breu, and Stefan Unterthiner. "*A framework for modelling restricted delegation in service oriented architecture",* In TrustBus, pages 142–151, 2006.
http://www.informatik.uni-trier.de/~ley/db/indices/a-tree/a/Alam:M..html

Masoom Alam, "*Model-Driven Security Engineering for the realization of Dynamic Security Requirements in Collaborative Systems",* In PhD Symposium of IEEE/ACM Models 2006, Italy Genoa. LNCS 4364
http://www.springerlink.com/content/2222521763014276/

Masoom Alam and Ruth Breu, " *Pattern-to-Pattern Transformation in the SECTET*", In workshop proceedings, published in the CTIT Technical Report series. (ISSN 1381-3625) as part of ECMDA 2006.
http://www.ctit.utwente.nl/library/proceedings/3m4mda.pdf.

Michael Hafner, **Masoom Alam**, and Ruth Breu,"*Towards a MOF/QVT-based domain architecture for model driven security"*. In MoDELS, pages 275–290, 2006.
http://www.springerlink.com/content/82236837212j2424/

B. Agreiter, **Masoom Alam**, R. Breu, M. Hafner, A. Pretschner, J.-P. Seifert, and X.Zhang, "*A Technical Architecture for Enforcing Usage Control Requirements in Service-Oriented Architectures"* In ACM CCS Workshop for Secure Web services Proceedings of the 2007 ACM workshop on Secure web services
http://portal.acm.org/citation.cfm?id=1314418.1314422&coll=GUIDE&dl=&type=series&idx=SERIES11296&part=series&WantType=Proceedings&title=SWS&CFID=15151515&CFTOKEN=6184618

Masoom Alam , Jean-Pierre Seifert , Xinwen Zhang , "*Trusted SECTET: A Model driven framework for trusted computing based systems."* Issue Date:October 2007 in IEEE EDOC 2007-11-23 pp. 75
http://csdl2.computer.org/persagen/DLAbsToc.jsp?resourcePath=/dl/proceedings/edoc/&toc=comp/proceedings/edoc/2007/2891/00/2891toc.xml&PageNumber=75

Masoom Alam , Xinwen Zhang, Jean-Pierre Seifert, Qi Li, "*Usage Control Platformization via Trustworthy SELinux"* published in ACM Symposium on Information, Computer & Communication Security (ASIACCS '08)