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JIANG BIAN

OBJECTIVE

To secure a rewarding and challenging position, which enables me to learn new and exciting technologies, and to improve upon my organizational and team based skills. Moreover, to be in a position, which could lead to, researching in bioinformatics fields and pursuing grants in related areas.

CERTIFICATES

- Zend Certified Engineer for PHP 5
- Sun Certified Java Programmer (SCJP) for Java 1.6

WORK EXPERIENCES

Oct. 2011 – Present | Division of Biomedical Informatics, Univ. of AR for Medical Sciences | Little Rock, AR

Assistant Professor

Research topics:

- Computational neuroscience
- Patient-privacy preserving
- Computer-aided clinical decision support

Dec. 2006 – Present | Research Systems, Information Technology, Univ. of AR for Medical Sciences | Little Rock, AR

Bioinformatics Manager/Technical Team Lead

- Take the responsibility to act as a mentor for new or low-level software developers, as well as for all the members within the team.
- Responsible for the underlying architecture for various research and bioinformatics projects, and ensures the quality of the system design.
- Take a more active role in bioinformatic researches, such as using data mining, text extraction and Nature Language Processing (**NLP**) techniques over the Electronic Patient Records to find the best candidate for various clinical trials. Other research projects include using **caTIES**, **i2b2**, **UMLS**, etc.
- Lead the development effort of the new Clinical Trials Administration & Research Administration system (CLARA) system. CLARA is a web-based IRB review management system, which is designed for researchers to submit human subject research protocols online. Protocols submitted

in CLARA are routed, reviewed, and finalized electronically. CLARA uses various J2EE technologies include **Spring 3.0** as its base framework, **JPA 2.0/Hibernate 3.5** as the database abstraction layer (**ORM**), **JMS** with **Apache ActiveMQ** as its messaging server, **Spring Security 3.0** as its security framework. In order to adopt the changes often required by the FDA and the IRB, CLARA uses a document-based database design, where all study information are considered as a document and stored as a XML document in the database (SQL SERVER 2008). CLARA also has a unique budget building module that none of the other vender or open source solutions have. It allows the PI to budget a clinical trial procedures based on the actual study calendar and reconcile the budget with the hospital's charge master database.

- Take a more active role in **caBIG** adoption effort within UAMS. Working on the adoption of various caBIG tools, such as the **CTMS** suite (**C3PR**, **PSC** & **OpenClinica**), **caTissue**, **caArray**, **caTIES**, **PRO-CTCAE**, etc.

Architected and implemented the **Enterprise Image Repository (EIR)**, which has been widely used not within UAMS but also other medical centers across the Arkansas state. For AR SAVE program, currently we have 20 sites configured to send CT/MRI images to UAMS with 7 more scheduled for Jul. 2011. In the next year, we will expand to a total of 36 sites to use EIR.

Clinical System Analyst/Senior Client Server Web Developer

- Major responsibility is to design and develop in house software solutions to ease the management of clinical information and help the physicians to automate their jobs.
- Projects include:
  - Clinical Research Information Management System (PHP/MSSQL 2000)
  - Contract Tracking and Management System (PHP/MySQL)
  - Foundation Fund Tracking System (PHP/MySQL)
  - Pharmacist Tracking System (APS.NET/C#/MSSQL 2005)
  - Enterprise Imaging Repository (Java/PHP/MSSQL): a web-based biomedical image repository that supports DICOM communication and capable of exchanging image and clinical data with other hospital information systems using HL7, web services, or direct database connections.
  - An active development role in caBIG/caGrid related projects, such as caTissue, C3PR, and PSC. UAMS is the first adopt of the caBIG tools, and our goal to integrate our own in house clinical study management systems with the caBIG platform.

March. 2008 – Present	Computer Science Department at University of Arkansas at Little Rock	Little Rock, AR

Senior Research Staff

Container Communities for International Cargo Security

- Partially funded by National Science Foundation (under Grant Nos. CNS-0619069, EPS-0701890 and OISE 0729792).
- We proposed a design of a comprehensive solution that would monitor containers' integrity from the originating port to the destination port and report any intrusion event if it has taken place; the intruded container can then be handled in an appropriate way. More important, the system itself is designed to be secure and intrusion resistant.
- Technologies/Tools used: Java (1.6), Java NIO through Apache Mina/JBoss Netty, Spring Framework, Hibernate, JXTA, log4j, slf4j, jUnit, Bouncy Castle Java cryptography APIs, Cauchy Reed-Salomon Information Dispersal Algorithme, etc.

Feb. 2007 – March. 2008 | Computer Science Department at University of Arkansas at Little Rock | Little Rock, AR

Senior Research Staff/Developer

Role-based Secure Group Communication Framework using Polymorphic Encryption and Decryption

- Funded by Department of Defense grant #H98230-07-C-0403;
- Developed the Role-based Secure Communication (RBSGC) framework to solve the problem of group communication in a large cooperate or organization environment.
- Technologies/Tools used: Java J2EE, C/C++, PHP, Web Services (JAX-RPC, gSoap), Sqlite 3, Mysql, MD5 Hash, Encryption (AES) and Encryption Key management protocol, etc.

July. 2006 – Nov. 2006 | Computer Science Department at University of Arkansas at Little Rock | Little Rock, AR

Research Staff

caAIM proposal: Annotation Imaging Markup (AIM)

- AIM module interacts with other components of the system such as NCICB, XIP and different imaging standards. Various diverse imaging annotation (and/or markup) formats such as RIDER , ACRIN, LIDC, RECIST, W3C , CDA , DICOM SR as well as MPEG 7 will be reconciled to provide annotation as well as markup for 2D and 3D images.
- Technologies/Tools involved: DICOM and DICOM SR standards, HL7 and HL7-CDA, ImageJ/ij-VTK in ImageJ, caBig, caGrid, etc.

Feb. 2006 – Dec. 2006 | Computer Science Department at University of Arkansas at Little Rock | Little Rock, AR

Research Assistantship/Wed Developer

Mektep Project:

- Design, manage and implement an online course management system, Mektep (a modular environment for knowledge tracking and extension process).

- With its modular architectural design, user-friendliness and flexibility, MEKTEP defines standards for the next generation of course management systems.
- Written in PHP with MySQL database as the back-end. Various Web 2.0 technologies (i.e. Ajax, Javascript, jQuery, etc.) are used to provide high customizability and accessibility.

Feb. 2005 – June. 2005 | Institute of Building Engineering Software, Shanghai Branch | Shanghai, China

Analyst/Trainee

PKPM

- Research on the building energy use analysis software developed in house based on the widely used DOE-2 program that can predict the energy use and cost for all types of buildings.
- Technologies/Tools involved: CAD, VB6, etc.

EDUCATION

2008—2010 University of Arkansas at Little Rock Little Rock, AR

Ph.D. in Computer Science, Integrated Computing.

- Dissertation topic: "JigDFS: The Jigsaw Secure Distributed File System and Its Applications".
- Interested research areas are computer security, bioinformatics, wireless sensor network, information retrieval, algorithm, etc.

2005—2007 University of Arkansas at Little Rock Little Rock, AR

Masters in Computer Science

- Graduated in Fall, 2007.
- Thesis topic is "Off-the-Record Instant Messaging for Group Conversation", advised by Dr. Remzi Seker. Two publications. Average GPA: 4.0/4.0

2001—2005 Tongji University Shanghai, China

Bachelor of Building Environment and Equipment Engineering

HONORS/AWARDS

- 2008-2009, Most Promising PH.D. Research Student Award, Department of Computer Science, UALR
- 2007-2008, Most Promising PH.D. Research Student Award, Department of Computer Science, UALR
- 2006-2007, M.S. Academic Achievement Award, Department of Computer Science, UALR
- 2006-2007, M.S. Service Achievement Award, Department of Computer Science, UALR

RESEARCH PROJECTS

March. 2008 – Present | Computer Science Department at University of Arkansas at Little Rock | Little Rock, AR

JigDFS, The Jigsaw Secure Distributed File System (Dissertation)

- Jigsaw Distributed File System (JigDFS) aims to securely store and retrieve files on large-scale networks with reasonable performance. While sharing many of the same goals as previous distributed file systems, the design of JigDFS is mainly driven by the secrecy and privacy needs of users. It delivers strong encryption and a certain level of plausible deniability. JigDFS is developed using platform independent Java technologies and is envisioned to be used as a medical imaging archiving system.
- Advised by Dr. Remzi Seker, 7 related publications currently, anticipated graduation date: Dec, 2010.
- Technologies/Tools used: Java (1.6), Java NIO through Apache Mina/JBoss Netty, JXTA, log4j, slf4j, Bouncy Castle Java cryptography APIs, Cauchy Reed-Salomon Information Dispersal Algorithme, etc.

June. 2006 – Dec. 2007 | Computer Science Department at University of Arkansas at Little Rock | Little Rock, AR

Master Thesis: Off-the-Record Instant Messaging for Group Communication

- Group Off-the-Record (GOTR) was proposed to address the privacy protection concerns in online chat room systems. It extended the original two-party OTR protocol to support more users while preserving the same security properties. A thorough study of different Diffie-Hellman (D-H) conference key implementations has been conducted to

justify the approach we are taking is truly the most efficient way to establish a private communication environment among a group of people.

- Technologies/Tools used: C/C++, Pidgin, MSN communication protocol, digital signature, malleable encryption, etc.

Sept. 2006 – Dec. 2006 | Computer Science Department at University of Arkansas at Little Rock | Little Rock, AR

Information Retrieval: User Search Session, A Theoretical Study

- Information Retrieval (IR) is an area that has been extensively explored for both traditional information media and electronic data media from last few decades. The main goal of IR research is to find a way to tell what the users really want by their limited inputs.
- Technologies/Tools used: Perl, Mysql 5.0, Java, WordNet, etc.

Feb. 2006 – June. 2006 | Computer Science Department at University of Arkansas at Little Rock | Little Rock, AR

Research project on Condor and Globus

- Research on Condor and Globus grid to support High Throughput Computing (HTC) on large collections of distributed computing resources. Setup a five nodes testing Condor environment for development of distributed applications.

OTHER PROJECTS

April. 2009 **Arrivals: iPhone App**

- Arrivals is a native iPhone app written in Objective C using rich graphic frameworks to track flights' arrivals and departures information on the iPhone mobile device.
- Technologies/Tools used: Web service (XML) over http, Objective C, Cocoa Touch framework, etc.

PUBLICATIONS

- Subramanian, Vimalathithan; Seker, Remzi; **Bian, Jiang** and Kanaskar, Nitin; "Collaborations, Mergers, Acquisitions, and Security Policy Conflict Analysis"; (Extended Abstract), 7th Annual Cyber Security and Information Intelligence Research Workshop, CSIIRW11. 12-14, October 2011, Oak Ridge, Tennessee, USA.
- **Bian, Jiang;** Cisler, Josh; Xie, Mengjun; James, Andrew; Seker, Remzi and Kilts, Clinton; "A Methodology for Empirical Analysis of Brain Connectivity through Graph Mining", 2011 IEEE International Conference on Systems, Man, and Cybernetics (SMC 2011), October 9-12, 2011, Anchorage, Alaska.
- **Bian, Jiang** and Seker, Remzi ; "JigDFS : A Secure Distributed File System For Medical Image

Archiving", (**Book Chapter**), *Advanced Medical Applications,* Springer, 2011.

- Kanaskar, Nitin; Seker, Remzi; and **Bian, Jiang**; "Dynamical System Approach to Insider Threat Detection", IEEE SysCon 2011, Proceedings of 2011 IEEE International Systems Conference, Montreal, Quebec, Canada, April 4-11, 2011.
- **Bian, Jiang**; Seker, Remzi; Topaloglu, Umit; and Bayrak, Coskun; "A Scalable Role-based Group Key Agreement and Role Identification Mechanism", IEEE SysCon 2011, Proceedings of 2011 IEEE International Systems Conference, Montreal, Quebec, Canada, April 4-11, 2011.
- Reed Petty, **Jiang Bian** and Remzi Seker ; "Public Key Infrastructure", (**Book Chapter**), *Network Security, Administration and Management: Advancing Technologies and Practices*, IGI, 2011.
- **Bian, Jiang**; Seker, Remzi and Topaloglu, Umit; "A Secure Distributed File System for Medical Image Archiving", *IEEE PASSAT 2010, Proceedings of 2010 IEEE International Conference on Privacy, Security, Risk, and, Trust*, Minneapolis, Minnesota, USA, August 20-22, 2010.
- **Bian, Jiang**; Seker, Remzi; Ramaswamy, Srini; "JigDFS in Container Communities for International Cargo Security", (**Full Paper**) *IEEE SMC 2009, Proceedings of 2009 IEEE International Conference on Systems, Man, and Cybernetics*, San Antonio, Texas, October 11-14, 2009.
- **Bian, Jiang ;** Topaloglu, Umit and Lane, Cheryl "EIR: Enterprise Imaging Repository, An Alternative Imaging Archiving and Communication System", *31st International Conference of the IEEE Engineering in Medicine and Biology Society*, EMBC 2009. 2-6, September, 2009, Minnesota, USA.
- **Bian, Jiang;** Seker, Remzi; Ramaswamy, Srini "JigDFS in the Anti-tampering Wireless Sensor Network, Container Communities, for Global Cargo Security", (**Extended Abstract**), *Cyber Security and Information Intelligence Research Workshop, CSIIRW09*. 13-15, April, 2009, Knoxville, TN, USA.
- **Bian, Jiang;** Seker, Remzi; Ramaswamy, Srini and Yilmazer, Nuri "Container Communities: Anti-tampering Wireless Sensor Network for Global Cargo Security", *17th Mediterranean Conference on Control and Automation, MED09,* 24-26, June, 2009, Thessaloniki, Greece.
- **Bian, Jiang;** Seker, Remzi; "JigDFS: A Secure Distributed File System", *IEEE Symposium Series on Computational Intelligence in Cyber Security, CICS 2009*. 30, March -2 April, 2009, Nashville, TN, USA.
- Chia-Chu Chiang, Coskun Bayrak, Remzi Seker, Umit Topaloglu, Murat Demirer, Nasrola Samadi, Suleyman Tek, **Jiang Bian**, GuangXu Zhou, Xiaoran Wang: Design of a Lattice-based Access Control Scheme. IEEE SMC 2009, Proceedings of 2009 IEEE International Conference on Systems, Man, and Cybernetics, San Antonio, Texas, October 11-14, 2009.
- **Bian, Jiang;** Topaloglu, Umit; Seker, Remzi; Bayrak, Coskun and Chiang, Chia-Cchu, "A Role-based Secure Group Communication Framework," *System of Systems Engineering, 2008. SoSE 2008. IEEE International Conference on System of Systems Engineering*, 2-4 June. 2008, Monterey, California, USA.
- **Bian, Jiang;** Seker, Remzi; Topaloglu, Umit, "Off-the-Record Instant Messaging for Group Conversation," *Information Reuse and Integration, 2007. IRI 2007. IEEE International Conference on Information Reuse and Integration*, vol., no., pp.79-84, 13-15 Aug. 2007
- **Bian, Jiang;** Seker, Remzi; Topaloglu, Umit; Bayrak, Coskun; "Off-the-Record Secure Chat Room", *WEBIST 2008, Proceedings of the Fourth International Web Information Systems and Technologies: Internet Technology*, Funchal - Madeira, Portugal, May 4-7, 2008, INSTICC Press 2008.

PROFESSIONAL MEMBERSHIP AND PUBLIC SERVICES:

- IEEE membership
- ACM membership
- Reviewer of the journal of Computers and Electrical Engineering, Elsevier.

- Reviewer of the journal of Network and Systems Management.
- Reviewer of the journal of Biomedical Informatics, Elsevier
- Reviewer of the ACM Transactions on Storage
- Reviewer of the journal of Network and Computer Applications, Elsevier.
- Reviewer of IIE Transactions on Healthcare Systems Engineering, Taylor & Francis
- Reviewer of Transactions on Systems, Man, and Cybernetics, Part C: Applications & Reviews, IEEE
- Reviewer of Applied Clinical Informatics

SUMMARY OF QUALIFICATIONS

- Advanced knowledge and working experiences in **High Performance Computing**, in scientific computing.
- Advanced knowledge and working experiences in computational neuroscience research using **Python** (numpy, scipy, etc), **R, Matlab**, etc.
- Advanced knowledge and working experiences in **PHP/MySQL/MS SQL**, **jQuery**, **Prototype**, etc.
- Advanced knowledge and experiences in **Objective-C** using **Cocoa/Cocoa Touch** framework to develop applications for Mac OS, especially **iPhone** app development.
- Advanced knowledge of **C** and **C++** programming on both Linux and Windows systems.
- Advanced knowledge and experiences of **J2EE/Java** programming and familiar with all sorts of **J2EE** frameworks, such as **EJB 3.0**, **Spring 3.0, Hibernate 3.5, JPA 2.0, JNDI, JMS, Apache ActiveMQ**, etc.
- Advanced knowledge and experiences in **P2P** system development, especially, **JXTA** framework.
- Advanced knowledge and experiences in **distributed system** and **secure distributed file system** design and implementation.
- Advanced knowledge and experiences in **security**, **security analysis**, **key management** design and implementation.
- Advanced knowledge and experiences in **encryption**, **hash algorithms**.
- Advanced knowledge and experiences in low-level Java NIO and networking, especially using **JBoss Netty** and/or **Apache Mina**.
- Advanced knowledge and working experiences in web development via using **PHP, JavaScript, Html, CSS, MySQL/MSSQL/Postgres & AJAX Technologies**.
- Advanced knowledge and working experiences in **Web Service (SOAP) and XML over HTTP/HTTPS.**
- Advanced knowledge and working experiences in web development by using **C#, VB.Net, ASP. NET 2.0,** with **MSSQL 2000/2005** database server.
- Advanced knowledge and working experiences in **Windows** and **Linux** systems/servers.
- Advanced knowledge and working experiences in managing and

configuring **IIS**, **JBoss**, **Tomcat**, **Apache**, **VMware** and **PHP** server environment for development, testing and deployment.

- Intermediate knowledge and experience in **caBig** and **caGrid** projects.
- Intermediate knowledge and experience in **DICOM** standards and **HL7** format.
- Intermediate knowledge and limited working experience in **Perl**, **Python** & **Ruby** development environment.
- Intermediate experience with **Computer Forensic Analysis**.
- Intermediate experience with **Oracle 10g.**

References are available upon request.