RONEN VAISENBERG

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I. Education:

1. **Ph.D** Donald Bren School of Information and Computer Sciences – March 2012
   University of California, Irvine - (Irvine, California)

   Research area: Event detection and event processing in emergency response applications. Relates to the well-established fields of research: Databases, Multimedia and Statistical Reasoning.

   Advisor: Prof. Sharad Mehrotra.

2. **M.Sc.** Computer Science – June 2008
   University of California, Irvine - (Irvine, CA)

   Avg. GPA: 4.0.

3. **M.Sc.** Information Systems Engineering –April 2005
   Ben Gurion University of the Negev - (Beer Sheva, Israel)

   Thesis title: A new scheme for database encryption.

   Advisors: Prof. Ehud Gudes and Dr. Yuval Elovici.

   - Work resulted in a patent, two conference publications, SIGMOD record publication and a journal publication which is under review.

   Avg. grade: 95/100. Thesis grade: 100/100.

4. **B.A.** Computer Science and Mathematics – November 2001.
   The Open University of Israel - (Tel Aviv, Israel)

   Avg. grade: 94/100, awarded at age 19.

II. Current Position: Software Engineer – Google.
Knowledge Graph, Search – Google San Francisco.

III. List of Fellowships, Honors, Grants:

1. 2011 – **Yahoo! Best Ph.D dissertation award for 2011.**
2. 2010 – **IBM Ph.D Fellowship Award for 2010.**
   The IBM Ph.D. Fellowship Awards Program is an intensely competitive worldwide program, which honors exceptional Ph.D. students who have an interest in solving problems that are important to IBM.
3. 2010 – **Student Invitation and travel grant to attend A Dagstuhl Seminar on Event Processing.**
4. 2009 - **First prize at IEEE Percom'09 Ph.D. Forum –** Selected as the most innovative and/or most promising interdisciplinary research project.
5. 2009 – IEEE percom'09 Ph.D student travel grant.
6. 2009 – Finalist for IBM Ph.D fellowship 2009.
7. 2006 – 2009 ICS-UCI Graduate Fellowship.
8. 2005 – Master's thesis selected by BGU Negev technologies and registered for patent.
9. 2005 – Israeli Air-Force IT Unit: Unit-wide award In Recognition of Analytical and Technical Abilities, Developing a Business Intelligence System for the Air Force Needs.
10. B.A – Computer Science - The Open University:
    - 2001 – 2000 Dean's list of excellence, 1999 – 1998 president's list of excellence.

IV. Research Products:

A. Thesis:

1. **PhD thesis - Towards in Adaptation in Sentient Systems.** (R. Vaisenberg, Committee: S. Mehrotra, D. Ramanan and R. Jain).
2. **Mster's thesis - A Structure Preserving Database Encryption Scheme.** (R. Vaisenberg, Committee: Y. Elovici, E. Gudes and Y. Shahar).

B. Journal Publications:

3. **SEMARTCam Scheduler - Semantics Driven Real-Time Data Collection from Indoor Camera Networks to Maximize Event Detection.** (R. Vaisenberg, S. Mehrotra and D. Ramanan). In Journal of real time image processing. Accepted for publication.
4. **Database Encryption – An Overview of Contemporary Challenges and Design Considerations. (**E. Shmueli, R. Vaisenberg, Y. Elovici, C. Glezer). In SIGMOD RECord, December 2009 issue.

B. Publications in Conferences:

5. **Exploiting Semantics For Scheduling Data Collection From Sensors On Real-Time To Maximize Event Detection.** (R. Vaisenberg, S. Mehrotra and D. Ramanan).
   In Multimedia and Computer Networks (MMCN'09, San Jose, CA).
6. **Exploiting Semantics for Sensor Recalibration in Event Detection Systems.** (R. Vaisenberg , S. Ji, B. Hore, S. Mehrotra and N. Venkatasubramanian).
   In Multimedia and Computer Networks (MMCN'08, San Jose, CA).
7. **Video Entity Resolution: Applying ER Techniques for Smart Video Surveillance. (**L. Zhang, R. Vaisenberg, S. Mehrotra, D. V. Kalashnikov).
   In Information Quality and Quality of Service for Pervasive Computing (IQ2S'11, Seattle WA). Invited paper.
8. **SMPL a Specification Based Framework for the Semantic Structure, Annotation and Control of SMIL Documents.**
   (R. Vaisenberg, S. Mehrotra and R. Jain).
   In IEEE International Workshop on Data Semantics for Multimedia Systems and Applications (DSMSA'09, San Diego, CA).
9. **Designing Secure Indexes for Encrypted Databases.** (E. Shmueli, R. Vaisenberg, Y. Elovici and E. Gudes). In Database Security (DBSec'05, Storrs, CT).
10. **A Structure Preserving Database Encryption Scheme.** (Y. Elovici, R. Vaisenberg, E. Shmueli and E. Gudes).
    In Secure Data Management (SDM'04-In Conj. with VLDB'04, Toronto, Canada)

C. Publications as Patents:

11. **STRUCTURE PRESERVING DATABASE ENCRYPTION METHOD AND SYSTEM. (Inventors:** ELOVICI, Yuval, VAISENBERG, Ronen, SHMUELI, Erez) **Applied by** BEN-GURION UNIVERSITY OF THE NEGEV RESEARCH AND DEVELOPMENT AUTHORITY. **(US 2008/0133935 A1)**

D. Posters Publications:

12. **Exploiting Semantics for Event Detection Systems*, R. Vaisenberg,***

Google's Ph.D Forum – First Prize (Percom'09, Galveston, TX)

13. **A new approach for adding browser functionality.** (R. Vaisenberg, A. Satish, K. Mogensen, R. Jain and S. Mehrotra). In Hypertext 2008 (Pittsburgh, PA).

E. Book Chapters:

14. **SATWARE: A Semantic Approach for Building Sentient Spaces.** (D. Massaguer, S. Mehrotra, R. Vaisenberg, and N. Venkatasubramanian). In Hypertext 2008.

F. Research Prototypes Developed:

1. **SATware is a multimodal sensor data stream querying, analysis, and transformation middleware that aims at realizing a sentient system. Sat-Scheduler –** Developed a module that performs the scheduling of data collection from sensors based on learned semantics where important data is generated, published in MMCN'09 **Sat-Calibrator** – Developed a module that performs the sensor calibration based on the semantics of the monitored entity, published in MMCN'08.

2. **Multimedia Conductor** is a multimedia lecture management system that supports synchronization, searchability and browsability multimedia documents. Published as a poster in Hypertext'08 and a research paper in DSMSA'09). Prototype can be accessed here: http://www.ics.uci.edu/~ronen/Site/Teaching.html

3. **Keyword based Table Visualization** is a system which indexes public tables and generates in response to user keywords SQL queries and a visualization of the query results. Prototype can be accessed here: http://fusiontablesvisualization.appspot.com

4. **EPDL Editor –** event processing description language editor. Built as an open source for application builders to define their event processing application in an implementation independent fashion. http://code.google.com/p/epdleditor/ Tool accompanies the book "event processing in action".

5. **SPDE – Database Encryption Solution** is an encryption layer for sensitive relational data stored in a regular database, published in DBSec'05 and SDM'04 Journal version under review.

H. Teaching Experience - Teaching Assistant at the University of California, Irvine:

Operating Systems Principles (UCI\ICS143), 2009; Compilers and Interpreters (UCI\ICS142), 2008; Discrete Mathematics for Computer Scientists (UCI\ICS6B), 2008; Computer Architecture for Computer Scientists (UCI\ICS51), 2007

V. Professional Experience:

1. Google.

Software Engineer, Search – (San Francisco, CA)
March, 2012 – Current
» As part of the knowledge graph team, I'm working on a knowledge base used by Google to enhance its search engine's search results with semantic-search information gathered from a wide variety of sources. It provides structured and detailed information about the topic in addition to a list of links to other sites. For example, try searching for *"mona lisa"* or *"length of the bay bridge"*.

Google Summer Internship, Adwards – (Mountain View, CA)
June, 2011 – September, 2011
» Together with Dr. Arun Swami addressed challenges related to the generation of quality ads to increase Google's revenue and advertiser's return from ads on Google.com. Technologies used: Java, Map Reduce, Google proprietary search technologies.

Google Research Summer Internship, Fusion Tables Team – (Mountain View, CA) August, 2010 – November, 2010
» Addressed the problem generating the right visualization of a table for a given set of user keywords. Used Google datasource API to read public tables and index them. Used the index to find relevant information in the table and automatically generate SQL query and visualize the results (Table, Line Chart, Map, etc.). Working with Jayant Madhavan we are preparing a paper for submission to a SIGMOD conference. System prototype is online: http://fusiontablesvisualization.appspot.com

2. IBM, Haifa Research Labs.

Summer Student internship, Event Processing Group -(Haifa, Israel)
June, 2010 - August, 2010
» Prepared a paper for publication based on our approach for stream assignment to machines, which better utilizes a cluster of machines. Paper is in preparation for submission.

June, 2009 – September, 2009
» Designed a "Buttom-Up" approach for load balancing for event processing engines. A unique algorithm that exploits stream load patterns for better system utilization. The approach was prototyped on IBM's event processing engine (WBE – Websphere Business Events). Patent disclosure was submitted.
» Built a tool for the modeling of event processing networks (EPN) based on the event processing meta language developed in the previous year working with Opher Etzion. The editor is now an open source project:
http://code.google.com/p/epdleditor/

July, 2008 – September, 2008
» Reviewed Event Processing Languages, and together with Dr. Opher Etzion identified the main conceptual components of such a language and proposed a meta language. Paper titled: "A TAXONOMY AND A LANGUAGE FOR COMPLEX EVENT PROCESSING" is in preparation for publication.

3. University of California, Irvine.

Summer Internship, School of Civil Engineering – (Irvine, CA)
June, 2007 – September, 2007 » Developed and successfully deployed from scratch a complete **3-Tier web application for modeling earthquake damage on real structures.** Requirements were specified by Prof. Farzin Zareian, UCI School of Engineering. » Technologies used: MySQL, Java, Google Web Toolkit.

4. Israeli Air Force IT Unit.

Group Leader, Israeli Air Force IT Division – (Tel Aviv, Israel)
Oct, 2001 – June 2006

» Responsible for management and professional direction of critical software development project through complete software development lifecycle. Led development team of five members. Application is three tier web-IS (Client-J2ee, middle- java on Linux, end- SQL and PL/SQL on Oracle) with interfaces to legacy MF, TANDEM and data warehouse systems. » Led project to its successful installation at client's facilities. » Designed and optimized algorithms and SQL queries used, to satisfy client's response times. » Proven leadership of a team of developers in a high risk project to successful installation. » **Awarded: Israeli Air force IT unit's Analytical and Technical Abilities reward for 2005.**

VI. Technical Summary:

Software engineer with over 9 years of full lifecycle software development experience. Experienced in research, architecture, design, development and implementation of large-scale complex and distributed systems including:

- Event Driven Architecture (EDA)
- Service Oriented Architecture (SOA)
- Linear Models and Statistical Data Analysis using Stata – Completed a three course, yearlong data analysis course series at the statistics department.
- Database and Relational Architecture (ERD)
- Camera sensor based solutions
- Distributed systems development
- Knowledge management applications developments
- Web applications and User Interfaces development
- Multimedia analysis and information extraction.
- Design and analysis of applications
- Project lead with ability to design, plan and monitor successful completion of projects

Technical Skills

- Languages: Java, C, C++, OPENCV, ANT, Pascal, SQL, PL/SQL.
- Web Development: HTML, CSS, XML, J2EE, JSP, JavaScript, HTTP, Tomcat, Google Web Toolkit (GWT), Google Visualization API (Gviz), Google data API, Helix Media Streaming, Real! Player, SMIL.
- Databases: Oracle, DB2, MySQL, MS Access, DDL, JDBC, Hibernate, PL/SQL including query optimization and DBMS parameters.
- Frameworks: Eclipse, Spring, Visual Studio.
- Data Analysis and Statistical Software: Matlab, Stata.

User Interfaces: Eclipse plug-ins, Java Swing/SWT, HTML.

- Modeling and Analysis: UML, ERD.
- Operating Systems: Windows, UNIX, Linux, Mac.

VII. References:

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