Basel Shbita

CONTACT INFORMATION

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EDUCATION

University of Southern California; Los Angeles, CA, USA **Aug 2018 - Present**

PhD Student, Computer Science
Research Interests: Knowledge Graphs, Semantic Web, Linked Open Data, Machine Learning, Information Extraction, Information Technology, Computer Networks

Tel Aviv University; Tel Aviv, Israel **Feb 2011 - Jan 2015**

BSc, Electrical and Electronic Engineering, *magna cum laude* (Cumulative GPA: 93.33/100)
Major Coursework Areas: Computer-Science, Communications and Electronic Devices
Honors Thesis:

- "*IPoIB Router in the Switch-X Product Family: from Firmware Design to Implementation of the Verification Environment and the Debug Tools*" (Supervisor: Mr. Ami Marelli)

Additional Research:

- "*Physical Design of 12-bit Two's Complement Adder*"(Supervisors: Prof. Yosi Shacham, Mr. Avi Efrati)
- "*Logic Design of Full Simplified DLX using FPGA*" (Supervisors: Mrs. Liron David, Mr. Marko Markov)

Israel Arts and Science Academy (IASA); Jerusalem, Israel **Sep 2007 - Jun 2010**

High School Major in Physics, Computer Science and Chemistry, *cum laude*

ACADEMIC EXPERIENCE

Information Sciences Institute; Marina del Rey, CA, USA **Aug 2018 - Present**
Research Assistant, *Center on Knowledge Graphs*

- Working on knowledge graphs and the semantic web with an emphasis on data normalization as a means to solve complex information integration problems
- Investigating new methodologies to leverage machine learning techniques to establish automatic information extraction and knowledge graph construction

PROFESSIONAL EXPERIENCE

Apple; Herzliya, Israel **Jan 2018 - Jun 2018**
Embedded Firmware Engineer, *Flash Storage Software Department*

- Designed and developed complex software modules for ultra high performance, real-time embedded systems in a multiprocessor environment for Apple products
- Defined firmware features and led HW-FW integrations
- Completed vertical integration with other modules in storage stack (i.e. drivers, file-system)

Mellanox Technologies; Tel Aviv, Israel **2011 - 2017**
Senior Firmware Engineer & Team Leader, *Switch Silicon Core Department* **Apr 2017 - Jun 2017**

- Managed team of 5 engineers
- Led the 100GbE Switch Systems firmware development process and software infrastructure activities - an operation involving 16 engineers
- Developed a distributed functional testing environment; debug tools and performance testing in C++ in Unix for both Ethernet and InfiniBand fabrics in OSI Data-Link and Network layers
- Implemented complex verification architectures consisting of static and dynamic analysis
- Delivered technical presentations to 50+ engineers and developers from various teams including: software, hardware, production, and qualification
- Awarded for excellence and ranked "Superior" (top 5% out of 3000)

Team Leader Firmware Engineer, *Switch Silicon Core Department* **May 2015 - Mar 2017**

- Managed team of 3 engineers
- Contributed to end-to-end development and defined version-release procedures for the companys 100GbE Switch products
- Conducted personal training, code reviews; defined coding-style and methodologies of software engineering for team of 30
- Optimized shared library cross-platform code, resulting in 40% reduction in project compilation time for 90+ department developers
- Led full silicon bring-up process, both Pre-Silicon and Post-Silicon stages

- Negotiated integration process with leaders of partner companies such as Cumulus and Microsoft
- Supervised remote testing processes operating in Beijing (China), Seattle and Sunnyvale (US)
- Interviewed and effectively participated in the hiring and termination of employees

Firmware Engineer, *Switch Silicon Core Department* **Mar 2014 - Apr 2015**

- Achieved 2nd place in Hackathon with "Scaling FW Switch Reference Model to Higher Layers"; The simulation tool saved up to 50% time in FW development cycle & customer support
- Created training-program for new employees, including dedicated code library and practical tasks
- Led the planning and priorities coordination procedure with software architecture and SDK teams
- Developed "Stress" tool that has become major tool for system production/screening, power measurements and debug process
- Conducted daily technical and verification-architectural guidance and coding assistance

Firmware Student, *Switch Silicon Core Department* **Oct 2011 - Feb 2014**

- Developed ANSI-C compiler-specific code to run on Switch Systems RISC
- Managed continuous support and optimization in Switch System Python-based regression scripts
- Implemented cross-platform error-injection and functional-validity tool used by both departments of Switch Systems and Channel Adapters
- Collaborated with chip-design and software engineers to create a Post-Silicon Random Verification Environment for the 56GbE and EDR (100Gbps Infiniband) technologies

TEACHING EXPERIENCE

University of Southern California; Los Angeles, CA, USA **Spring 2020**
Teaching Assistant, *CSCI 563/INF 558: Building Knowledge Graphs*

- Designed and evaluated course examinations, written assignments, and weekly quizzes
- Held weekly office hours
- Presented several sessions of 1-2 hour lectures & introduced my work & research to the class

INTERNSHIPS

Research Science Institute; Cambridge, MA, USA **2009**
Research Intern (Computer-Science)

- Studied Statistical Natural Language Processing, Automatic Speech Recognition and Machine Learning; performed model training and testing with Python
- Wrote paper titled "*Improving Text-Independent Speaker Identification Performance Using Gaussian Mixture Speaker Models*" under direction of Dr. David Palmer (HP Autonomy (Virage), Inc).
- Conducted on-campus coursework in scientific theory and off-campus work in scientific research over 6 weeks under sponsorship of the Center for Excellence in Education and MIT

AWARDS AND SCHOLARSHIPS

Modeling and Managing Complicated Systems Institute; Pittsburgh, PA, USA **2019**
Recipient of the Ford Foundation MWS19 Graduate Student Travel Grant (value $1,600)

Tel Aviv University; Tel Aviv, Israel **2013**
Faculty Deans List of Outstanding Undergraduate Students

Tel Aviv University; Tel Aviv, Israel **2013**
Recipient of the Freescale Semiconductor Israel Excellence Scholarship (value $1,200)

CONFERENCES AND OFFICIAL EVENTS

The 17th Extended Semantic Web Conference (ESWC); Online **2020**
Conference on semantic technologies

- Published paper and delivered an oral presentation

The 10th International Conference on Knowledge Capture; Marina del Rey, CA, USA **2019**
Conference on knowledge representation, acquisition and extraction (a.k.a. K-CAP)

The 15th IEEE eScience Conference; San Diego, CA, USA **2019**
Workshop on Advanced Knowledge Technologies for Science in a FAIR World (AKTS)

- Published paper and delivered an oral presentation at the workshop

The 2019 Modeling the World's Systems Conference; Washington, D.C., USA **2019**
Conference on the technology and policy of modeling and managing interacting complex systems

- Published paper and delivered an oral presentation and poster

The 2016 VSF Interoperability Event; The Woodlands, TX, USA **2016**
Video Service Forum annual video broadcast networking interoperability event

- Performed testing of HBRMT (High Bit Rate Media Transport over IP)

Haifa Verification Conference (HVC); Haifa, Israel **2015**
Haifa Verification Conference hosted in IBM Research & Development Labs

The 26th IBTA InfiniBand and RoCE Plugfest; Durham, NH, USA **2014**
Infiniband Trade Association event to measure compliance of vendors with the IBTA specifications

- Performed interoperability testing of Infiniband and RDMA over Converged Ethernet
- Collaborated with various vendors to improve testing plan design

EXTRACURRICULAR ACTIVITIES

PhD Student Supervisor, IUSSTF at USC; Los Angeles, CA, USA **2019**

- Supervised and mentored an intern student (IIT Delhi) in the Indo-U.S. Science and Technology Forum (IUSSTF) at USC-ISI working on leveraging semantics to geospatial data using reverse-geocoding services (i.e. OpenStreetMap), instance matching and ranking algorithms

Kosmic Kamels/Middle East Dreamers at Burning Man; Black Rock City, NV, USA **2019**

- Co-formed a movement seeking to create new possibilities for makers, activists, entrepreneurs, artists, engineers, business consultants, NGO directors, healers from the MENA region

Midburn: Israeli Burning Man Regional Organization; Negev, Israel **2016 - 2018**

- Supervised art installation procedures
- Contributed code to development of "Dreams", an open-source platform to help community plan co-created events

Tira Academics: Students Volunteering Association; Tira, Israel **2013 - 2017**

- Co-initiated association to expand academic opportunities for freshmen and high-school students
- Tutored freshmen engineering students, provided 1-on-1 guidance with Algebra, Calculus, C/Python programming and conducted workshops on a quarterly basis

Event Production Team (THP) at IASA; Jerusalem, Israel **2007 - 2010**

- Led crew of 15 students
- Supervised and executed complex lighting and sound constructions and operations
- Wrote manual delineating guidelines and technical work with sound and light equipment

PUBLICATIONS

B. Shbita, C. A. Knoblock, W. Duan, Y. Chiang, J. H. Uhl, and S. Leyk. Building Linked Spatio-Temporal Data from Vectorized Historical Maps. *Extended Semantic Web Conference*, 2020.

B. Shbita, B. Vu, D. Feldman, M. Pham, A. Rajendran, C. Knoblock, J. Pujara, and Y. Chiang. Creating a FAIR Data Catalog to Support Scientific Modeling. *Workshop on Advanced Knowledge Technologies for Science in a FAIR World (AKTS)*, 2019.

B. Shbita, A. Rajendran, J. Pujara, and C. Knoblock. Parsing, Representing and Transforming Units of Measure, in *Modeling the World's Systems*, 2019.

LANGUAGES

English • Arabic • Hebrew • Russian

TECHNICAL SKILLS

- Python, C, C++, C#, MATLAB, VHDL, Cadence PSpice and Assura (Virtuoso)
- RDF, Turtle and SPARQL
- SQL, PostgreSQL and PostGIS
- Unix shell, Bash and Perl scripting
- Ruby on Rails, HTML, CSS, Node.js and Flask
- Win32 applications, Dot-Net C# Web, Console applications and Batch scripting
- PC platforms – MS Visual Studio, Eclipse, Adobe Photoshop, Adobe Premiere and Ableton Live

HOBBIES AND INTERESTS

Graphic Design • Figure Drawing • Music Production • Soccer • Combined Martial Arts