

# Curriculum Vitae

## Shai Aviram Bergman

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### TIMELINE

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#### **WORK EXPERIENCE:**

<b>Lecturer, TA &amp; Research Student</b> – <i>The Technion, Haifa, IL</i>	<b>2013-The Present</b>
<ul style="list-style-type: none"> <li>Lecturer in "Structure of Operating Systems" course at the Technion.</li> <li>TA in "Structure of Operating Systems" Course. TA in charge</li> <li>Research student in the subject of Accelerated Computing Systems: disaggregated memory, memory tiering and memory paravirtualization</li> </ul>	
<b>Visiting PhD Student</b> – <i>Imperial College London, London, UK</i>	<b>2022</b>
<ul style="list-style-type: none"> <li>Virtualization research</li> <li>Memory subsystem paravirtualization (KVM, QEMU)</li> </ul>	
<b>Software Architect Innovation Team - Consultant</b> – <i>Toga Networks, Haifa, IL</i>	<b>2020-2021</b>
<ul style="list-style-type: none"> <li>HW/SW Design of next-gen NIC</li> </ul>	
<b>Software Architect Innovation Team - Internship</b> – <i>Toga Networks, Haifa, IL</i>	<b>2019</b>
<ul style="list-style-type: none"> <li>Linux Kernel development in mm subsystem</li> </ul>	
<b>Software Engineer Runtime Team – Research Collab.</b> – <i>LogicBlox, Berkeley, CA, US</i>	<b>2016</b>
<ul style="list-style-type: none"> <li>Vectorization implementation and optimization on relational DBMS</li> </ul>	
<b>Co-Op Engineer Innovation Team - Internship</b> – <i>AMD, Tel Aviv, IL</i>	<b>2015</b>
<ul style="list-style-type: none"> <li>Linux and GPGPU development</li> <li>NVME development</li> </ul>	
<b>VoIP, Systems &amp; Web Application Developer</b> – <i>Voicelinx.com, London, UK</i>	<b>2010-2015</b>
<ul style="list-style-type: none"> <li>Developed Cloud Hosted PBX Server (Virtual Voice Over IP Server) &amp; GUI Implementation from scratch relying on base Asterisk server.</li> <li>Linux/Unix Programming (Kernel modules for Linux based VoIP Server)</li> <li>SEO (Search Engine Optimization) &amp; Web Development</li> </ul>	
<b>CRM Developer &amp; DB Admin</b> – <i>David Publishers, Mevasseret Zion, IL</i>	<b>2009-2012</b>
<ul style="list-style-type: none"> <li>Developed CRM system.</li> </ul>	
<b>Service In the Israel Defense Forces (IDF) - Israel</b>	<b>2007-2010</b>
<ul style="list-style-type: none"> <li>Rank: Staff Sergeant</li> <li>Paratroopers Unit – Head Network Admin + Data Management</li> </ul>	

#### **EDUCATION:**

<b>Technion – Israel Institute of Technology</b> – <i>Haifa IL</i>	<b>2017-The Present</b>
<ul style="list-style-type: none"> <li>PhD candidate in Electrical and Computer Engineering.</li> <li>Specializing in Accelerated Systems, Disaggregated Systems and Virtualization.</li> </ul>	
<b>Technion – Israel Institute of Technology</b> – <i>Haifa IL</i>	<b>2015-2017</b>
<ul style="list-style-type: none"> <li>M.Sc. degree in Electrical Engineering.</li> <li>Specializing in Accelerated Systems and GPGPU.</li> <li>Cum Laude Student Grade: Thesis: 95%, Courses: 96.7%</li> </ul>	
<b>Technion – Israel Institute of Technology</b> – <i>Haifa IL</i>	<b>2011-2015</b>
<ul style="list-style-type: none"> <li>B.Sc. degree in Electrical Engineering.</li> <li>Specializing in Computers (Hardware &amp; Software), and Networks</li> <li>Cum Laude Student Grade Avg. 90.2%</li> </ul>	
<b>Open University</b> – <i>Tel Aviv / Jerusalem IL</i>	<b>2009-2010</b>
<ul style="list-style-type: none"> <li>Studied whilst still in the army to advance my studies in the Technion by a year</li> <li>Student Grade Avg. 93.3%</li> </ul>	

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## SKILLS AND TECHNOLOGIES

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- Highly experienced in C, Linux Kernel development, Python, SQL, Bash, Asterisk, Elastix, CUDA.
  - Experience in C++, Android Development, System Verilog, Arduino development, Jetson TK1 development, Unix and Windows environment, Java, Javascript, AJAX & CSS.
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## PUBLICATIONS

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- Planned submission to ASPLOS 2023: *S. Bergman*, M. Silberstein, T. Shinagawa, P. Pietzuch, L. Vilanova. Achieving Near-Native VM Performance with Translation Pass-Through.
  - *S. Bergman*, N. Cassel, M. Bjørling, M. Silberstein. ZNSwap: un-Block your Swap. USENIX Annual Technical Conference (USENIX ATC). 2022.
  - *S. Bergman*, P. Faldu, B. Grot, L. Vilanova, M. Silberstein. Reconsidering OS memory optimizations in the presence of disaggregated memory. International Symposium on Memory Management (ISMM). 2022.
  - L. Vilanova, L. Maudlej, *S. Bergman*, T. Miemietz, M. Hille, N. Asmussen, M. Roitzsch, H. Härtig, M. Silberstein. Slashing the disaggregation tax in heterogeneous data centers with FractOS. European Conference on Computer Systems (EuroSys). 2022.
  - *S. Bergman*, T. Brokhman, M. Silberstein. SPIN: Seamless Operating System Integration of Peer-to-Peer DMA Between SSDs and GPUs. ACM TOCS. 2019.
  - *S. Bergman*, T. Brokhman, M. Silberstein. SPIN: Seamless Operating System Integration of Peer-to-Peer DMA Between SSDs and GPUs. USENIX Annual Technical Conference (USENIX ATC). 2017.
  - S. Shahar, *S. Bergman*, M. Silberstein. ActivePointers: Software Address Translation on GPUs. International Symposium on Computer Architectures (ISCA). 2016.
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## PATENTS

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- Devices and Methods for Remote Direct Memory Access (WO2022156902A1): Ben-Shahar BELKAR, David GANOR, Amit GERON, Shai BERGMAN. 2022.
  - Method and system for direct memory access (WO2021239230A1): Ben-Shahar BELKAR, Alex Margolin, Shai BERGMAN, Ronen Hyatt, Danny VOLKIND, Lior Khernosh, Tanya BROKHMAN. 2021.
  - Method and system for direct memory access (WO2021239228A1): Ben-Shahar BELKAR, Alex Margolin, Shai BERGMAN, Ronen Hyatt, Danny VOLKIND, Lior Khernosh, Tanya BROKHMAN. 2021.
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## LANGUAGES

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- Hebrew – fluent.
  - English – fluent.
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## AWARDS

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- 1st place Mellanox BlueField Hackathon (2019).
- Technion – Outstanding TA 2019 (Winter).
- Technion – Outstanding TA 2018 (Spring).
- Technion – Outstanding TA 2018 (Winter).
- Technion – Outstanding TA 2017 (Spring).
- Technion – Outstanding TA 2016 (Spring).
- Technion – M.Sc. in Electrical Engineering Cum Laude.
- Technion – B.Sc. in Electrical Engineering Cum Laude.
- Technion – President's list 2015.
- Certificate of Excellence from the Dean – Open University 2010.