Samiullah Khawaja

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Experience

- **OpenSynergy** — **Berlin, Germany**
  Senior Software Engineer — *Nov 2018 - Present*
  - Working on the virtualization of devices on Coqos Hypervisor, based on the Virtio specification. Worked on Virtio GPU, block device and Virtio transport framework.
  - Working on the design and development of the new 'Virtio Video device' for video codecs virtualization.
- **Mentor Graphics** — **Manchester, UK**
  Technical Lead Engineer — *Jan 2015 - Oct 2018*
  - Developed distributed Neural Network framework using Docker, Kubernetes, Google's Tensorflow, Intel's OpenVino and AMD's Annie. This framework distributes the inference work among Edge nodes in a Kubernetes network. Developed for Siemens for their IPC offerings.
  - Design and development of Safety Critical System that provides domain separation between security critical and normal domain in a multi-domain system on platforms (TI and NXP). This is being used by Zhejiang Dahao for their automotive project.
  - Developed a Safety Certifiable Digital Cluster in collaboration with TI. This was a AMP system between Nucleus and Linux using the Safety Critical System. This was showcased in CES 2017 at TI Booth.
  - Development and Optimizations in Boot loaders, Linux Kernel, Real-time Operating System, Device Drivers, Applications and Fast boot. Linux Domain was optimized to boot to application in 1.7 seconds and the Secure domain was optimized to boot in 300ms.
  - Designed and developed GPU Sharing framework that runs on top of Hypervisor environment. This involves extensive work in C/C++, OpenGL ES (1.1 and 2.0), EGL, Android Graphics Stack (SurfaceFlinger, HWC, Gralloc), Linux Graphics Stack (drm/gbm/kms), GPU Drivers, Mentor Embedded Hypervisor, Compositors like Wayland/Weston, and Nucleus RTOS. This was showcased in CES 2015 and 2016 at Mentor booth and used in automotive project with Intel.
- **Mentor Graphics** — **Lahore, Pakistan**
  Technical Lead Engineer — *Jan 2010 - Dec 2014*
  - Worked on porting of Qt Framework to Nucleus Operating System. Implemented the stripping down of the target binary size of Qt based applications. This reduced the load time to 1 second from 9 seconds.
  - Worked on a 3D Graphics Framework named Inflexion for Mobile and Embedded Platforms. It is a 3D and 2.5D Graphics rendering Engine. Worked in the rendering pipeline, Z ordering, stereoscopic rendering, bidirectional text rendering pencil algorithm, mesh and 2D resource loading. Ported on different platforms (Android and Linux). Bidirectional text rendering is being used by Bosch to sell their products in Middle East.
- **Cambridge Docs** — **Lahore, Pakistan**
  Software Development Engineer — *March 2009 - Dec 2009*
  - Worked in Mobile Game Development for iOS and Android. Developed TapWord, TapSudoku, 2 Minutes Mysteries, Toddlers Puzzle Woozzle Challenge, Transport Puzzle Woozzle Challenge. Development was done using C/C++, Objective-C, Java, SQLite, XCode, iPhone, Android and Macintosh.
- **Techlogix** — **Lahore, Pakistan**
  Software Development Engineer — *Jun 2008 - March 2009*
  - Worked in the Business Process Management team to automate business processes. Development was done using Java, Hibernate, DWR, Oracle and Linux.

Academic Qualification

- **National University of Computer & Emerging Sciences - FAST** — **Lahore, Pakistan**
  B.S. Computer Science — *Aug 2004 - Jun 2008*

Skills

- **Languages**: C/C++, Python, Dart, x86 and Arm assembly
- **Platforms**: Android, Linux, Nucleus, COQOS Hypervisor
- **Tools**: Git, vim, Sourcery Codebench, Yocto, Flutter, GCC, Valgrind and GDB

Distinctions

- Best Performer of the Year Award in 2011 and 2014 in Mentor Graphics.
- Awarded Bronze medal for getting third position in Class of 2008 in University.