# Mohammed Hassan

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## Work Experience:

### Senior Engineer (Huawei technologies Finland)

*December 2016 - Present*

- Part of the Helsinki System Security Team. We focus on how to secure Huawei products.
- Research and implement sandboxing support for UEFI drivers.
- Research and implement the generation of Linux images to run AI workloads in a secure way including hardware acceleration.
- Research and Implement KMIP support for Huawei Keystore (HUKS).
- Implement C++ wrappers for Huawei Keystore (HUKS).
- Debug and fix potential memory and security issues in HUKS.
- Ported HUKS to both Google Trusty and OP-TEE .
- Integrate HUKS for OP-TEE with HSM in order to speed up common crypto operations.
- Ported Huawei secure OS to the clang compiler. This included development and debugging.
- Research and implement ways to build secure OS outside the Android source tree
- Research and implement support for undefined behavior GCC sanitizer in secure OS
- Port OP-TEE to Hisilicon Hi2660 hardware
- Implement support for clang CFI (Control Flow Integrity) in secure OS
- Participate in various testing activities with other teams.
- Evaluated multiple java transcompilers that can convert Java code to wasm.

### Senior Engineer (Jolla)

*September 2012 - December 2016*

- Design and implement QtDeclarative bindings for the media discovery and browsing framework grilo.
- Initial design and implementation of jolla media player using Qt/QML
- Design and implementation of a GStreamer camera source element to be used by jolla camera. The element sits on top of Android camera HAL.
- Design and implementation of a GStreamer video sink element to be used for camera viewfinder and gallery bideo playback rendering. The sink element is built on top of Android EGL extensions allowing efficient video rendering via GLES.
- Adoption of GStreamer OpenMAX elements for usage with Android OpenMAX IL cores
- Performance optimization for the whole camera and video playback pipelines.
- Maintenance of the whole GStreamer framework for Sailfish OS including Jolla phone, Jolla tablet and various community devices.
- Various middleware tasks including external SD card, tracker fixes, dconf migration and many others
- Migration of SailfishOS to GStreamer 1.x. Including writing all the needed elements to allow camera functionality, video rendering and HW accelerated video decoding and encoding.

## Senior Software Engineer, Cheap Linux phone project (Nokia)

*November 2011 - June 2012*

- Implementation of GStreamer plugins to wrap binary only encoders delivered by the chipset vendor in order to utilize GStreamer for video recording.
- Implementation of a GStreamer source to allow using camerabin2 for video recording.
- Implementation of an OpenGL ES2 based GStreamer sink for the camera viewfinder.
- Work on optimizing the camera video recording path.

## Senior Software Engineer, Media Experience Applications (Nokia - Maemo/MeeGo SW)

*July 2008 - November 2011*

- Participate in Qt wrappers prototyping for the Media Application Framework (MAFW).
- Harmattan camera team:
  - Participation in the UI development.
  - Implementation of the camera texture streaming/OpenGL ES2 based viewfinder in cooperation with Graphical adaptation, Multimedia middleware and Camera Adaptation
  - Profiling camera ui and the whole vertical camera stack in order to identify the bottlenecks
  - Interpreting the output of various tracing tools for various use cases (Still image capture, 720p video recording, ... etc) in order to identify bottlenecks.
  - Pushing forward performance optimizations for the whole vertical camera stack including but not limited to the ISP driver, the adaptation components, viewfinder and DSP GStreamer components, the UI and the UI toolkit.
  - Development of minimal kernel patches needed to help analyzing performance problems.
  - Nominated "Harmattan hero" for my work on camera especially the viewfinder.

## Localization Engineer (Nokia) - Maemo SW)

*February 2007 - July 2008*

- Research, implement and develop various processes and tools needed for managing and improving the localization quality for Maemo SW (N800 and N810).
- Prepare the translation files for the translation vendor, quality check the actual translation deliveries, package and send them to integration.
- Technical support was given to the vendor engineer if needed.

## Software Developer/Open Source liaison (OpenCraft)

*November 2005 - February 2007*

- Implementing web portals, dynamic websites and intranet portals using Drupal.
- Customizing various Open Source software applications to fit the needs of the company clients.

## R&D Specialist (IT Synergy)

*December 2004 - September 2005*

- Adding Arabic support for the HP 441 desktop solution.
- Updating the 441 desktop solution to a recent version of Mandrake.
- Modifications for phprojekt to comply with our clients' requirements.
- Maintenance of the company web and mail servers.
- Various software required internally by the company.

## GNU/Linux System Administrator (ZADSolutions)

*September 2003 - October 2004*

- Linux system administrator, Management and administration of the various company servers, Among them is amrkhaled.net, moezmasoud.com and other small sites.
- Administration of apache, MySQL, postfix and courier MTA for virtual hosts.
- Maintenance of the GNU/Linux intranet server "firewall, file and print shares".
- Maintenance of the internal network.
- Help desk and support for the php developers.

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# Technical Skills:

- Solid GNU/Linux knowledge especially Debian.
- Solid C, C++ and OOP
- Fair knowledge about HTML, CSS, Javascript, php, python and perl
- UNIX shell
- Fair knowledge about GNU/Linux internals, system calls, pipes, ... etc
- Good experience with developing GUI applications using Gtk, Gtkmm and Qt

- Fair GStreamer knowledge.
- Drupal and MySQL for web portals.
- GNU/Linux system administration

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## Talks, Presentations and Conferences:

- *January 28th - February 4th 2005:* Participation in Asia source I as one of the localization track facilitators.
- *March 14th 2005:* A presentation about the state of Arabic support and the free desktop as part of the MENGOS conference.
- *July 26th and 27th 2005:* Gave two presentations during the 2nd OSS conference in Jordan organized by INT@J: OS Developer's Perspective: An Open Source Toolkit and The Status of Localization/Arabization of Linux and Open Source Software
- *January 8th 2006 - Jan 15th 2006*: Participation in Africa source II as one of the NGO migration track facilitators.
- *July 12th 2006 - July 16th 2006*: Trainee, North African Regional Wireless Training Workshop, Morocco organized by APC
- January 2005: Participation in Asia source I as one of the localization track facilitators.
- January 2006: Participation in Africa source II as one of the NGO migration track facilitators.
- Debian developer as of March 2007.

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## Personal:

- Nationality: Egyptian.
- Age: 44
- Date Of Birth: 29/3/1981
- Place Of Birth: Cairo, Egypt
- Marital state: Divorced.
- Education: Faculty of pharmacy, Cairo university.
- Interests: I usually spend my free time coding and hacking or reading, Trying to learn new technologies and increasing my knowledge about GNU/Linux, Maintain my website www.foolab.org, and trying to spread GNU/Linux by joining any possible activities, Maintain my own software projects and/or trying to fix bugs in other software applications specially related to Arabic as well as participating in volunteer work.

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