# José Hiram Soltren

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## Synopsis

System Software Engineer. MIT alum. Broad systems and user software experience. Deep experience in device drivers, C/C++, Linux, hardware acceleration.

## Experience

**Founder** Soltren Consulting, Cedar Park, TX 2014 - present

- Brought the XMIT Hall Effect Mechanical Keyboard to market, selling over 1500 units with partner Massdrop.com (now Drop.com).
- Firmware hacking on open source keyboard firmware projects.
- PCB design for hall sensor and mechanical switch keyboards.
- Community documentation for vintage Hall Effect sensor based keyboards.

**Deep Learning Research Engineer** Centaur Technology, Austin, TX 2019

- Convolutional and deep neural networks research. Investigation into hardware backends for various toolchains including PyTorch and TensorFlow. Performance analytics for popular networks such as ResNet, SSD, YOLO, Inception, FPN, LSTM.
- *Technologies used: C++, C, PyTorch, TensorFlow, ONNX, gstreamer*

**Deep Learning Software Engineer** Intel Corporation, Austin, TX 2017-2019

- Software development work on Intel's Nervana Neural Network Processor (NNP) in the Artificial Intelligence Product Group (AIPG).
- Hardware acceleration of deep learning model training. Focus on multiple chip workloads and topologies, data, model, and kernel level parallelism, concurrent execution, algorithm design and performance modeling.
- Software and API architectural design and development for current and future neural network training hardware.
- *Technologies used: C++11, C*

**Software Engineer** Cloudera, Inc., Austin, TX 2016-2017

- Engineering development work on Apache Spark, a distributed computation platform with fault tolerance billed as the successor to MapReduce.
- Worked on fault tolerance and reliability in Spark core code by implementing a blacklisting mechanism for faulty compute resources.
- Designed an addition to Apache Spark that would allow compute resources to report on memory utilization in real time.
- Worked with QA team on an internal fault injection framework for endurance and vulnerability testing on Apache Spark.
- Bug and feature work in Apache Spark. Worked on customer escalations.
- *Technologies used: Spark, Scala, Java, JVM, Python, Jenkins, git*

**Senior System Software Engineer** NVIDIA Corporation 2011-2016

- Firmware and device driver development for memory management, 2D graphics, 3D graphics, and accelerated video decode for NVIDIA desktop and mobile GPUs on Linux hosts.
- Technical lead for VDPAU, NVIDIA's accelerated hardware video decoder stack on Linux. Ported VDPAU to two new GPU generations.
- Added H.265/HEVC decode support to VDPAU. Wrote and open sourced `https://github.com/NVIDIA/vdpau-hevc-example`, a stream parser for H.265/HEVC video streams.

EXPERIENCE, CONTINUED

- Root caused and fixed a critical, stop ship issue related to video decoding on Maxwell GPUs. Lead a worldwide team of firmware, kernel, hardware, and ASIC engineers to get to the bottom if it.
- Rewrote shaders used in the video decode pipeline from Cg into GLSL, allowing the video shaders to move to a leaner implementation using a new shader compiler.
- Fixed multiple bugs in the NVIDIA Linux driver graphics stack related to performance, system reliability, video quality, and memory economy.
- Served as technical mentor to several engineers over the years. Mentees have gone on to make substantial contributions to OpenGL, Vulkan, X.org, and the Linux kernel.
- *Technologies used: C, C++, OpenGL, Cg, GLSL, assembly (x86, ARM), FPGA hardware emulation, Linux kernel, gdb, Perforce, git*

**Member of Technical Staff** Model N, Inc., Redwood Shores, CA 2009-2010

- Backend and UI engineering work on Model N's revenue management software solution for the pharmaceutical and semiconductor verticals.
- Focus on pricing, customers, commitments, contracts, and compliance portion of our product.
- Early adopter of Scrum and Agile for feature development.
- Implemented a feature that enabled for correct matching of sales items to days in "extreme" time zones such as UTC+14.
- Fixed a variety of customer bugs and escalations.
- *Technologies used: Java, Oracle SQL, WebSphere, JavaScript, Perforce*

**Systems Administrator**
D. E. Shaw & Co., L.P., New York, NY Jun 2007 - Jun 2008

- Direct end user support for front office traders and back office analysts. First line technical support for issues in production UNIX (Solaris, Linux), Windows, and Network (ssh, Kerberos) during market hours.
- Streamlined help desk operations resulting in reduced call time and volume.
- Designed and deployed state of the art video teleconferencing solutions to connect our offices across the globe.
- Designed and deployed filer and tape backup infrastructures.
- *(This was early in my career and over a decade ago as of this writing. I saw myself growing into either a front office C/C++ low latency algorithm development role, or a senior position on the UNIX group. I left to pursue my master's and a career in software engineering.)*

EDUCATION

**Massachusetts Institute of Technology, Cambridge, MA**
*Master of Engineering* Electrical Engineering and Computer Science 2009
*Bachelor of Science* Electrical Engineering and Computer Science 2007
Operating Systems, Biomedical Informatics, Communication Theory, Scientific Computation, Signal Processing, Power Electronics.
**Stuyvesant High School, New York, NY**
Math team - AMC-10, AMC-12, AIME.

LANGUAGES

Fluent in: English, Spanish, C.
Proficient in: OpenGL, Java, JavaScript, R, C++, Scheme, Perl, Python, PHP, MATLAB, Cg, GLSL, CUDA, PyTorch, TensorFlow.

CITIZENSHIP

United States

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