

Shevach

Expert Image and Video Processing Practitioner, Computer Vision, AI & ML

SUMMARY

* 25 years in Israel high-tech (Video, Streaming) , 5 years with Cloud Gaming (Electronic Arts)
 * Scalable Video Streaming among LEO satellites (research project of Ben Gurion University)
 * Cloud Gaming: encoding, decoding, low latency streaming (e.g. RTP/SRT), error resilience etc.
 * Video Codecs: Subcontracting with Visionular on improving coding efficiency of its own HEVC encoder.
 * Subcontracting with DSP-IP - military projects * Video optimization and hevc codec development (Beamr Imaging)
 * Python Programming: development automated testing systems (CI), proofs of concept, computer vision with packages cv2 and cvlib.
 * Artificial Intelligence: genetics/evolutionary optimization of video codec parameters, facial expressions detection with CNN.
 * 360/VR: subcontracting with Texel (texel.live) - tiled streaming
 Computer Vision: OpenCV (including python cv2). * NVIDIA/AMD products: evaluation and modification hw encoders: Tesla T4, A40) of NVIDIA and Navi21 of AMD.
 * and several technical papers and several technical papers

TECHNICAL SKILLS

Main Technical Skills	Python, C, C++
Programming Languages	C, C++, Python
AI & Machine Learning	artificial intelligence, OpenCV
Codecs & Media Containers	AV1 (aomenc), BluRay (BD), Daala, Dirac, Dirac (Schroedinger encoder), DirecTV, DiVX311, f265, Ffmpeg, H.261, H.263, H.264/AVC, HEVC/H.265, HLS, HM (reference codec), JM (reference codec), JPEG/JPEG2000, kvazaar, media format (incl. fragmented), MPEG-1, MPEG-2, MPEG-2 Systems, MPEG-4 (SP and ASP), MPEG-DASH, OpenH264, QuickTime file format, SVT-HEVC, Turing Codec, VC-1, vp9, VTM (VVC Reference codec), VVC/H.266, (VVC open-source codec), x264, x265
SDK / API and Integrations	DirectX, DXVA2, Mediainfo, MP4Box, SDL2, tstools
Operating Systems	Linux, macOS, RTOS, ThreadX, Windows
Methodologies, Paradigms and Patterns	MVC
Other Technical Skills	DSPBios, SmartDSP

SELECTED EXPERIENCE:

- **Cloud Gaming:** encoding, decoding, low latency streaming (e.g. RTP/SRT), error concealment etc.
- **Video Codecs:**
 - subcontracting with Visionular on improving HEVC codec
 - subcontracting with DSP-IP - military projects
 - video optimization and hevc codec development (Beamr Imaging)
- **Python Programming:** development automated testing systems (CI), proofs of concept, computer vision with packages cv2 and cvlib.
- **Artificial Intelligence:** genetics/evolutionary optimization of video codec parameters, facial expressions detection with CNN.
- **360/VR:** subcontracting with Texel (texel.live) Computer Vision: OpenCV (including python cv2),
- **NVIDIA/AMD products:** evaluation and modification hw encoders: Tesla T4, A40) of NVIDIA and Navi21 of AMD

WORK EXPERIENCE

SW Engineer, Encoding and Decoding

Duration: August 2018 - May 2023

Cloud Gaming: incorporation of HEVC, Low latency video players for MAC OS, Enhancement of Error handling on client side

Responsibilities: Subcontracting with Visionular on improving HEVC codec subcontracting with DSP-IP - military projects video optimization and HEVC codec development (Beamr Imaging)

Technologies: HEVC, RTP/SRT, error concealment

SW Engineer, Metadata Preservation

Duration: March 2014 - May 2018

Responsibilities: Preservation of mp4-metadata during re-compression BluRay authoring Closed Caption HEVC/A VC encoding on cloud Face Detection HDR to SDR (Tone Mapping)

Technologies: HEVC, mp4-metadata, BluRay, Face Detection, HDR to SDR

SW Engineer, AVC/H.264 Encoder

Duration: 2008-2013 (Dec.)

Responsibilities: Implementation of AVC/H.264 encoder on digital cameras Participation in design of HEVC/H.265 codec Implementation and design of Error Handling for H264, MPEG4, AVS. Implementation of intra prediction, transforms on parallel SIMDs. SW implementation of fast forward/backward playback mode Participation in architecture design of multi-standard video decoder for STBs

Technologies: AVC/H.264, HEVC/H.265, H264, MPEG4, AVS, SIMDs, STBs

SW Engineer, Firmware Engineering, Broadcom Israel

Duration: 2003-2008



Responsibilities: Real-time Firmware engineering, chip architecture design, HW verification and algorithm developing. Implementation new features for MPEG2/MPEG-4/A VC encoder: T-STD and P-STD compliancy, VBV compliancy, DVD compliancy, 3:2 cadence detection, scene change detection, white-noise detection. Bit-exact C models of HW units for verification purpose, e.g. CABAC. Design of spatial-temporal motion compensation video preprocessor. Participation in MPEG2-H264 transcoder architecture design Participation in H.264 encoder architecture design Participation in HW optimization, e.g. HW sharing

Technologies: MPEG2, MPEG-4, AVC, T-STD, P-STD, VBV, DVD, CABAC, motion compensation

SW Engineer, Video-Audio Compression, Mango DSP, Jerusalem

Duration: 2000-2003

Responsibilities: Embedded programming and algorithm developing: Implementation of different video-audio compression standards on TMS320C67x/62x/64x (TI), e.g. H263, MPEG4, JPEG. Developing, implementation and optimization of different image/audio processing algorithms on parallel DSPs.

Technologies: TMS320C67x/62x/64x, H263, MPEG4, JPEG, DSPs

EDUCATION

- B.A. of Mathematics & Computer Sc., 1992-1995
- M.A. with Thesis Work on Mathematics & Computer Science department. Total grade 93 (advisor prof. J.Arazy), graduated with Honor, 1998-2000
- Starting PhD in Technion, Applied Mathematics (not finished), 2003

