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SAMEER MARULKAR, SOFTWARE DEVELOPER

➔ 3 years of progressive work experience designing software algorithms targeted at analyzing, processing high dimensional data (Image/Video streams).
➔ Worked in the space of scene reconstruction, video tracking, video generation, inpainting etc. - blending deep machine learning algorithms.
➔ Decent understanding of transmission and reproduction of digital media i.e. CMS → CDNs → video codec optimization → video players(client) and interlinked authentication systems.

TECHNICAL SKILLS

● Programming: Python, BASH, C++.
● Libraries: TensorFlow, OpenCV, OpenAI Gym, OpenGL
● Machine learning: **StackGANs**, WGANs, **Convolutional LSTM**, RNN, Auto-encoders
● Computer vision: **SLAM**, Depth sensing, **Sensor Fusion**, 3D reconstruction, Inpainting
● Reinforcement Learning: TD Lambda, RBF, HMM, Q-learning
● Amazon web services: S3, EC2, Cloudfront, Elastic load balancing

PROFESSIONAL WORK EXPERIENCE

AT&T, Product Development Engineer   4/16 - Present
Project II: FrontEnd team (Computer Vision/Generative Networks)

● D-Dash; Deep Q learning based video streaming
  ○ Developing quality of experience optimized client-side video players to be integrated to the Android stack.
  ○ Implementing, fine tuning Tensorflow based, Q learning policies generating adaptive bit-rate algorithms.
● StackGAN based Boot up animation splash screen transitions
  ○ Video dynamics understanding + generation by exploiting the cultural consistency of scene dynamics when pushed through a convolutional filtering architecture
● Video component recognition
  ○ Implementing a Fast R-CNN based computationally efficient video component detection algorithm in Theano.

Project I: Multimedia Team

● Team sub-lead for proprietary Android TV box bootloader stack design, ExoPlayer and MediaPlayer integration to the Android software stack for Live Streaming and VoD solutions (now DIRECTVNOW).
  ○ Exposure to bootloader OTT secure upgrade process involving secure AWS CDN bucket calls, DNS remapping for system level testing, continuous build integration etc.
  ○ Experimented with Amazon cloudFront (custom SSL), application load balancers.
  ○ Worked in codelab to experiment with ExoPlayer integration -to understand dynamic adaptive streaming over HTTP (DASH).
● Involved in designing test plans for conforming (Bit-exact) HEVC decoding, HDCP 2.2 and 4K60 AvSync (LipSync) specifications for middleware set top boxes (STBs).

Theta Engineering, Embedded Software Developer   5/15 - 8/15
● Designing end to end embedded solutions catering to the aerospace industry in southern California.
● openGL, GLEW, freeglut based drone simulator design in Visual Studio 2012 - C.

MIT Media Lab, Algorithm Engineer   1/14 - 8/14

- Design Innovation Intern. Part of a team developing gesture recognition/reconstruction algorithms:
- Developed application logic of 3D scanning and geometry processing algorithms using unity, p5.js.
- Implemented GPU pipeline for 3D scanning similar to KinectFusion in openCV:
  depth map registration ---> depth map fusion to sparse equivalent --> isosurface extraction (marching cubes algorithm)
- Implemented linear neural network based action classification algorithm in p5.js (vanilla 3-layer ANNs in JavaScript).

EDUCATION

California State University Long Beach (3.6/4.0)   2016
M.S. *Electrical Engineering*

University of Pune   2013
B.E. *Electronics and Telecommunications Engineering*