

SWADHIN A. THAKKAR

• (412) 626-4442 • [linkedin.com/in/swadhinthakkar](https://www.linkedin.com/in/swadhinthakkar) • www.swadhin.me • thakkarswadhin@cmu.edu



EDUCATION

Carnegie Mellon University (CMU) Pittsburgh, PA May 2018
Master of Science in Electrical & Computer Engineering GPA: 3.69/4
• Machine Learning • Internet of Things • Data Structures and Algorithms • Java Programming • Wireless Networks
• Embedded Systems • Real-Time Systems • Storage Systems • Parallel Computer Architecture • Computer Systems
VJTI, University of Mumbai (MU) Mumbai, India May 2016
Bachelor of Technology in Electronics & Telecommunication Engineering GPA: 8.8/10



EXPERIENCE & RESEARCH

NavLab, Robotics Institute CMU Pittsburgh, PA
Research Assistant Fall 2017 - Current
• Developing CNN models for anomaly detection of nuclear radiation from dataset of 100,000+ images
• Deploying an optimized VGG-16 model with Keras and Tensorflow on AWS Deep Learning platform
Biometrics Center, CyLab CMU Pittsburgh, PA
Research Assistant Summer 2017
• Worked on system-level deployment of Deep Learning SDK for real-time face detection and recognition on Linux CentOS
Quanical Innovation Lab Mumbai, India
Research Intern Fall 2016
• Proposed a novel technique using blend of cryptography and steganography and published S. Thakkar, et. al. "Video steganography using encrypted payload for satellite communication," 2017 IEEE Aerospace Conference [[link](#)]
National Centre for Excellence in Technology for Internal Security, IIT Bombay Mumbai, India
Intern Summer 2016
• Worked on embedded systems development, sensor integration and PCB design of a remotely controlled all-terrain robot



ACADEMIC PROJECTS

CUDA Renderer CMU Spring 2018
• Achieved more than 20x speedup on a graphics circle renderer application by using CUDA threads and SMPs to perform parallel calculations for image rendering and pixel shading on NVIDIA GTX 1080 GPU
Real-Time Linux Kernel Development on Nexus 7 tablet CMU Fall 2017
• Wrote LKMs, custom syscalls, character device drivers and user-space apps to add real time functionality to Linux kernel
• Implemented Dynamic Voltage Frequency Scaling (DVFS) to reduce energy consumption with custom CPU governors
• Developed an Android application to provide an interactive GUI for task monitoring and reservation using JNI for syscalls
Hybrid Cloud File System (CloudFS) CMU Fall 2017
• Created a hybrid file system for cloud and SSD storage using FUSE interface and Amazon S3 API
• Optimized cloud costs by caching and Rabin Fingerprinting for data deduplication and snapshot functionality
Flash Translation Layer (FTL) for Solid State Drives (SSD) CMU Fall 2017
• Built a FTL on a simulated SSD with page level mapping that efficiently translates logical blocks to physical blocks address
• Implemented auto-garbage cleaning and wear levelling using Least Frequently Erased (LFE) technique to increase the SSD life
Sports Training in Virtual Reality (VR) Environment CMU Summer 2017
• Developed a game on Oculus Rift VR for training of amateur and professional sports athletes
• Analyzed data from Kinect with OpenPose SDK and wearable sensors to train SVM classifier for real-time pose detection
Marauder's Map (IoT) CMU Spring 2017
• Developed an IoT based Android app for indoor location tracking that provides a platform to connect different communities
• Proposed a system architecture with security, usability, privacy considerations and a business model
Computer Systems Projects on x86 architecture CMU Spring 2017
• Developed a Dynamic Memory Allocator with high throughput by using segregated lists of varied sizes and footer-less blocks
• Created a Concurrent Proxy Server capable of handling multiple HTTP/1.0 GET requests using pthreads and semaphores
• Programmed a basic UNIX-like Shell that uses I/O redirection and signal handling to run jobs in foreground and background



TECHNICAL SKILLS

Programming Language: C, Java, MATLAB (proficient) C++, CUDA, C#, Python, LATEX, ISPC, OpenMP, MPI (familiar)
Software & OS: Linux, Ubuntu, CentOS, Unity 3D, Eclipse, Android Studio, MXNet, Keras, AWS ML, Git



ACTIVITIES & LEADERSHIP

• Member, CMU ECE IEEE Honor Society Eta Kappa Nu (HKN) Fall 2017 – Current
• Teaching Assistant, Mobile and IoT Computing Services (08-781 / 45-887) Spring 2018
• TraVeleR, awarded Best VR Graphics at PennApps Hack-a-Thon Fall 2017