Nitheesh K L

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Employment

Deep Learning R&D Engineer - Intel, India — Aug 2017 - Present
Research engineer working on machine learning and computer vision, with focus on Autonomous Navigation.

Education

B.E. Computer Science - PESIT-Bangalore, India — Sep 2008 - Jun 2012
Advisor: Dr. Kavi Mahesh
Thesis Title: Semantic Resource Browsing using Speech
GPA: 8.60/10

Additional Coursework

Summer School on Computer Vision - IIIT-Hyderabad, India — Jul 2019
Summer School on Machine Learning - IIIT-Hyderabad, India — Jul 2019
Self-Driving-Car Nanodegree - online, — Sep 2017 - Apr 2018
Udacity's 3-semester online Nanodegree program.

Research Interest

Computer Vision and Robotics - with special interests in multimodal 3D perception and self-supervised learning methods.

Work Experience

Deep Learning R&D Engineer - Intel, India — Aug 2017 - Present

Primarily responsible for the creation of AD datasets, implementation & evaluation of state-of-the-art AD algorithms, and develop system software for ADAS prototypes. Built infrastructure, evaluation pipelines, and platforms for large-scale real-time data capture using India made Mahindra E2O vehicles, targeted at Indian AD scenarios. In collaboration with IIIT-H, this helped create the **India Driving Dataset** - world's first open dataset on Indian driving conditions (http://idd.insaan.iiit.ac.in/). Worked on defining the challenges for "Autonomous Navigation in Unconstrained Environments" workshop in ECCV 2018 and ICCV 2019.

System Software Engineer - Intel, Santa Clara, USA — Sep 2015 - Jun 2017

Lead Android developer for Core platform software libs and SDKs for Intel wearable platforms based on Intel Curie (AtlasPeak 1.0 and 2.0) chips. Designed and implemented Intel IQs framework and interaction between companion and wearable device. Optimized Android applications and platform software for internal teams at Intel, focusing primarily on wearable technology using BLE. Public released products include Xiaomi's RunMi smart shoes and Oakley's Radar Pace.

DevOps Engineer - Intel, Santa Clara, USA — Sep 2014 - Aug 2015

As a global DevOps lead for Intel's Android RunTime (ART) team, supervised the integration, maintenance and release of ART for Android L and M versions. Delivered optimal release process for ART team and made successful releases of ART for multiple customers (Lenovo, Asus, etc. including Google's AOSP). Served as git master maintaining all of ART team's branches. Developed automated systems for internal maintenance and development. Served as Linux sysadmin maintaining ART team's server infrastructure.

Linux System Engineer - Intel, India — Aug 2013 - Aug 2014

Worked on Android power and performance stack for devices based on Intel Atom processors. Contributed to Pre-silicon: Simics based HSLE & CSLE for system d0ix & s0ix states, Power On: Linux kernel and driver power management (d0ix, s0ix, s3, C & P-states), Porting of PM features from PCI to ACPI standards, Voltage Regulator Framework for the platform & Module Level DVFS, POC for "Dynamic Power Calibration of the CPU" and "App-based power modes" for Android.

Software Engineer - Intel, India — Jun 2012 - Jul 2013

Worked with Intel Labs on Android for automobiles and Intel Atom based IVI systems. Developed web-based development framework, libs, and APIs for the platform. Developed android applications to demonstrate Android on Intel Atom based IVI systems.

Software Engineering Intern - Intel, India — Jun 2011 - May 2012

Worked for Intel Atom Innovation Kit program, focusing on introducing development on Intel Atom platforms in academia. Provided support for BSP, porting, and supporting custom Linux versions for these platforms. Managed academic development programs based on Intel Atom Innovation Kit and delivered course material that was incorporated into the academic curriculum in several colleges and universities across the country.

Research

Self-Supervised Learning with Intrinsic Space Feature Vectors - Intel, India — 2019 - current

Currently working on learning techniques that use intrinsic space feature vectors for self-supervision.

Point Cloud Fusion with LiDAR and Stereo Cams - Intel, India — 2019

Fusion of sparse point clouds from LiDAR with point clouds from stereo cameras to create dense point clouds for improving the accuracy of 3D object detection in AD scenarios.

AD Datasets for Unconstrained Environments - Intel, India 2018 - 2019

Real-time constraints and solutions in creating large datasets for modern AD systems, in collaboration with IIIT-Hyderabad. Lead to the creation of "India Driving Dataset" - world's first open dataset of Indian driving conditions.

Patch Classification Using Multi-Criteria Dimensional Analysis - Intel, USA 2015

A novel approach to classify software patches for review based on adaptive learning using MCDA in large-scale software development activities like the Linux kernel and Google's AOSP.

User Controlled Energy Modes on Android - Intel, India 2014

Proposes modifications to the Android system (power management stack) that enables users to run individual applications in their own power modes involving CPU and GPU characteristics.

Dynamic Power Calibration on IA - Intel, India 2013

A novel method to manage the variance of silicon characteristics that can occur in the silicon due to temperature changes, aging, and fidelity of the manufacturing process.

Publications

Peer-reviewed Publications

- Large Scale Multimodal Data Capture, Evaluation and Maintenance Framework for Autonomous Driving Datasets - Nitheesh K. Lakshminarayana, ICCV 2019 (accepted).
- Ensuring Quality in Creating AD Datasets - Nitheesh K L, Anbumani Subramanian, Intel SWPC-2018.
- A Dashboard and Infrastructure for Multi-Sensor Data in Driving Data Collection - Nitheesh K L, Anbumani Subramanian, Intel SWPC-2018.

Under Review

- Evaluation of Sparse LiDAR Data for 3D Object Detection in Driving Scenarios - Nitheesh K. Lakshminarayana, Shreesh Mohalik, Anbumani Subramanian, NCVPRIPG 2019.
- Large-Scale Image Retrieval using Deep Features - Kshitij Agarwal, Nitheesh K L, Intel SWPC-2019
- Scalable Vision Bench - A Heterogeneous Multiplatform End2End Benchmark suite for Scalable Vision Workload - Pankaj K R, Kshitij Agrawal, Nitheesh K L, Intel SWPC-2019.

Tech Reports

- Patch Classification using MCDA - Nitheesh K L, Intel SWPC-2015
- App-Based Power Modes for IA - Nitheesh K L, Mahesh Kumar, Ashish K, Intel SWPC-2014

Awards

- Divisional Recognition Award - "Enabling research around navigation in unstructured conditions" - Intel, India, 2018.
- Divisional Recognition Award - "ART and Dalvik memory management on IA" - Intel, USA, 2014.
- Most Innovative Hack - 1^{st} place winners - Software Professionals Conference Hackathon, Intel India, 2013.

Conferences & Events

Speaker

- Guest lecture on Autonomous Driving Technologies- PES University, Bangalore, 2017.
- IoT implementations using Intel Galileo - National Workshop on Intel Atom & academics, PESIT, 2014.
- Optimizing Apps for Android on IA - Open Source India, 2013.
- Intel Atom Devkits for Academia - National Workshop on Intel Atom & Academics, 2012.
- Extending Android Framework with New Devices - Droidcon India, 2011.

Mentor

- NASA's Space Apps Challenge - Technical mentor, Bangalore, 2018.
- Intel India Embedded Challenge - Technical mentor, 2014.
- Intel Android IDZ hackathon - technical mentor, 2013.
- Intel India Embedded Challenge - Mentor & Technical support, 2012.

Technical Demos & Workshops

- MobilEye based ADAS platform on IA - Computer Vision Forum, Pune, India, 2019.
- ICTAI Workshop on Unstructured Driving in India, Bangalore, 2018.
- Intel Software - Droidcon, Bangalore, 2013.
- Intel Software - Droidcon, Bangalore, 2012.
- Intel Software - Mobile Developer Summit, Bangalore, 2012.
- Technical workshop on application development on Intel Atom Dev boards at IIT-G, IIT-M, NIT-W, COEP (Pune), Sastra University, PESIT, MIT (Manipal), Anna University [2012 - 2013].