Tushar Chugh

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EDUCATION

CARNEGIE MELLON UNIVERSITY
M.S. in Robotic Systems Development
Aug'15 - Dec'16 | Pittsburgh GPA: 3.75

YOUNG INDIA FELLOWSHIP
(University of Pennsylvania)
Master's Program in Liberal Arts
Jun'11-May'12 | New Delhi, India
Selected in top 57 students across India

MAHARSHI DAYANAND UNIVERSITY
B.TECH in Electronics and Communication Engineering
Jul'07 - May'11 | Faridabad MARKS:71/100
Awarded chairman scholarship at MRCE

LINKS

Github:// tusharchugh
LinkedIn:// tusharchugh

PROJECTS

Vehicle detection using HOG and SVM
Behavioral cloning with deep learning
Lane detection and estimation of curvature
Non-Intrusive Load Monitoring
SmartCap for visually impaired
Haptic belt device for visually impaired

SKILLS

PROGRAMMING
C++ • Java • MATLAB • Python

PLATFORM | FRAMEWORK | IDE
Linux • ROS • OpenCV • TensorFlow
Andriod Dev • Visual Studio (WPF, WCF)
Git • CI(Travis, Jenkins)

HARDWARE
Raspberry Pi • Arduino(also mbed, ATMEL and PIC) • PCB Designing (Basics)

COURSEWORK

Machine Learning
Computer Vision
Robot Autonomy
Deep Learning
Embedded Read Time Systems (Linux Kernel)
Software - Object, Design and Concurrency

EXPERIENCE AND PROJECTS

GENERAL MOTORS | Autonomous Perception Software
Feb'17 – Present | Warren, MI

- Developed ROS based drivers (including viz plug-ins) for short range radars
- Created classifier for automatic camera lens cleaning system verification
- Implemented and benchmarked deep neural networks for pixel wise scene segmentation on public and internal datasets

QUALCOMM RESEARCH CENTER | Software Intern
May'16 – Aug'16 | San Diego, CA

- Worked on software development of Neural Processing Engine (NPE)
- Contributed in bringing up the new ASIC emulator platform, coded AlexNet conv layers in Assembly, and created programmers guide for developers
- Designed a cap for the blind to narrate the scene using NPE and Alexa

MICROSOFT INDIA (R&D) | Software Development Engineer 2
May'12 – Jul'15 | Hyderabad, India

- Envisioned, created and, released to public Kinect Ripple - a dual projection infotainment platform built in C# with JavaScript based API's
- Conceptualized Orientron : Echo spot like device with e-paper display
- Co-founded Makerzbay for Internet of Things(IoT) related development

MICROSOFT RESEARCH, CAMBRIDGE | Sensors and Devices
Aug'13 – Jan'14 | Cambridge, UK

- Researched on a novel way for quick & low cost printing of electronic circuits using an inkjet printer with silver nanoparticles
- Developed firmware for windows phone based gaming peripherals

NATIONAL ROBOTICS ENGINEERING CENTER | Capstone CMU
Aug'15 – May'16 | Pittsburgh, PA

- Autonomous Water Taxi : Implemented path-planning stack using SBPL and ROS. Created Occupancy Grip Map (OGM) using OpenStreet maps, designed framework to add and inflate obstacle data to OGM, used ARA* algorithm as global planner, and tuned motion primitives
- Andy - Instructing robot arms via speech commands Enabled Andy to understand speech commands for performing table-top manipulation tasks. Used HSV as color space, HOG features, and SVM for detecting shapes and Amazon Alexa for speech. NLP and path planner were provided by NREC

PUBLICATIONS

Circuit Stickers : ACM CHI, 2014 Canada, Steve Hodge, Et Al.
Vector2703 : Autonomous Ground Vehicle, IEEE Explore Japan, T. Chugh, Et Al.

AWARDS

2016	3rd	Amazon Alexa	Internet of Voice Challenge
2016	1st	Qualcomm	Hackmobile
2013	Editor's choice	Maker Faire, NYC	Microsoft Research demo
2013	Top 12 Asia	Wall Street Journal	Best Asian Innovations
2013	2nd/10 countries	Health 2.0, SF	Developer World Cup for Health
2012	1st(India)	Accenture and Yahoo	Innovation Jockeys
2010	1st(India)	Microsoft	Imagine Cup, Poland