Tushar Chugh

http://www.tusharchugh.com
tusharchugh19@gmail.com | 412.499.0099

EDUCATION

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

YOUNG INDIA FELLOWSHIP (WITH UNIVERSITY OF PENNSYLVANIA)
Master's Program in Liberal Arts
Jun'11-May'12 | New Delhi, India
Selected in top 57 across India
Developed a **haptic belt** device for visually impaired to help navigate by providing haptic feedback for avoiding obstacles. (won awards)

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**

COURSEWORK

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

UNDERGRAD AND YIF
Embedded Systems
Statistics
Linear Algebra
Art Appreciation

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)

EXPERIENCE AND PROJECTS

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

- Developed ROS based drivers (including viz plugins) for short range radars
- Created algorithm to classify images for sensor cleaning system verification
- Programming CNN's for detecting traffic signs and traffic lights
- Worked on **vehicle detection** using HOG and SVM in OpenCV (Udacity)
- Worked on **behavioral cloning** with deep learning using Udacity's simulator
- Worked on **lane detection** and estimation of curvature (Udacity)

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
- 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