Ananya

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SUMMARY

Computer vision engineer interested in working with medical devices

EDUCATION

Case Western Reserve University May 2018
Master of Science - Mechanical Engineering; GPA: 3.67/4.0 (Anticipated)
Thesis advisor: Dr. Wyatt Newman
Graduate Teaching Fellowship with fee-waiver

Manipal Institute of Technology May 2014
Bachelor of Technology - Mechanical Engineering; GPA: 9.27/10
Thesis advisor: Dr. G. K. Ananthasuresh (IISc)
Undergraduate Scholarship with fee-waiver

WORK AND RESEARCH EXPERIENCE

Mobile Robotics Lab, CWRU – *Graduate Research Assistant* | Cleveland, Ohio July '17–Present

- Implementing deep learning models for **crop/weed recognition** in agricultural robot for small-scale farming
- Captured and **processed 9,000 images** of pepper crops and 6 different weeds at different stages of growth
- Implemented **convolutional neural network** to classify crops only and crops with weeds images with **97%** accuracy (**Keras** + **TensorFlow**)
- Achieved **95%** accuracy on crop segmentation of 300 unseen images with **modified U-Net**

Research Matters, Gubbi Labs, India – *Science Writer* Aug '14–June '15 |Sept '17–Present

- Writing research-based popular science pieces, such as press releases, podcasts and long-form pieces for Indian media

M2D2 Lab, Indian Institute of Science – *Research Associate* | Bangalore, India Jan'14–Aug '15

- **Developed and implemented** endoscope shape estimation system for virtual, haptic endoscopy simulator
- Applied analytical geometry methods for in vivo endoscopic shape estimation used in training applications
- **Built experimental setup** and measured strain from strain gauges and Fiber Bragg Grating sensors on endoscopes, using DAQs
- Implemented **visualization** of shape estimation algorithm in **MATLAB** and later in **VC++** with **OpenGL**
- Designed experiments to test the flexural rigidity of the endoscope
- **Designed and conducted experiments** to characterize force-deformation of human tissue samples

ACADEMIC PUBLICATIONS

Peng Wang, **Ananya**, Ruqiang Yan and Robert X. Gao, "Virtualization and Deep Recognition for System Fault Classification", Journal of Manufacturing Systems, 2017

Ananya, S. Chakravarthy, Kumar Saurabh and G. K. Ananthasuresh, "Shape Estimation and Prediction of Locations of the Force on a Flexible Tube using Strains at a Few Points", 2nd International and 17th National Conference on Machines and Mechanisms (iNaCoMM), India, 2015

SKILLS

Programming Languages: MATLAB, Python, C++ with OpenGL
Development Software: Keras, TensorFlow, Scikit-learn, CATIA, Autodesk Inventor, ANSYS
Miscellaneous: Neural Networks, Rapid Prototyping (Objet, Z-Corp), Laser Cutting

PROJECTS

Electromechanical Systems Lab, CWRU July '16–April '17

- Programmed **convolutional neural network** for gearbox fault classification with **99.5%** accuracy (**MATLAB**)

Control of Mobile Robot, CWRU Feb '16–April '16

- Programmed robot to localize and navigate hallways using **LIDAR** in **ROS** and **C++**
- Implemented navigate algorithm to mobilized Baxter robot to a table and pick up Coke can using Kinect data

Related Coursework: Deep Learning, Computational Intelligence, Advanced Robotics, Mobile Robotics

Honors: National Talent Search Scholarship from National Council of Educational Research and Training, Gov. of India
1000 students selected nation-wide every year