Guru Nanma P

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EDUCATION

University Of Illinois at Urbana Champaign Aug. 2022 – Dec 2023
Masters of Computer Science CU, Illinois

BMS College of Engineering Aug. 2018 – June 2022
Bachelor of Engineering in Computer Science and Engineering Bengaluru, India

- **CGPA**: 9.34 / 10

EXPERIENCE

Research Assistant June 2021 – Present
B.M.S. College of Engineering, Certificate: https://github.com/18nanma/GNP/blob/main/G/RA.pdf

- Won AI & Robotics Technology Park grant under Indian Institute of Science. Research Assistant under Dr. Vinod C. Aralimatti
- Worked on the cognition system of Autonomous Underwater Cognitive Soft Robot using computer vision. Development of fuzzy logic controls. Worked on fine tuning of transfer learning models for object detection in murky waters.

Samsung Research and Development Intern Jan. 2020 – Aug. 2020
Samsung Prism, Certificate of Excellence: https://github.com/18nanma/GNP/blob/main/G/Samsung.pdf

- Developed a solution to achieve higher framerate (>2x and <=4x) for video recording in phones using Computer Vision and C++ for building block matching correlation algorithm and frame interpolation. Received the Certificate of Excellence for achieving least compilation time.

RESEARCH EXPERIENCE

"Bald Eagle Search Algorithm for High Precision Inverse Kinematics of Hyper-Redundant 9-DOF Robot"

* Under Review in - Part C: Journal of Mechanical Engineering Science. Worked with Dr. Sachin Kumar B.
* Employed Bald Eagle Search Optimization algorithm for robotic arm and got the highest precision till date.
* Certificate: *https://github.com/18nanma/GNP/blob/main/G/RPA.pdf*

"Determining Principal Stresses in Open Pipes using Computer Vision and Transfer Learning"

* Under Review in - Journal of Civil Structural Health Monitoring. Worked with Dr. Sachin Kumar B.
* Used tensorflow custom object detection to identify pipes and material of pipe using transfer learning. OpenCV for detecting real time dimensions. The dimensions along with pressure were factored in to determine tangential and hoop stress

"Conversational Learning System using Custom Named Entity Recognition for Home Remedies"

* Accepted for publication in - International Conference on Innovative Research in Science, Management and Technology (ICIRSMT 2021). Worked with Dr. Kayarvizhy N
* Collected custom data, cleaned, annotated into body and symptom. Trained model using spaCy for custom Named-entity recognition. Built a desktop app with speech to text conversion to display the questioned home remedies.

PROJECTS

Athlete kinetics

* Created a custom dataset for machine learning analysis, recurrent neural network was used to predict the influence of anthropometrics. Employed OpenCV pose estimation to get the angles of flexion during a vertical jump
* Winner of BMSCE women's entrepreneurship challenge. Certificate: *https://github.com/18nanma/GNP/blob/main/G/WE.pdf*

Quadruped which employs creep gait and computer vision along with object detection and following

* Employed tensorflow lite for custom object detection in a quadruped based on raspberry pi and pi camera.
* Interfaced it with an arduino which employs creep gait for creep gait motion. Developed based on inverse kinematics. 3d printed the body

Aura - Emotion Recognition based Music and Movie Recommendation Android App

* Content-based filtering, k-means clustering was used for movie and music recommendations. CNN was built from scratch for emotion recognition system. Github Repo: *https://github.com/18nanma/Aura*
* All the models were hosted on Flask app and https requests were made from Android app to be used by the user.

LEADERSHIP AND VOLUNTEER EXPERIENCE

Research and Development Head - CodeIO Club : Curated and conducted seminars on Python, Computer Vision and three.js and basics of website building; Students Chapter (Page 3)
Session: *https://drive.google.com/file/d/1-i4zU8-iYbqfuLgE4f1E6Pe6VGqHVQVL/view?usp=sharing*
Computational Control and Intelligence Head - Robotics Club : Lead the team in Flipkart 3.0 Challenge, conducted computer vision project sessions, Developed Robotics Club Website: *https://robotics-club-bmsce.herokuapp.com/team*