SONU DILEEP

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EDUCATION

PhD in Computer Science **Aug 2021 - Present**
Colorado State University, Fort Collins, CO
Master of Science in Computer Engineering **Aug 2018 - May 2021**
Colorado State University, Fort Collins, CO
Bachelor of Technology in Electronics and Communication Engineering **July 2013 - May 2017**
Amrita Vishwa Vidyapeetham, Amrita University, India
Relevant Coursework: Machine Learning, Image Computation, Digital Image Processing, Optimization Methods, Big Data, Natural Language Processing, Computer Graphics, Robotic Programming, Modeling of Large Dataset, Software Engineering

SKILLS

Technical Skills: Deep Learning, 2D/3D Object Detection & Tracking, Segmentation, Feature Detection, 3D Reconstruction, Structure from Motion, SLAM, GANs
Programming Language: Python, C++, MATLAB
Libraries: OpenCV, ROS, PyTorch, TensorFlow, NumPy, SciPy, Scikit-learn, Pandas, Matplotlib, Apache Spark, Hadoop
Other Skills: Arduino, Raspberry Pi, PyQt, QGIS, RVIZ, Git, SVN, Unreal Engine
Professional Skills: Communication, Creativity, Critical Thinking, Problem Solving, Team Player

PROFESSIONAL EXPERIENCE

Graduate Researcher - Computer Vision, Chevron, CO **08/2021 - Present**
Computer Vision based oil and gas site monitoring system
- Developed a Transformer based model to monitor the state of flare at oil and gas sites
- Worked on data cleaning and annotation for training neural networks
- Created a synthetic database using Unreal Engine which could emulate different flare conditions and weather
- Find the Ringelmann number of smoke coming out of flare
- Trained a Swin Transformer model to identify the state of flare, achieved 96% accuracy on test set

Graduate Researcher - Data Analysis, CSU Energy Institute, CO **08/2020 - Present**
Simulation model for methane and other hydrocarbons from oil and gas facilities
- Worked on developing code for estimating emissions from oil and gas sites using Monte Carlo simulation
- Collected and Analyzed data from multiple sources for modeling each facility
- Create input sheets for model, run simulation and validate results

Graduate Researcher - Computer Vision, CSU Energy Institute, CO **01/2020 - 05/2021**
Computer Vision for automated identification of well pad features from satellite imagery
- Developed an automated well pad and equipment detection model using CNNs for methane emission studies
- Developed a python-based plugin for easy annotation of google satellite imagery using PyQt and QGIS
- Worked on data cleaning and annotation
- Trained a YoloV4 and achieved an average accuracy of 97% in DJ Basin, Colorado

Mapping Researcher Intern - Autonomous Driving, Magna International, MI **05/2021 - 08/2021**
Mapping and Localization of Self-Driving Car
- Worked on data annotation to train deep learning models for identifying moving objects
- Improved one of the existing feature detection algorithms for faster mapping and localization
- Modified mapping algorithm to detect duplicate features based on camera pose

Research Engineer - Humanitarian Technologies Lab, India **05/2017 - 12/2017**
Hand Gesture Based Wheelchair navigation and Autonomous Wheelchair Navigation
- Responsible for writing codes for wheelchair navigation using Hand Gestures
- Combined data from multiple sensors for safe navigation of wheelchair
- Worked in the development of project “Autonomous Wheelchair Navigation”