Mo Isse

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Skills

Experiences:
Sensing: Camera (visible, infrared), IMU, GNSS
Computer Vision: Calibration, Geometric CV, Visual Tracking

Proficiencies:
Languages: C++, Python, Matlab, Javascript
Middleware/Tools: OpenCV, ROS, CUDA, Linux
State Estimation: Kalman Filter

Experiences

Podmate
Sep 2023 - Now
Technical Founder
- Developed Voice and Gesture Detection algorithms in C++/Python to automate media post-production for businesses
- Built high reliability user interfaces in QT on Python for Windows and Mac

Nimbus AI Audiobooks
Aug 2021 - Sep 2023
Technical Founder
- Retrained and productionized a Vocal Synthesis neural network in Python on AWS
- Created and released a React Native application for iOS that converts a PDF into an audiobook
- Implemented audio signal processing to reduce noise, improve prosody and listening experience

Caterpillar Robotics/ Marble
Robotics Software Engineer, Perception
Mar 2020 - Aug 2021
- Productionized a perception system on a construction/mining vehicle for Solar Farm creation
- Developed perception/tracking capabilities to ensure pedestrian safety - especially during occlusions
- Created new algorithms in the motion planning system to enable robot recovery behaviors

VSI Labs
Autonomous Vehicle Software Engineer
May 2018 - March 2020
- Developing automatic emergency braking system using IR camera and radar fusion,
  - worked on calibration, pedestrian detection, state estimation and braking kinematics
- Built sign and traffic signal tracking system for a low FPS camera system
- Developed a lane detection tracking system to enable Lane Changing functionality
- Created thermal camera based pedestrian detection system, using YOLO family of neural nets
- Enabled automated cruise control by identifying the 'closest in path vehicles' (CIPV), using Radar and Camera Detection (and vehicle odometry)

Personal Projects

Optimizing A Drone to Avoid Collisions in a Forest - Microsoft Airsim
Jan 2019 - Apr 2019
- Built a simulated drone that could avoid trees using a neural network based policy on camera
- Leveraged an open source D4PG implementation to optimize a custom crafted reward function
- Created an OpenAI gym encapsulation of the Microsoft Airsim drone environment

Education

University of Minnesota
Sep 2014 - May 2018
Bachelor of Computer Science - College of Science and Engineering