Semester Project - Part 05

Table of Content

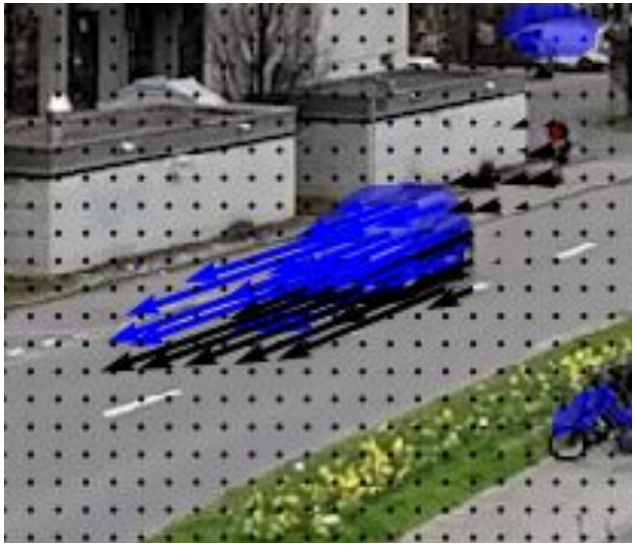
Ground Segmentation and Optical Flow

Ground Seg. and Optical Flow - Models

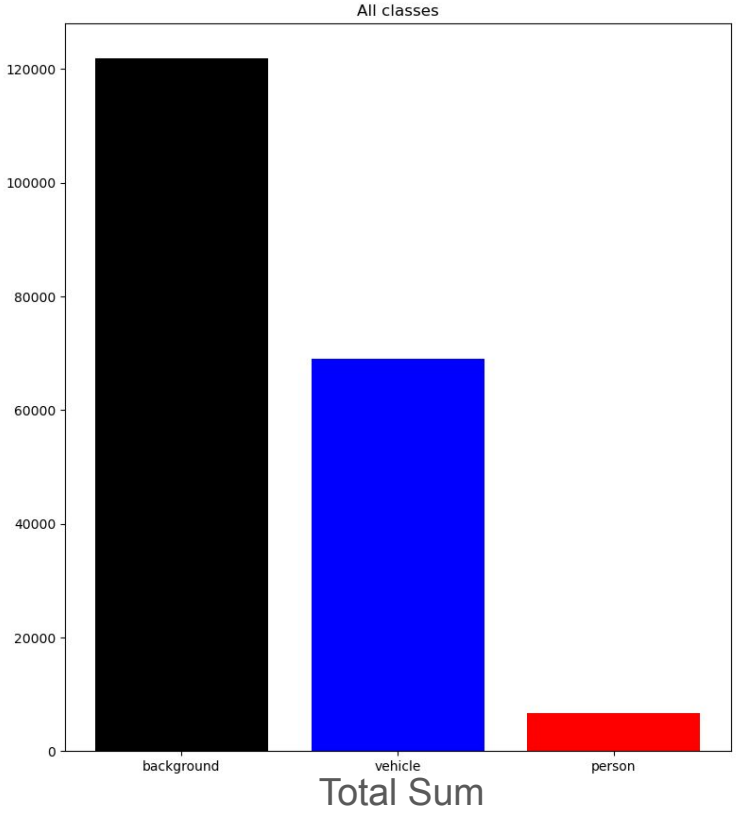
- Trained DeepLabV3 with MobileNet backbone for **sky/ground segmentation**
- Pre-trained DeepLabV3 with ResNet101 backbone for **object segmentation**
  - 21 classes mapped to 3 class
    - Person ♦
    - Vehicle ♦
    - Background ♦
- Pre-trained RAFT Large for **optical flow estimation**

Ground Seg. and Optical Flow - Scene 03 Example

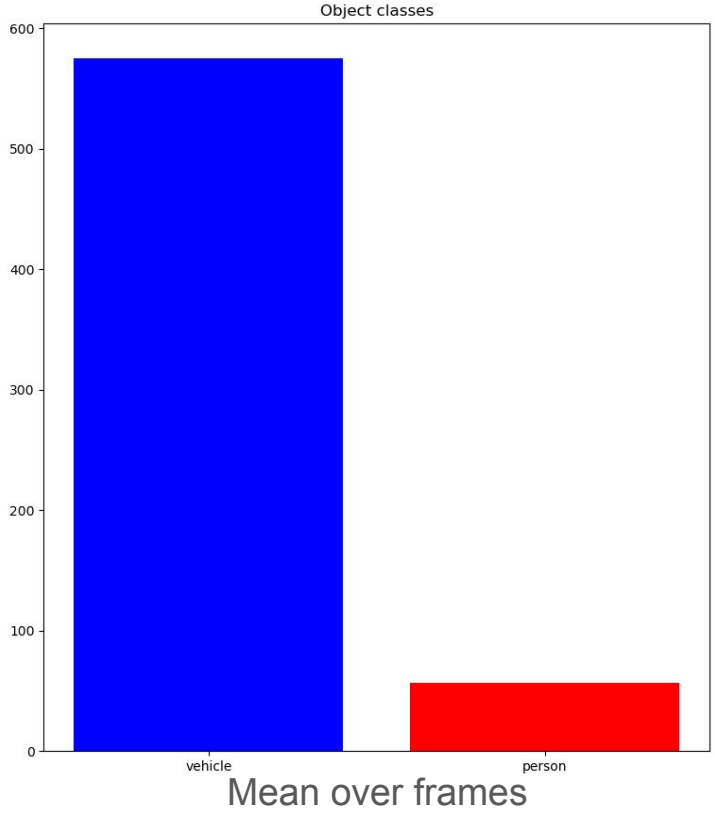
Ground Seg. and Optical Flow - Scene 03 Example



Ground Seg. and Optical Flow - Scene 03 Example

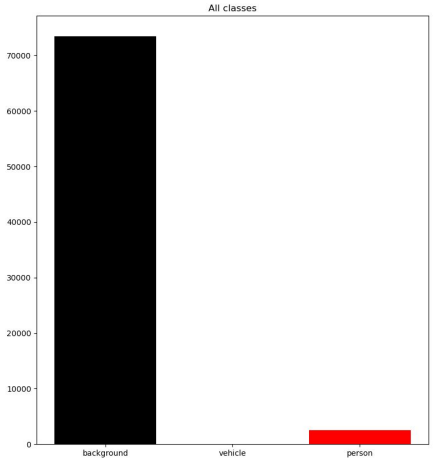


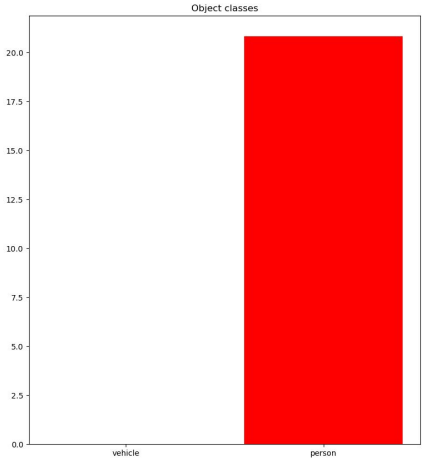
Total Sum



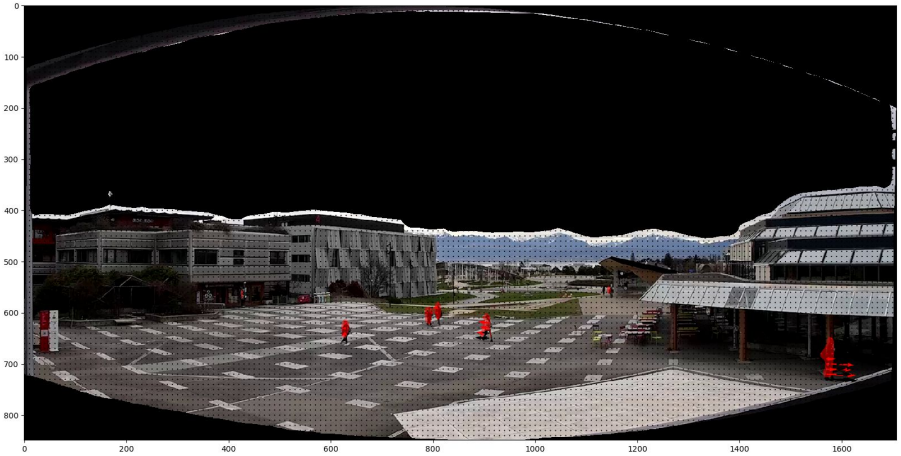
Mean over frames

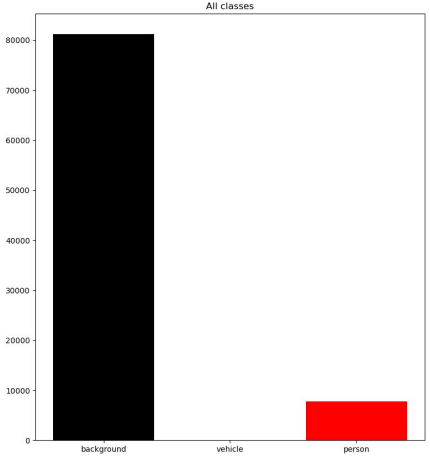
Ground Seg. and Optical Flow - Scene 05 Example

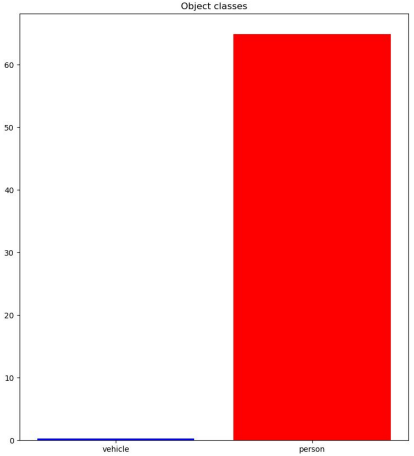




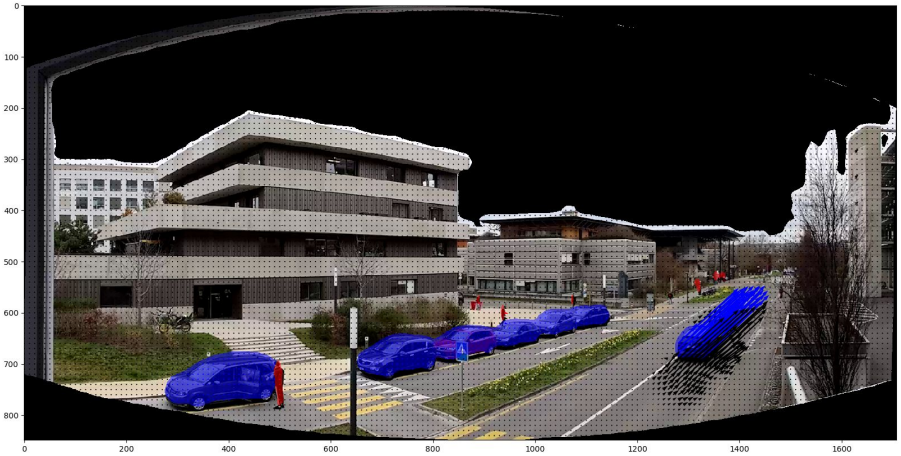
Ground Seg. and Optical Flow - Scene 06 Example

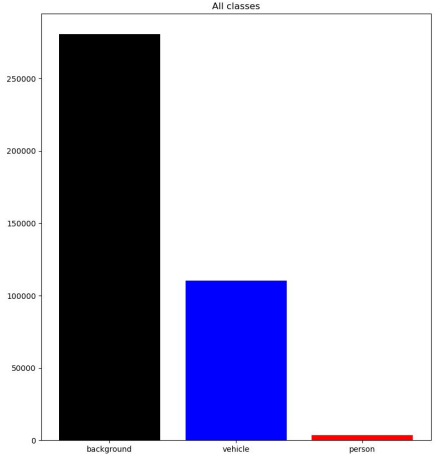


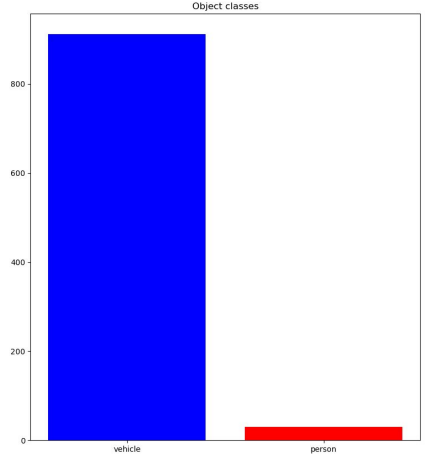




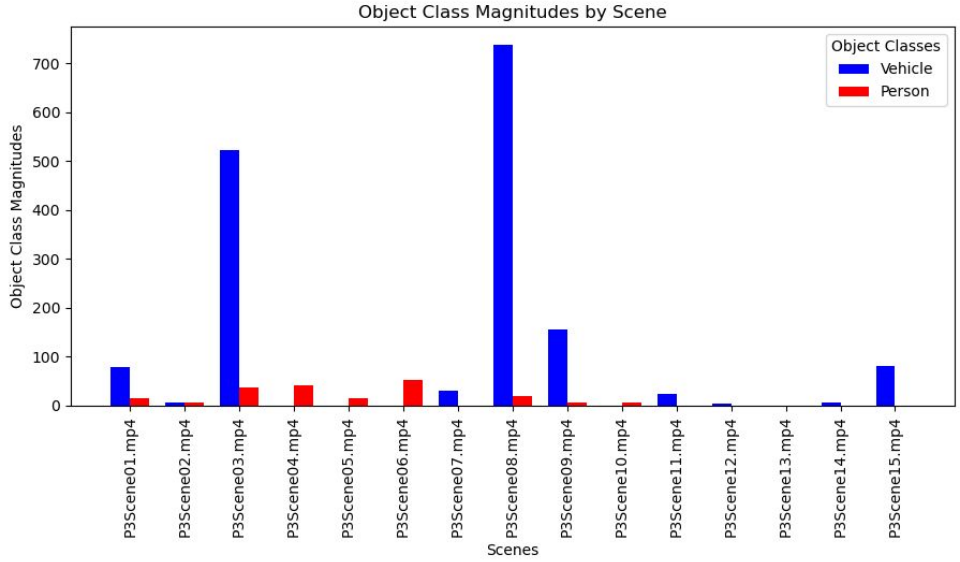
Ground Seg. and Optical Flow - Scene 07 Example

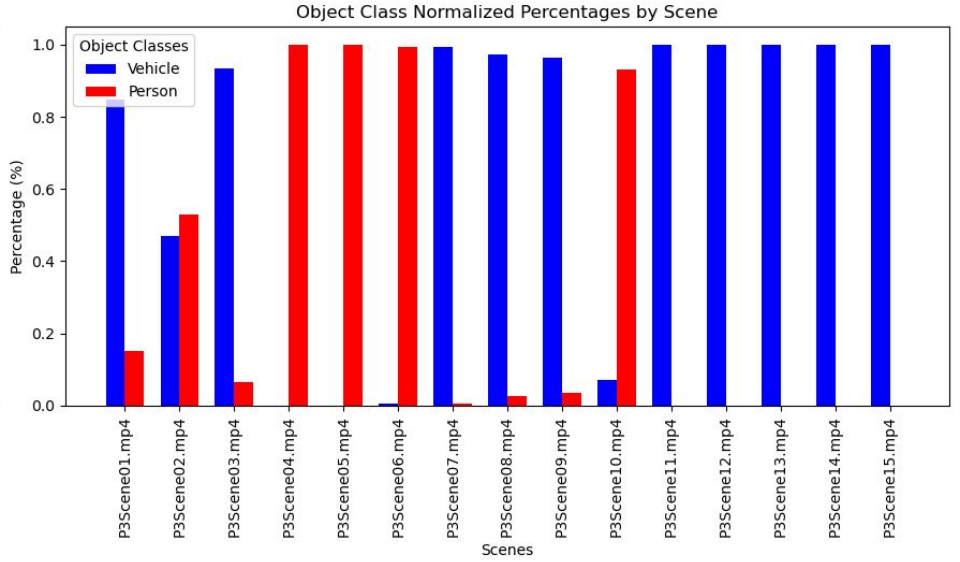




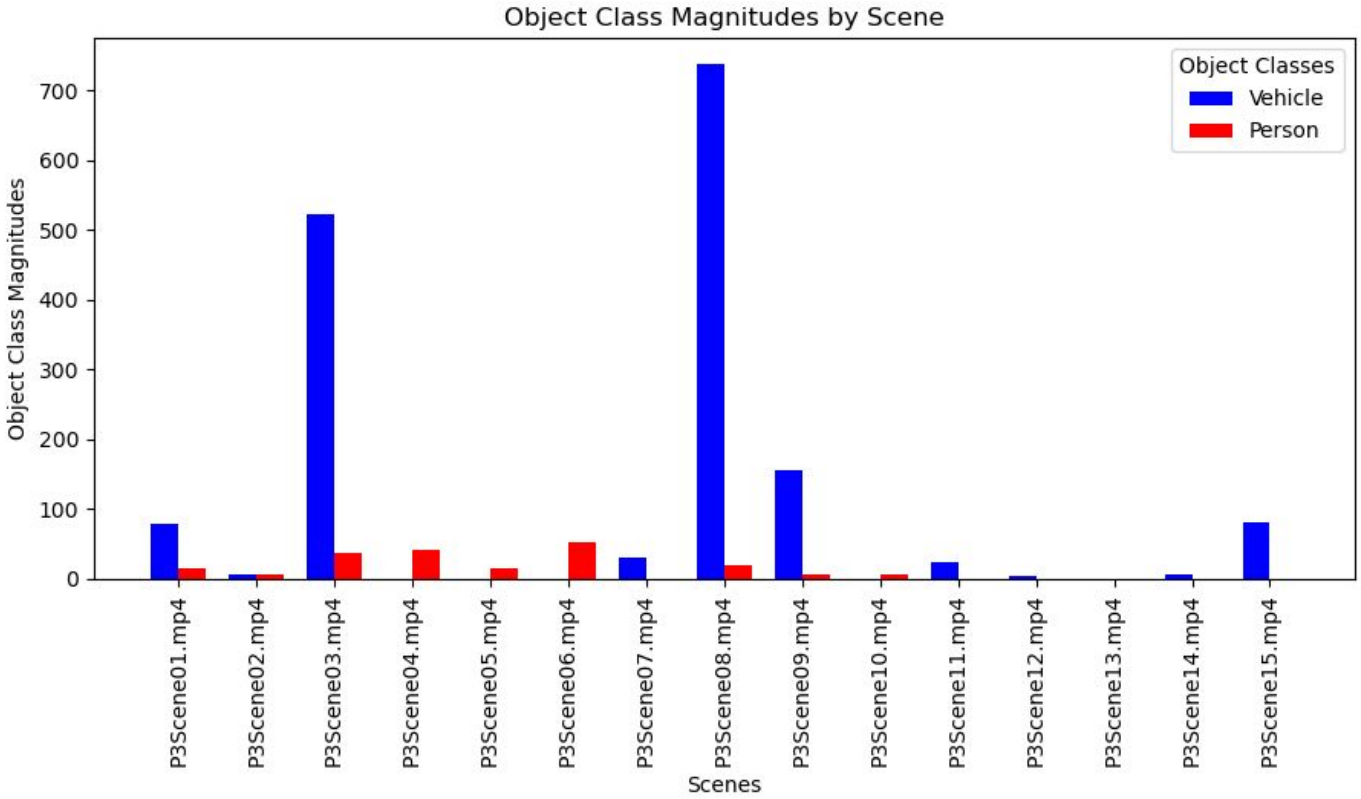


Ground Seg. and Optical Flow - Results

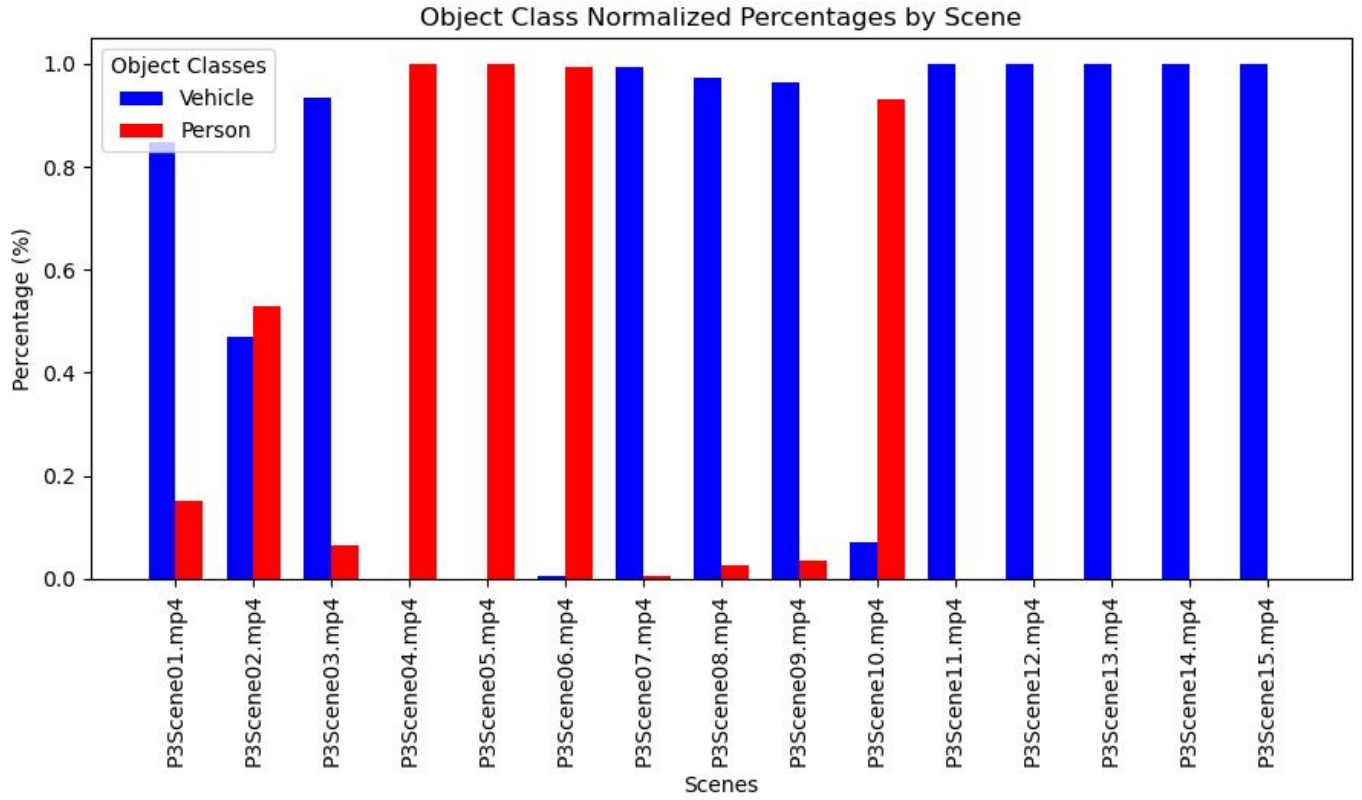




Ground Seg. and Optical Flow - Sum Results



Ground Seg. and Optical Flow - Ratio Results



Ground Seg. and Optical Flow - Improvements

- Object segmentation efficacy **skews results**
- **Temporal coherence** absent in frame-to-frame segmentation and optical flow estimates
- **Large** or **proximal** objects disproportionately dominate outcomes