

A1

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Project Preference:

1. Intelligent Simple Object Detection and Anonymous Privacy Protection Feature for unclassified images/photographs loaded to a project and gallery Swipe or Blur rule (PhotoNodes)
2. Deep Learning for Estimating Lane Line Quality Using Retroreflectometer Ground Truth (Blyncsy)
3. Deep Learning-Driven 3D Reconstruction, Data Synthesis, and Size Estimation for Road Signs (Blyncsy)

Initial Ideas for Project 1:

- Project idea is very similar to 'Privacy Protection in Google Street View' where they automatically blur out faces and other sensitive information like licence plates.
- Similar approach can be used for this project:
 - Object detection models can be fine tuned for object of interest like military badges
 - Use an OCR/Text localization model to locate and extract text information, applying rule-based filtering to blur out selected text as decided by the user
 - Implement a face detection model that can apply varying levels of blurring, such as blurring just the eyes or the entire face
- Each image will need to be processed through different models to detect respective region of interest (ROI), and based on user inputs each detected ROI would be filtered for blurring
- For the synthetic dataset, we can overlay standard military badges or stock name tags onto images from press conferences, fairs or similar group activities
- Related papers:
 - Enhancing Privacy: Automated Detection and Blurring of Sensitive Information in Images and Video Feeds [link](#)
 - Large-scale Privacy Protection in Google Street View [link](#)
- Related dataset that seems useful to use:
 - Trade fair images: [Link](#)
 - visual privacy dataset: [Link](#)

Skillset & Experience:

- 5 years of industry experience in data science and Python programming.
- Experience in developing ML models for real-time processing of sensor data.
- Experience in analysing sensor data from manufacturing equipment
- Experience in building backend ML functionalities for ML products.
- Theoretical understanding of deep learning techniques and hands-on experience with simple deep learning use cases using PyTorch through coursework.