

ESCUELA DE DISEÑO, INGENIERÍA Y ARQUITECTURA DEPARTAMENTO DE INGENIERÍA MECATRÓNICA

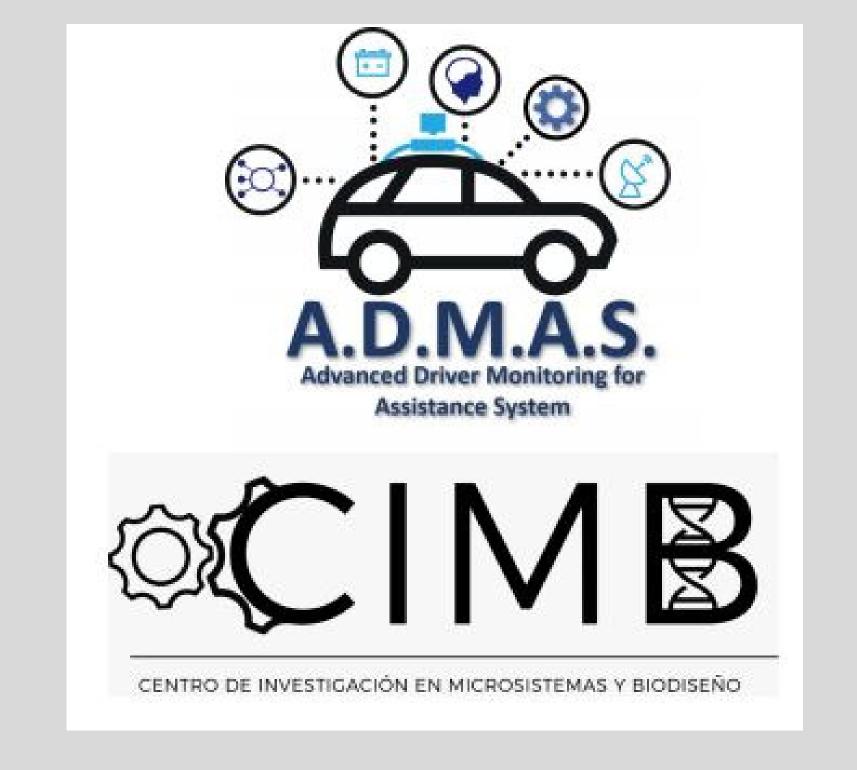


ROAD SEMANTIC SEGMENTATION **USING NEURAL NETWORK**

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PROBLEM STATEMENT



• The fatalities of road accidents in Mexico went from 30.3 cases per day in 2015, to 31.8 in 2016 and in 2017 it reached 32.6 cases.

32.6 2017 31.8 2016 30.3 2015

Better routes and less traffic

Jamie Condliffe . (Mayo 2017). atascos fantasma en la carretera, algo que podría lograrse con varios modelos de gama media. MIT Technology Review, 1,

Ernesto Aroche Aguilar. (2018). Diario mueren en México 32 personas en accidentes viales. Animal Político.

OBJECTIVES

GENERAL OBJECTIVE:

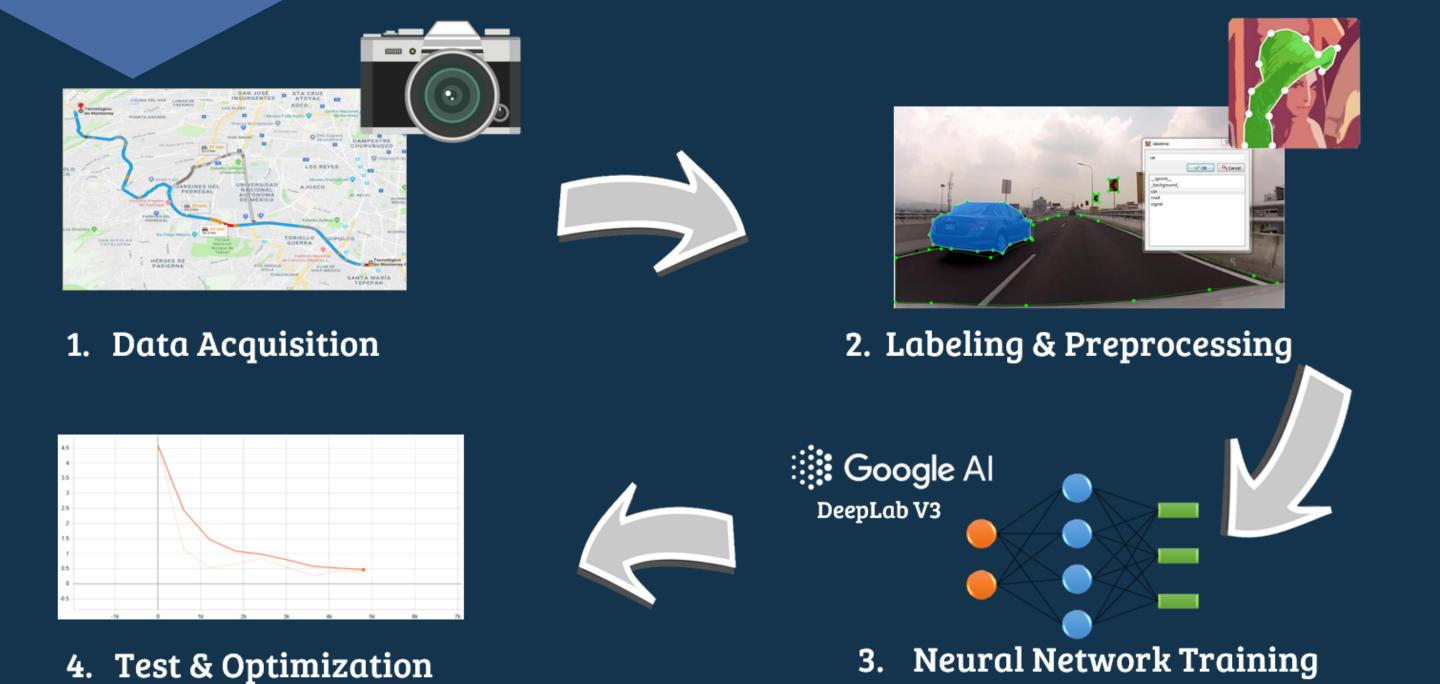
Use neural networks for computer vision in order to segmentate cars, lanes and signs on a mexican highway.

SPECIFIC OBJECTIVES:

- Generate own dataset
- Label 3 objects for training
- Train a Neural Network with own dataset in order to do semantic segmentation of interest objects

3. Marzo 2019, De MIT TR Base de datos.

DEVELOPMENT



10U = 0.9257**Training**

Dataset

results



Loss Graph



CONCLUSION

A good semantic segmentation was achieved on images of a Mexican highway.

The networks' parameters were succesfully optimized for our database.

An improvement of 20% IoU was achieved over last semester's work. 0.9257 VS 0.7168

Results

FUTURE WORKS

- Increase database
- Improve processing capacity
- Training on more labels
- Evaluate model with real- time tests
- Control actuators

