Deep Learning from Scratch

Session #0: Greetings!

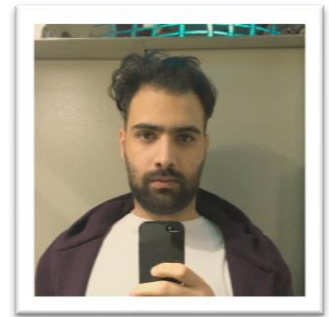**by: Ali Tourani – Summer 2021**

About the Instructor

Ali Tourani

▶ Software Engineer, Developer, Lecturer

▶ Graduate MSc Software Engineering

❤️ Interested in Computer Vision and Deep Learning

▶ Where to find me:

    ▶ E-mail: a.tourani1991@gmail.com

About the Instructor - Backgrounds

Deep learning-based applications in Intelligent Transportation Systems

▶ Iranis Dataset (Farsi License Plate Characters - 2021)

  ▶ Sponsored by Guilan Science and Technology Park Business Incubator

Category	Label (class name)	Character	# of Instances
Number	0	0	2501
Number	1	1	3495
Number	2	2	3930
Number	3	3	2745
Number	4	4	5774
Number	5	5	3610
Number	6	6	5753
Number	7	7	3736
Number	8	8	3583
Number	9	9	3528

Available on GitHub, Kaggle, Data.World
(https://github.com/alitourani/Iranis-dataset)

About the Instructor - Backgrounds

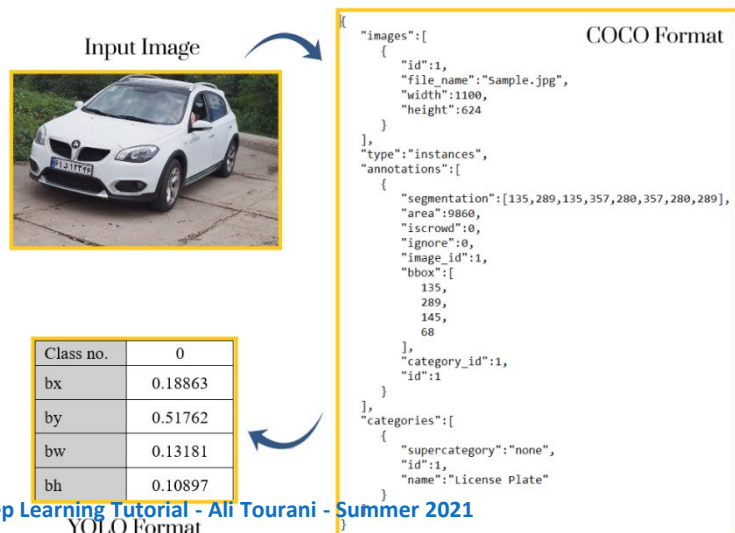**Deep learning-based applications in Intelligent Transportation Systems**

▶ Automatic License Plate Detection and Farsi Character Recognition (2020-2021)

  ▶ Published version available on **IEEE** *Access* (**DOI**)
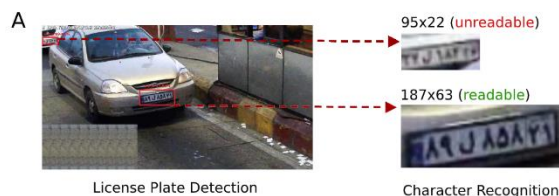
About the Instructor - Backgrounds

Deep learning-based applications in Intelligent Transportation Systems

▶ Iranian License Plate Detection (2019-2020)

　▶ Sponsored by Guilan Science and Technology Park Business Incubator

　▶ Published version available on Springer Lecture Notes in Computer Science (**DOI**)

Available on GitHub
(https://github.com/alitourani/yolo-license-plate-detection)

About the Instructor - Backgrounds

Deep learning-based applications in Intelligent Transportation Systems

▶ Vehicle Detection (2019-2020)

  ▶ Sponsored by Guilan Science and Technology Park Business Incubator

  ▶ Published version available on IEEE Xplore (**DOI**)

Available on GitHub
(https://github.com/alitourani/deep-learning-vehicle-detection)
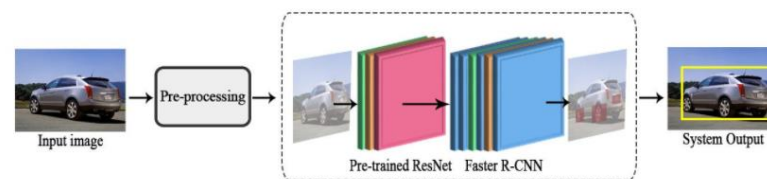
# About the Instructor - **Backgrounds**

Master of Science Thesis

▶ Motion-based Vehicle Speed Measurement

Motion-based Vehicle Speed Measurement

This project is a vehicle speed measurement application for video-based Intelligent Transportation Systems (ITS). These systems utilize roadway camera outputs to apply video processing techniques and extract the desired information, which is instantaneous vehicle speed in this particular case. This approach can estimate the vehicles' speed by their motion features (if a correct calibration is provided). Thus, by analyzing each vehicle's motion parameters inside a pre-defined Region of Interest (ROI), the amount of displacement in sequential frames is provided, which is an essential parameter for calculating instantaneous speed.

⚠ Note: This repository contains the implementation source code for Master's thesis with the same name.
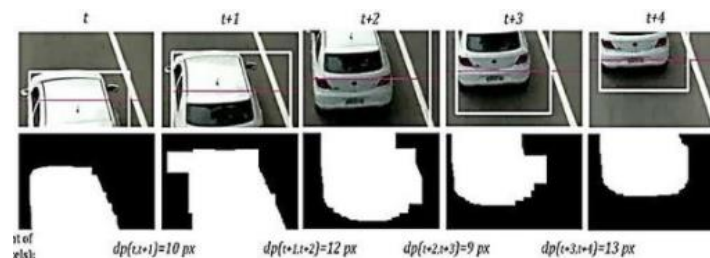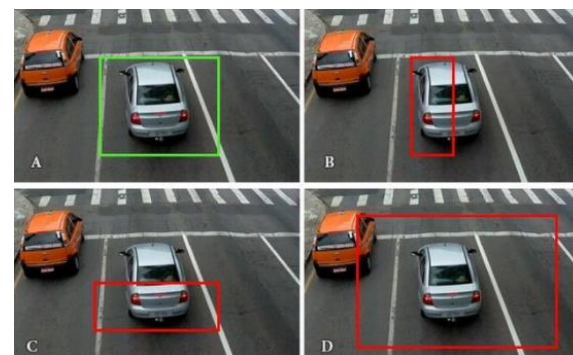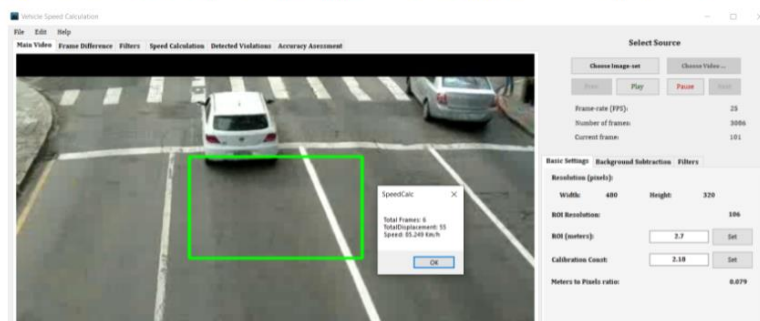
Thesis source-code available on **https://github.com/alitourani/vehicle-speed-measurement**

About the Course

We are going to:

▶ Learn fundamental concepts of Deep Learning

▶ Implement some Python codes

▶ Work on basic projects and progress to more advanced ones

    ▶ Share the codes on **GitHub** (if you don't have an account, create one!)

▶ Publish the outcomes on high quality venues

▶ Make a curated **TEAM**

Questions?