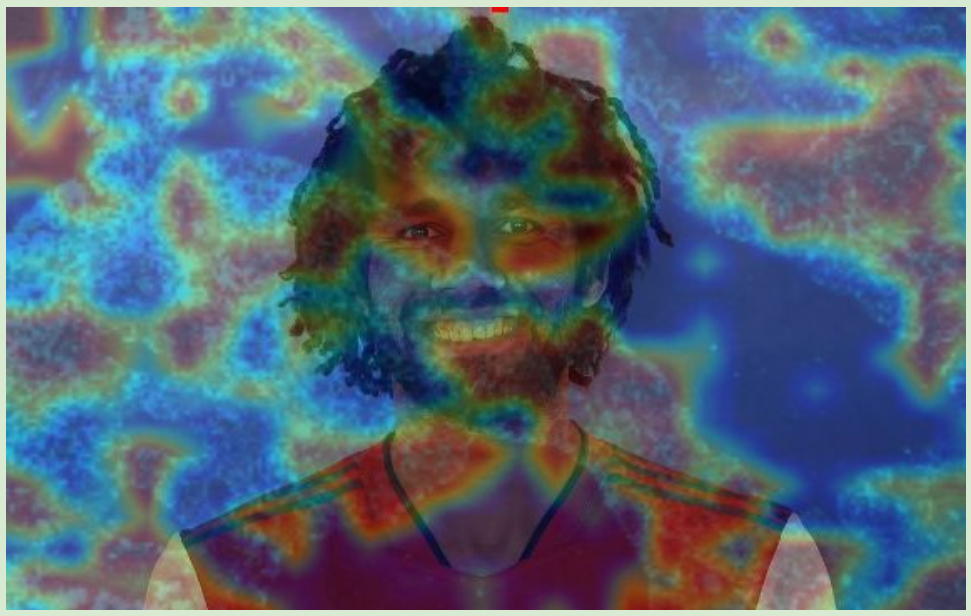
[1] Ciga, O., Xu, T. and Martel, A.L., 2022. Self supervised contrastive learning for digital histopathology. Machine Learning with Applications, 7, p.100198.
[2] Selvaraju, R.R., Cogswell, M., Das, A., Vedantam, R., Parikh, D. and Batra, D., 2017. Grad-cam: Visual explanations from deep networks via gradient-based localization. In Proceedings of the IEEE international conference on computer vision (pp. 618-626).



Vikramaditya Chhapwale
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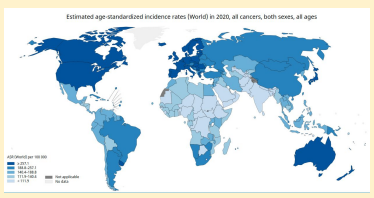
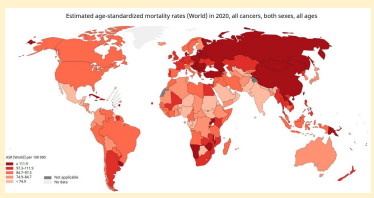
ORLian:

A novel method to help predict survival from HPV-induced oral cancer, by training an artificial intelligence model with anonymised patient pathology data and other histological data

Introduction

While people still are worrying about waves of Covid-19 cases, tsunamis of cancer cases globally are worrying.





Total incidence 2020 est Total mortality

Ear Nose and Throat (ENT) cancers caused by Human Papilloma virus (HPV) spread as a sexually transmitted disease, and we need better tools to prevent mortality in patients & database access for open science.

Artificial intelligence may help.

Methods

Histological sections from biopsies were used to train the El-nAI-ny model, based on a pre-trained Res-Net*, then visualized using GRAD-CAM **

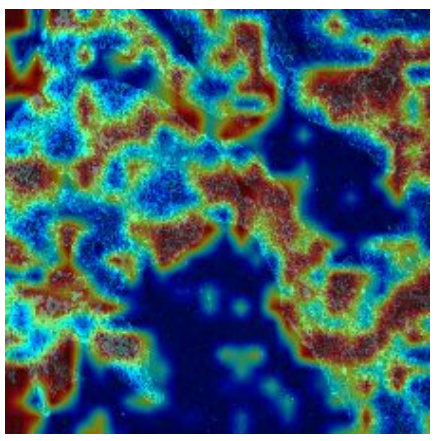
Training was done using data stored on Dataiku and generated images were compared back against image stack analyses

Results

Current Score on Macro: 5.766

Model outperforms many publicly available models such as ResNet

Can capture cellular structure in images better than original baselines



GRAD-CAM visualisation

Future Prospects

- Model optimization and explainability
- More clinical data
- Model deployment
- Clinical trials also in light of possibilities for vaccination now

Acknowledgements

JOGL Epidemium 3 ORL/IA challenge

Incidence and mortality maps from https://gco.iarc.fr/