

Machine Learning per la classificazione di referti anatomopatologici in testo libero

AI for Health and Medicine

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UNIVERSITÀ
DEGLI STUDI
FIRENZE



ISPRO
Istituto per lo studio, la prevenzione
e la rete oncologica



Ital-IA
ITALIA INTELLIGENZA ARTIFICIALE
ini National Lab **AIIS**



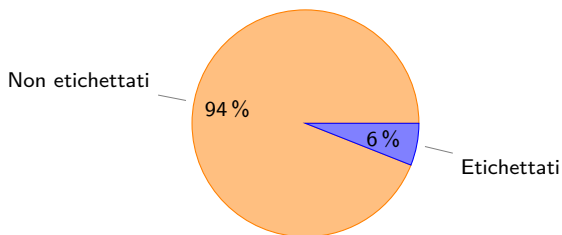
18 marzo 2019

Registro Tumori della Toscana (RTT)

- ✓ Istituto per lo Studio, la Prevenzione e la Rete Oncologica (ISPRO)
- ✓ Raccoglie **referti** relativi a casi di tumore in Toscana
- ✓ Analisi di **incidenza**

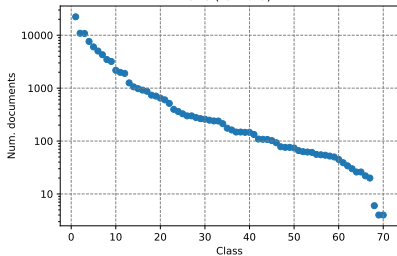


Dataset

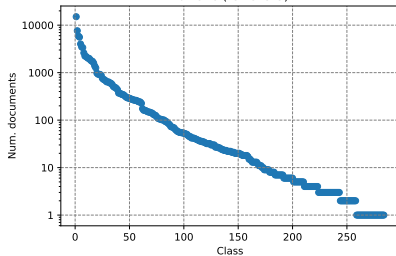


- ✓ Oltre **1 500 000** record di referti
- ✓ Quasi **100 000** di questi hanno diagnosi di **tumore**
 - ▶ Codici **ICD-O-3**
 - ▶ Sede, sottosede, istologia, comportamento

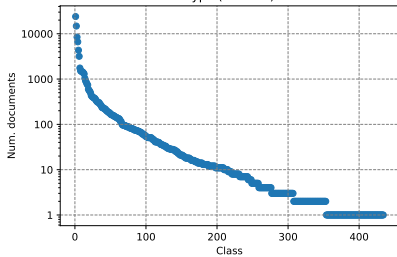
Site (ICD-O-3)



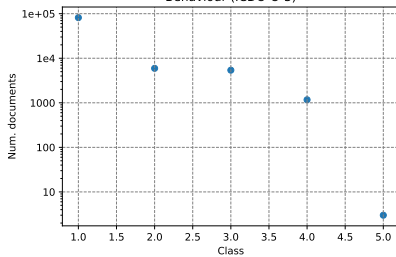
Full site (ICDO-O-3)



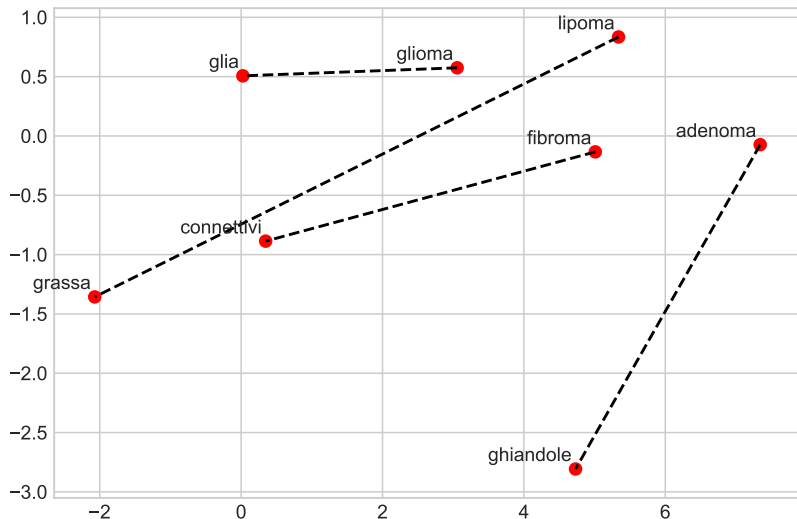
Type (ICD-O-3)



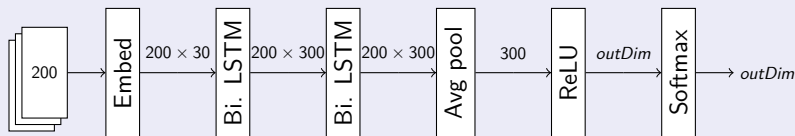
Behaviour (ICDO-O-3)



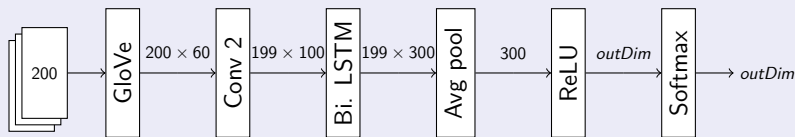
Word vectors - Global Vectors (GloVe)



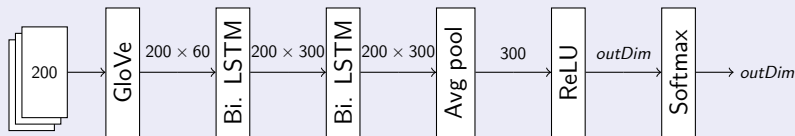
T2-2LSTM model



G-CLSTM model

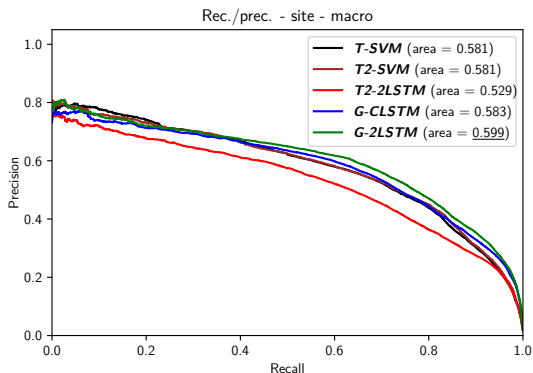


G-2LSTM model



Risultati

	Sede	Istologia
Acc. / F1 micro	90.5	84.9
Kappa score	89.3	83.0
F1 macro	58.4	55.5



Prospettive future

- ✓ **Velocizzare** recupero di casi di tumore
 - ▶ Calcolo **tempestivo** indicatori diagnostici e terapeutici
 - ▶ **Monitorare** percorso pazienti e SSN
- ✓ Estensione ad **altre realtà**
 - ▶ Altri **registri** tumore
 - ▶ **Strutture** sanitarie

The End.



Graxie!