

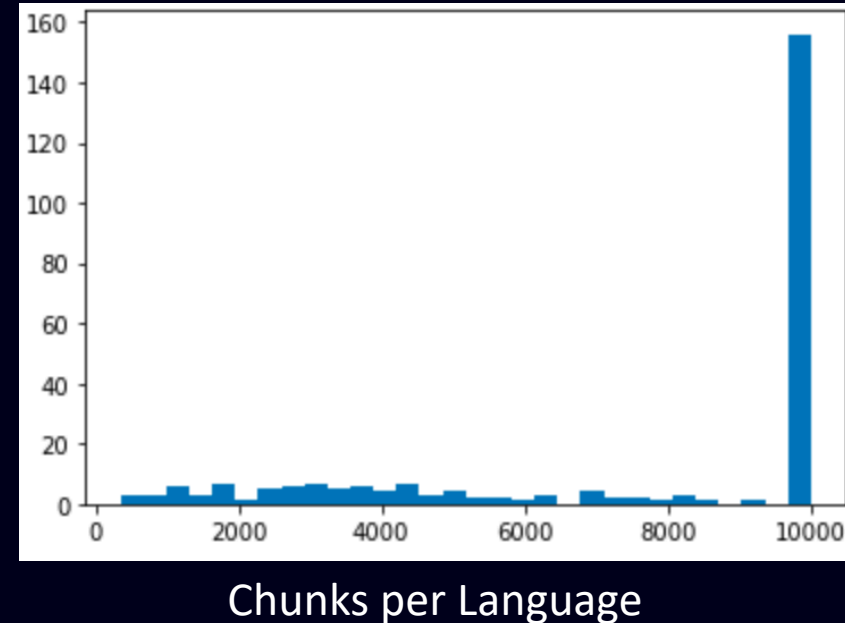
A world map where landmasses are outlined and filled with a dense pattern of small, glowing yellow and white dots, representing city lights or population density. The background is a dark, deep blue, suggesting a night sky or a dark ocean. The text is centered over the map.

Automatic Language Identification and Relatedness Mapping

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Dataset

- 248 languages' Wikipedia article texts
- Cleaning: Remove punctuation, non-text characters
- Result: Random 500-character “chunks”



Acknowledgement: Compute resources from University of Pittsburgh

Center for Research Computing (CRC) offered through LING 1340 coursework

Classification, Clustering

Language Identification

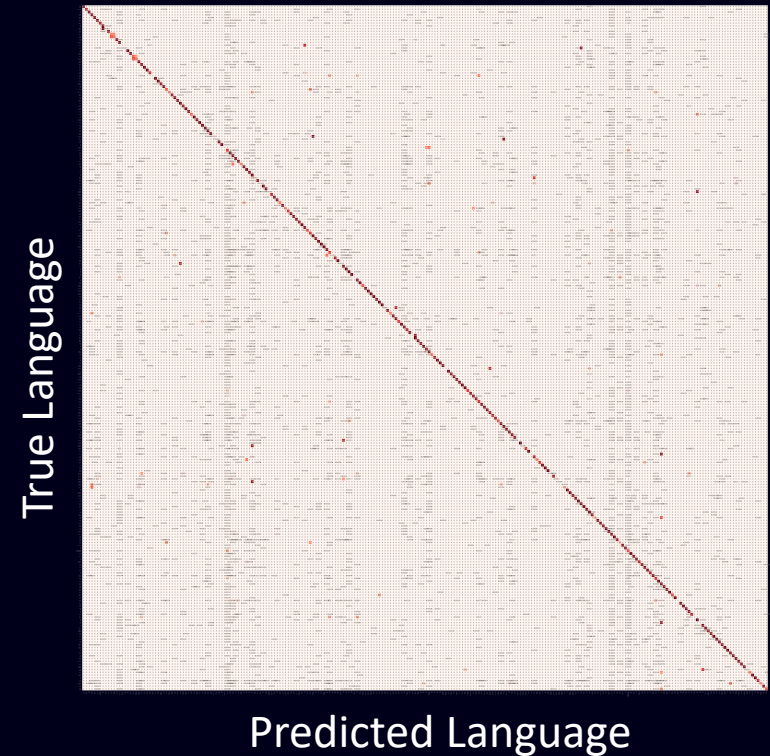
- Naïve Bayes on character bigrams
- 90.6% accuracy

Mapping Relatedness

- k -means clustering, $k=150$

Future Work

- Anonymize writing systems
- Fine-tune Naïve Bayes, implement Convolutional Neural Net



Clusters

- Swahili, Tsonga, Xhosa, Chewa, Kinyarwanda (Bantu)
- French, Norman, Picard (Oïl)
- Persian, Gilaki, Mazanderani (Western Iranian)
- Central Bikol, Cebuano, Javanese, Pangasinan, Tagalog (Malayo-Polynesian),
Tok Pisin (English creole)
- Alemannic, Ripuarian, Pennsylvania German, Palatine German (High German)
- Romanian (Balkan Romance), Silesian (West Slavic), Kotava, Lojban (constructed)