Dialogical Fingerprinting

Prof. Chris Reed

Centre for Argument Technology
University of Dundee
Dundee, UK

www.arg.tech

Linguistic fingerprints

There are innumerable choices in language generation

Authors and speakers demonstrate regularities in the choices they make

The combinations of these regularities are as unique to an individual as a fingerprint

Author attribution

Techniques such as stylometrics are tried-and-tested means of identifying the authors of texts

Deep learning models have been demonstrated to outperform such simplistic approaches

More recent transformer models might be expected to do even better

Interaction

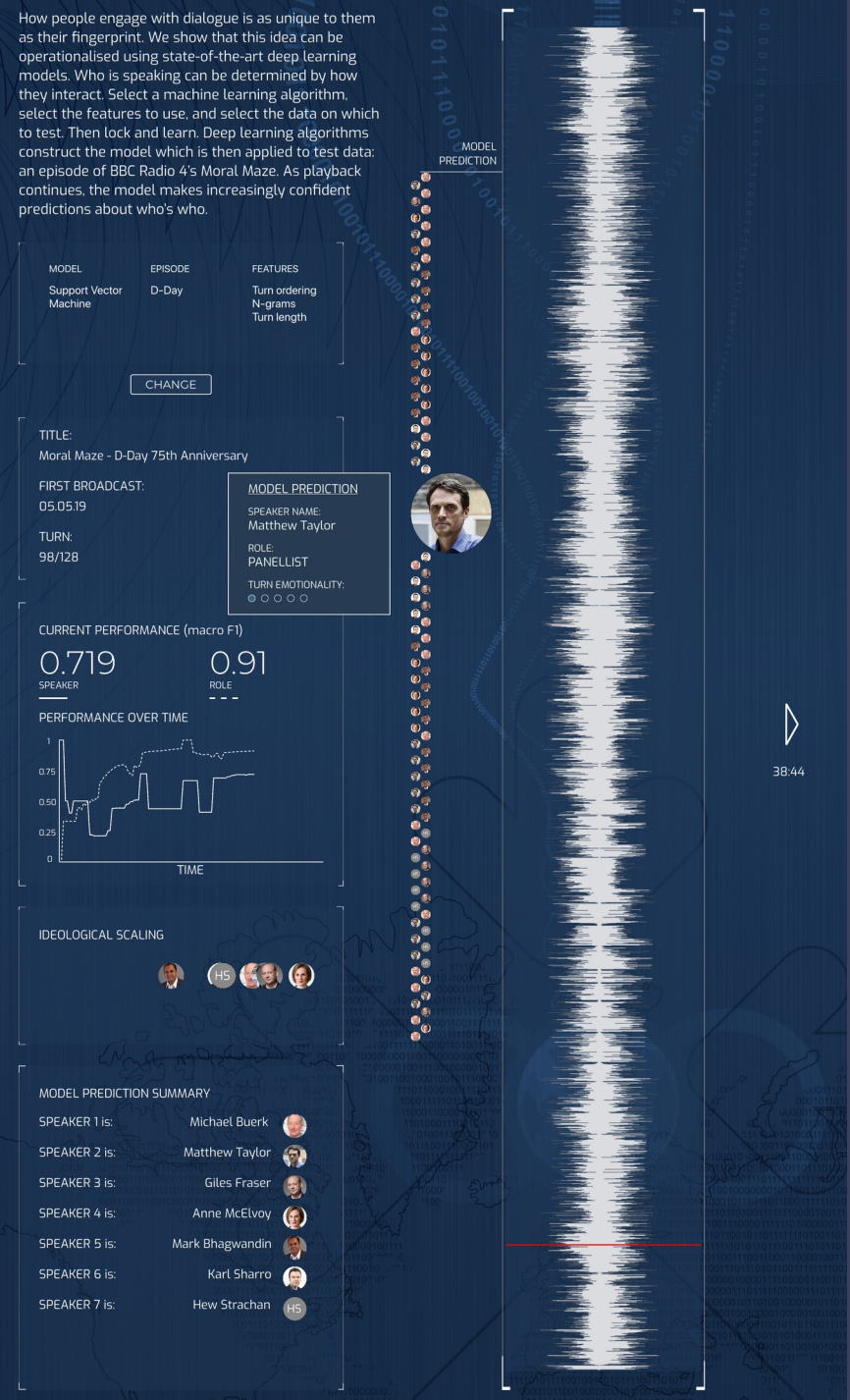
Discourse is often interactional. Social media, private chat, and face-to-face communication all follow rules of dialogue

It turns out that the ways in which a person engages in dialogue is also unique to that individual

This is the idea that underpins **dialogical fingerprinting**

DIALOGICAL FINGERPRINTING

How people engage with dialogue is as unique to them as their fingerprint. We show that this idea can be operationalised using state-of-the-art deep learning models. Who is speaking can be determined by how they interact. Select a machine learning algorithm, select the features to use, and select the data on which to test. Then lock and learn. Deep learning algorithms construct the model which is then applied to test data: an episode of BBC Radio 4's Moral Maze. As playback continues, the model makes increasingly confident predictions about who's who.



Dialogical Fingerprinting for the IC

Dialogical fingerprinting offers a new way to identify the sources of communication and could be put to work to help determine

- if tweets are originating from state actors
- which roles participants have in group chats
- whether different online comments are coming from a single source

Dialogical fingerprinting in practice

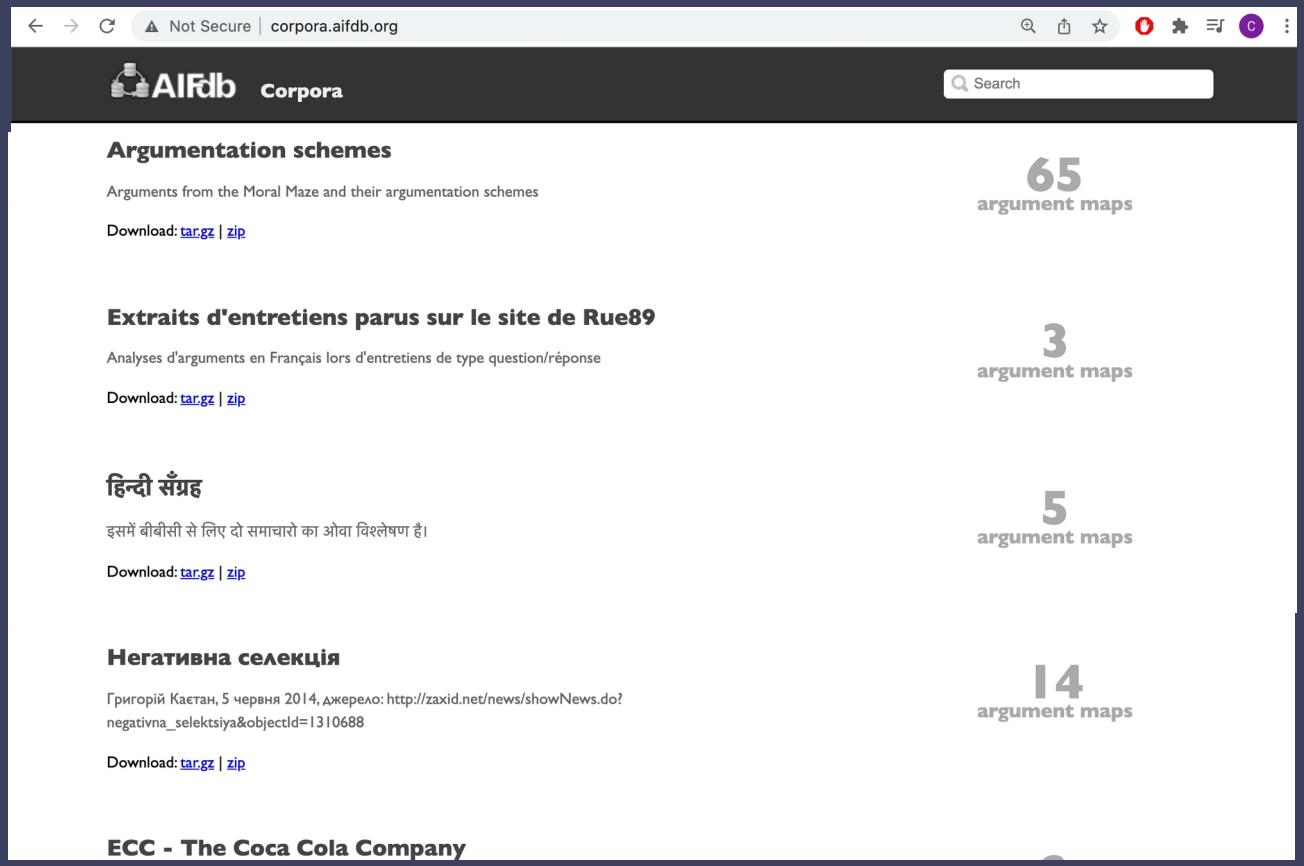
Demonstrator built under the UK Dstl Defence and Security Accelerator programme

Defence and Security Accelerator

Foulis, M., Visser, J. & Reed, C. (2020) "Dialogical Fingerprinting of Debaters" in Prakken, H., Bistarelli, S., Santini, F. & Taticchi, C. (eds) Proceedings of COMMA 2020, IOS Press, pp465-466.

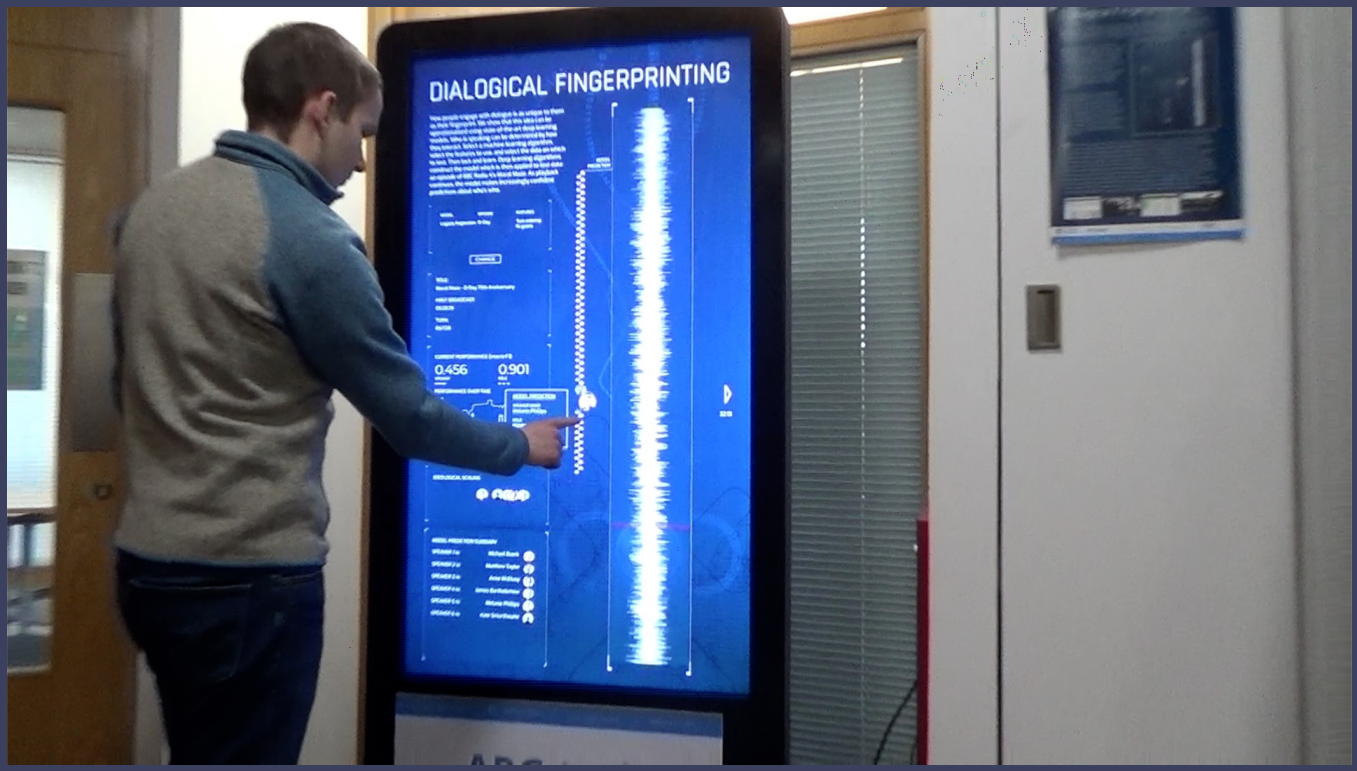
Foulis, M., Visser, J. & Reed, C. (2020) "Interactive Visualisation of Debater Identification and Characteristics" in Sperrle, F. et al. (eds) Proceedings of the ArgVis workshop on Argument Visualisation.

Data



The Centre for Argument Technology has the world's largest datasets of analysed argumentation and debate against which to test algorithms for dialogical fingerprinting

Find out more

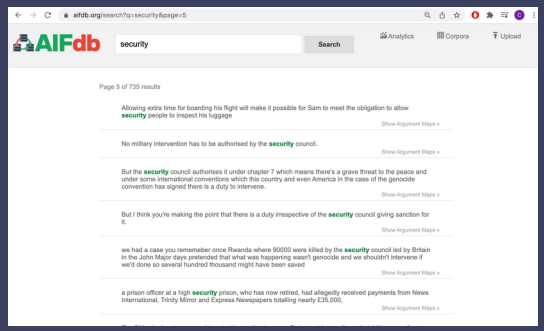


A video on our youtube channel discusses the dialogical fingerprinting demonstrator in more detail: www.youtube.com/c/Arg-techOrg

Concluding Remarks

Find out more at
www.arg.tech

Stephen Fry explains
argument technology
arg.tech/fry



Explore our datasets
at aifdb.org

chris@arg.tech

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