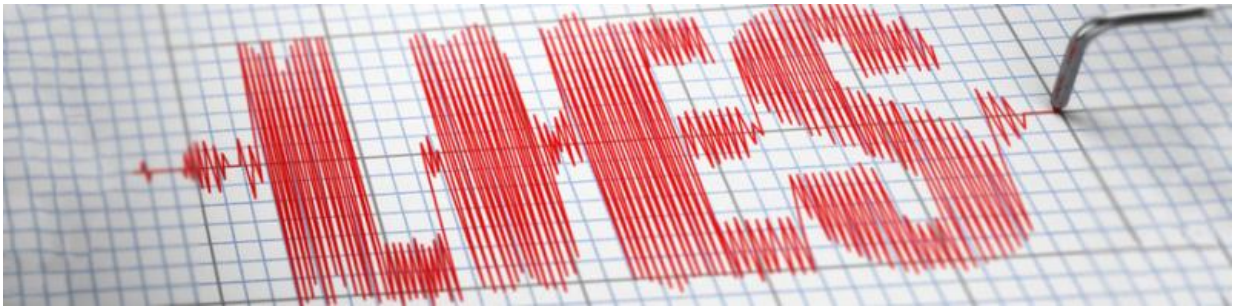# Cass academics design an algorithm that can detect lies in emails

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Credit: City University London

The algorithm works by identifying linguistic cues of deception found within a computer-mediated communication (CMC) system such as emails.

The team applied automated text analysis to an archive of emails to assess the ability of word use (micro-level), message development (macro-level), and intertextual exchange cues (meta-level) to detect the severity of deception being perpetrated within a business framework.

The full paper, 'Untangling a Web of Lies: Exploring Automated Detection of Deception in Computer-Mediated Communication' will be published in *Journal of Management Information Systems*.

Their findings indicate that:

- Deceitful e-mailers avoid the use of personal pronouns and superfluous descriptions such as unnecessary adjectives.
- Deceitful e-mailers over structure their arguments.
- Deceitful e-mailers minimise self-deprecation but include more flattery and pattern the linguistic style of the recipient across e-mail exchanges, because they want to make themselves appear more accommodating and likeable.

The algorithm's practical implications for business are wide-ranging. Organisations that rely on communicating and exchanging information and requests via CMC systems such as email can use the identified linguistic cues for deception and train managers to improve their intuitive skills for judging incoming e-mails.

Dr Tom van Laer, Senior Lecturer in Marketing at Cass Business School, said: "This research opens up the possibility of fraud prevention and deception detection technology across lots of in-person domains, not just e-mail. Our approach comes from big data - combining statistics with natural language processing patterns that tip us off to deception. Authorities and companies will now be able to figure out the plausibility of fraud and identify lying individuals."

Ko de Ruyter, Professor of Marketing at Cass Business School, said: "Everybody lies and most companies realise that the customer is not always right. In fact, customers can often be dishonest and it is costing companies a lot of money. Our lie detection software can help companies to assess whether their customers bend the truth in their favour and to decide whether they want to continue doing business with them."

While the research does not offer insight into how to deal with

deceivers, the software can help organisations streamline their investigations into fraudulent communications and modify their auditing processes for messages that have been automatically pre-classified as potentially severely deceitful.

Provided by City University London