New research shows AI dog personality algorithm could match you with your new 'best friend'

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A multi-disciplinary research team specializing in canine behavior and artificial intelligence has developed an AI algorithm that automates the

high-stakes process of evaluating potential working dogs' personalities. They hope to help dog training agencies more quickly and accurately assess which animals are likely to succeed long term in careers such as aiding law enforcement and assisting persons with disabilities.

The personality test could also be used for dog-human matchmaking, helping shelters with proper placement, thus reducing the number of animals returned for not being a good fit with their adoptive families.

The scientists, from the University of East London and University of Pennsylvania, conducted the research on behalf of Dogvatar, a Miami, Fla.-based canine technology startup. They announced the dog personality testing algorithm results in their paper, "An Artificial Intelligence Approach To Predicting Personality Types In Dogs," published in *Scientific Reports*.

The AI algorithm draws on data from nearly 8,000 responses to the widely used Canine Behavioral Assessment & Research Questionnaire (C-BARQ) to train itself. For over 20 years, the 100-question C-BARQ survey has been the gold standard for evaluating potential working dogs.

"C-BARQ is highly effective, but many of its questions are also subjective," said co-Principal Investigator James Serpell, a professor of ethics and animal welfare emeritus at the UPenn School of Veterinary Medicine. "By clustering data from thousands of surveys, we can adjust for outlying responses inherent to subjective survey questions in categories such as dog rivalry and stranger-directed fear."

The research team's experimental AI algorithm works in part by clustering the responses to C-BARQ questions into five main categories that ultimately shape the digital personality thumbprint a given dog receives.

These personality types have been identified and described based on analysis of the most influential attributes in each one of the five categories and they include: "excitable/attached," "anxious/fearful," "aloof/predatory," "reactive/assertive," and "calm/agreeable."

The data points that feed into those ultimate clusters include behavioral attributes such as "excitable when the doorbell rings," "aggression toward unfamiliar dogs visiting your home," and "chases or would chase birds given the opportunity."

Each attribute is given a "feature importance" value, which is essentially how much weight the attribute receives as the AI algorithm calculates a dog's personality score."It's rather remarkable—these clusters are very meaningful, very coherent," Serpell said.

Dogvatar and its collaborating researchers intend to conduct further research into potential applications for their dog personality testing algorithm.

"This has been a really exciting breakthrough for us," said Dogvatar CEO "Alpha Pack Leader" Piya Pettigrew. "This algorithm could greatly improve efficiency in the working dog training and placement process, and could help reduce the number of companion dogs brought back to shelters for not being compatible. It's a win for both dogs and the people they serve."

More information: Mohammad Hossein Amirhosseini et al, An artificial intelligence approach to predicting personality types in dogs, *Scientific Reports* (2024). DOI: 10.1038/s41598-024-52920-9

Provided by Dogvatar