**Author Contribution Statement**

L.Q. researched Meta’s segment anything model, and proposed a project with an autonomous vehicle which uses it. A.M. proposed the idea to test adversarial robustness of transformer models by attacking individual components. L.Q. then got the idea to use adversarial robustness to improve generalization in deep reinforcement learning, or potentially reduce the simulation to reality gap, by training and adversary that perturbs the inputs to the reinforcement learning agent.

**Examples of author contribution statements**

A.B. and B.C. conceived of the presented idea. A.B. developed the theory and performed the computations.

C.D. and D.E. verified the analytical methods. B.C. encouraged A.B. to investigate [a specific aspect] and

supervised the findings of this work. All authors discussed the results and contributed to the final manuscript.

A.B. and B.C. carried out the experiment. A.B. wrote the manuscript with support from C.D.. D.E. and E.F.

fabricated the XYZ sample. F.G. and G.H. helped supervise the project. G.H. and H.I. conceived the original

idea. H.I. supervised the project.

A.B. developed the theoretical formalism, performed the analytic calculations and performed the numerical

simulations. Both A.B and B.C. authors contributed to the final version of the manuscript. B.C. supervised the

project.

A.B., B.C., C.D., D.E., E.F., F.G., and G.H. conceived and planned the experiments. A.B., B.C., C.D. and D.E.

carried out the experiments. A.B., F.G. and E.F. planned and carried out the simulations. J.K., K.L., A.B., B.C.,

D.E., C.D., F.J., and F.G. contributed to sample preparation. A.B., B.C., C.D., D.E., FJ, E.F., F.G. and G.H.

contributed to the interpretation of the results. A.B. took the lead in writing the manuscript. All authors

provided critical feedback and helped shape the research, analysis and manuscript.

A.B. and B.C. designed the model and the computational framework and analysed the data. A.B. and C.D.

carried out the implementation. A.B. performed the calculations. A.B. and B.C. wrote the manuscript with

input from all authors. D.E. and E.F. conceived the study and were in charge of overall direction and planning.

A.B. designed and performed the experiments, derived the models and analysed the data. B.C. assisted with

XYZ measurements and C.D. helped carry out the XYZ simulations. A.B. and D.E. wrote the manuscript in

consultation with C.D., B.C. and E.F..

A.B. devised the project, the main conceptual ideas and proof outline. B.C. worked out almost all of the

technical details, and performed the numerical calculations for the suggested experiment. C.D. worked out the

bound for quantum mechanics, with help from D.E.. E.F. verified the numerical results of the xyz by an

independent implementation. F.G. and G.H. proposed the xyz experiment in discussions with A.B.. B.C., C.D.,

G.H. and A.B. wrote the manuscript.

A.B., B.C. and C.D. designed the study. A.B., D.E. and E.F. performed the xyz experiments. F.G. and G.H.

performed XYZ simulations. I.H. and M.C. expressed and purified all proteins. A.B., H.J.., B.C. and C.D. analysed

the data. A.B., B.C. and C.D. wrote the paper with input from all authors.

A.B. and B.C. designed and directed the project; C.D., D.E., A.B. and B.C. performed the experiments; C.D. and

B.C. analysed spectra; A.B. and E.F. made the simulations; B.C. developed the theoretical framework; C.D., A.B.

and B.C. wrote the article.

A.B., B.C. and C.D. performed the measurements, D.E. and E.F. were involved in planning and supervised the

work, A.B. and B.C. processed the experimental data, performed the analysis, drafted the manuscript and

designed the figures. F.G., and G.H. performed the xyz calculations. H.I., and I.J. manufactured the samples and

characterized them with xyz spectroscopy, J.K. performed the xyz characterization. K.L. aided in interpreting

the results and worked on the manuscript. All authors discussed the results and commented on the

manuscript.

A.B., B.C., C.D. and D.E. contributed to the design and implementation of the research, to the analysis of the

results and to the writing of the manuscript.