Moths spoofing against bats can be used as adversarial attacks against autonomous vehicles

- Yoshiyasu Takefuji, Professor, Keio University

(23 July 2018)

It is amazing that Moths can protect their lives by spoofing against bats (1). There are three kinds of adversarial attacks against autonomous vehicles (2,3,4,5): jamming (generating noise) causes "denial of service", spoofing (crafting fake ultrasonic echo pulses) causes altering distance, and quieting (diminishing original ultrasonic echoes) causes hiding obstacles. The discovered fact published in the paper (1) is equivalent to the second adversarial spoofing attack. In nature, quieting/jamming technology can be discovered in the near future?

References:

1. Juliette J. Rubin et al., The evolution of anti-bat sensory illusions in moths, Science Advances 04 Jul 2018: Vol. 4, no. 7, eaar7428
2. Y. Takefuji, http://science.sciencemag.org/content/361/6399/215/tab-e-letters
3. Y. Takefuji, http://science.sciencemag.org/content/361/6397/36/tab-e-letters
4. Y. Takefuji, "Connected vehicle security vulnerabilities", IEEE Technology and Society, pp15-18, March 2018
5. Y. Takefuji, http://science.sciencemag.org/content/358/6369/1370/tab-e-letters