# Convolutional Neural Networks: Epic Fails

Laura E. Boucheron

College of Engineering | Klipsch School of Electrical & Computer Engineering


BE BOLD. Shape the Future.

**Nguyen, A., Yosinski, J., & Clune, J. (2015). Deep neural networks are easily fooled: High confidence predictions for unrecognizable images. In *Proceedings of the IEEE conference on computer vision and pattern recognition* (pp. 427-436).**

Penguin (99.99%)

Electric Guitar (98.90%)



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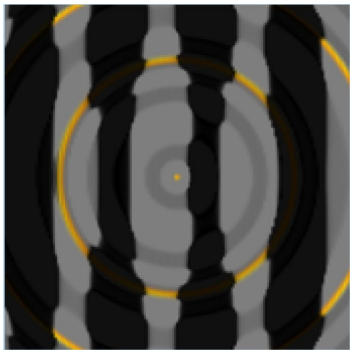

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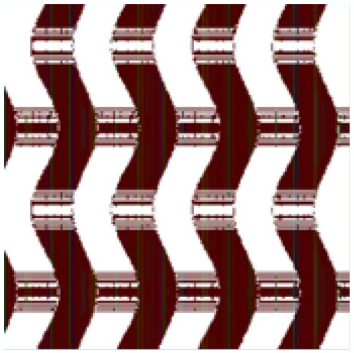

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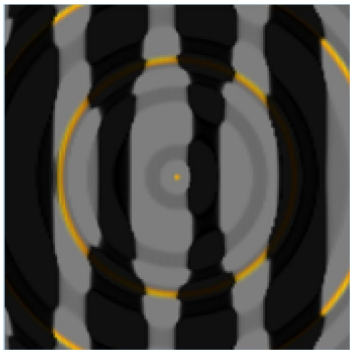

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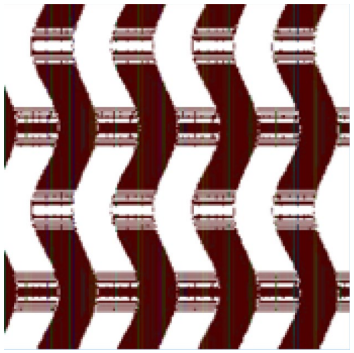

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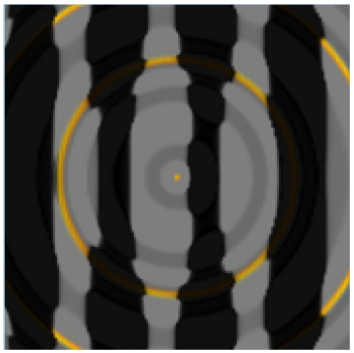

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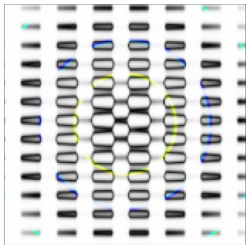
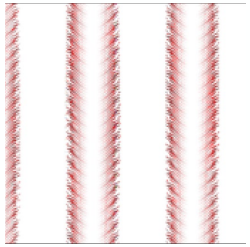
Other >99.5% confidence predictions:

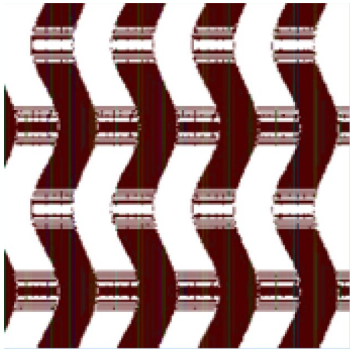


Remote control



Baseball

Electric Guitar (98.90%)



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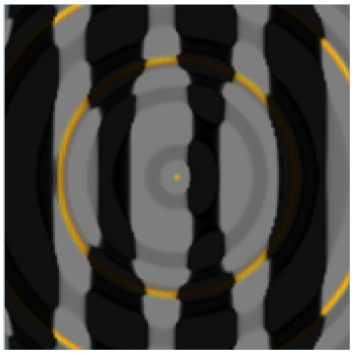

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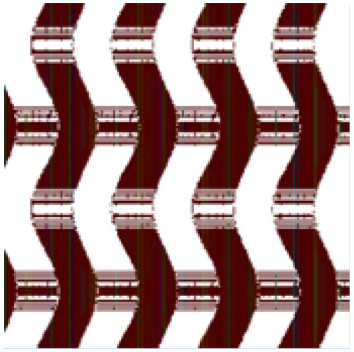

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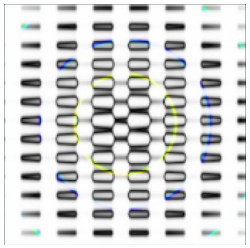

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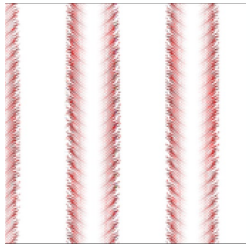
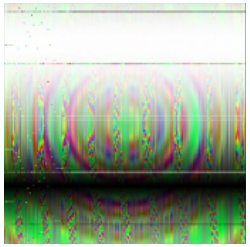
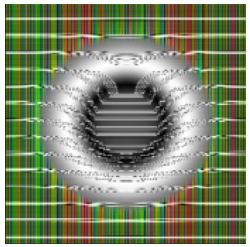


Baseball



Freight car



African grey



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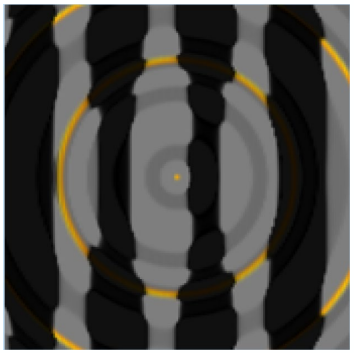

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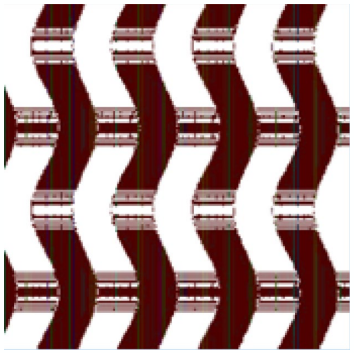

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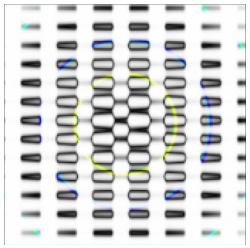

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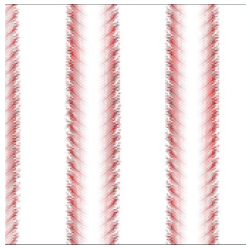
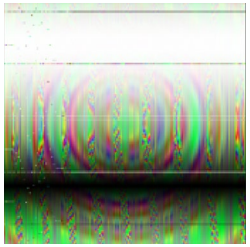
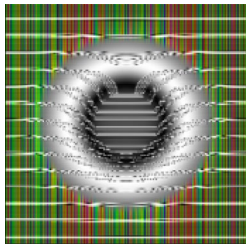


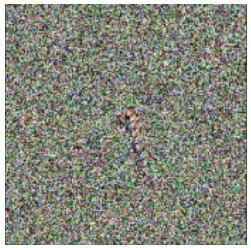
Baseball



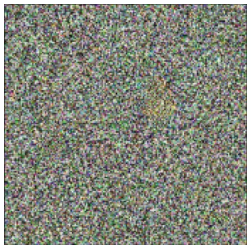
Freight car



African grey



Cheetah



Jackfruit



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School Bus



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Ostrich



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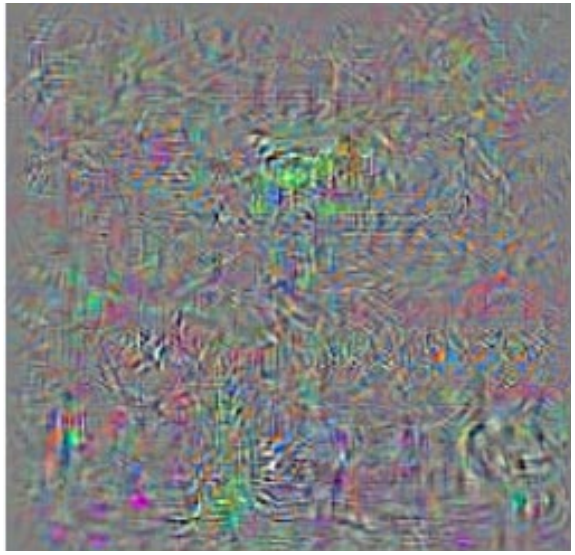

Perturbation


Ostrich



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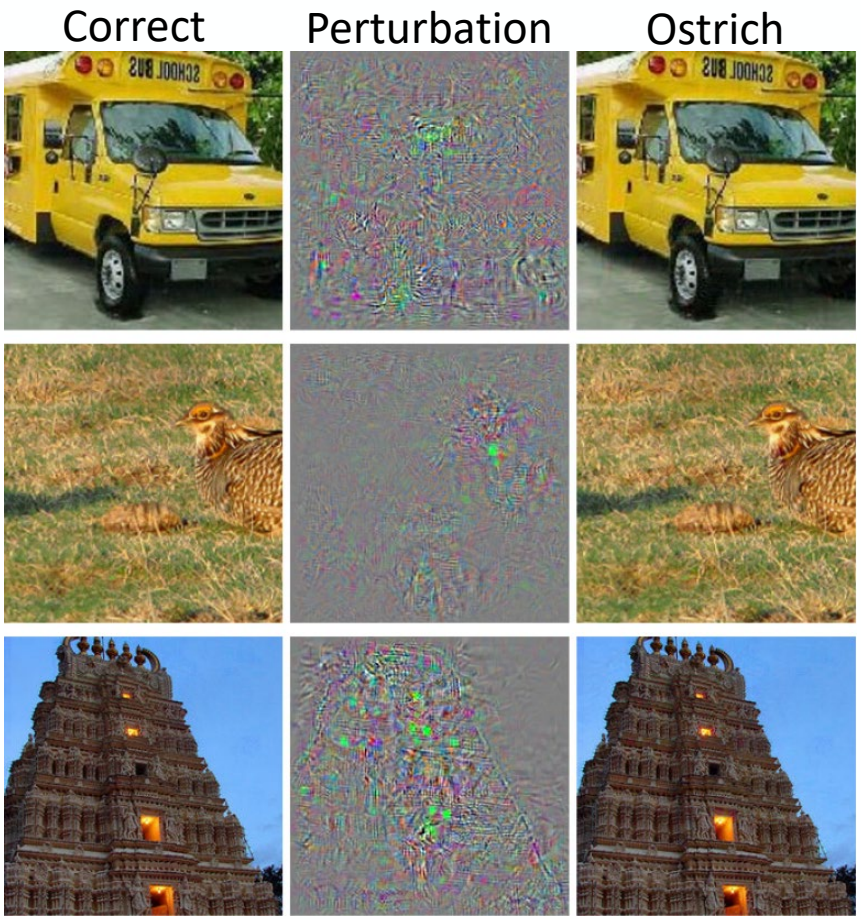


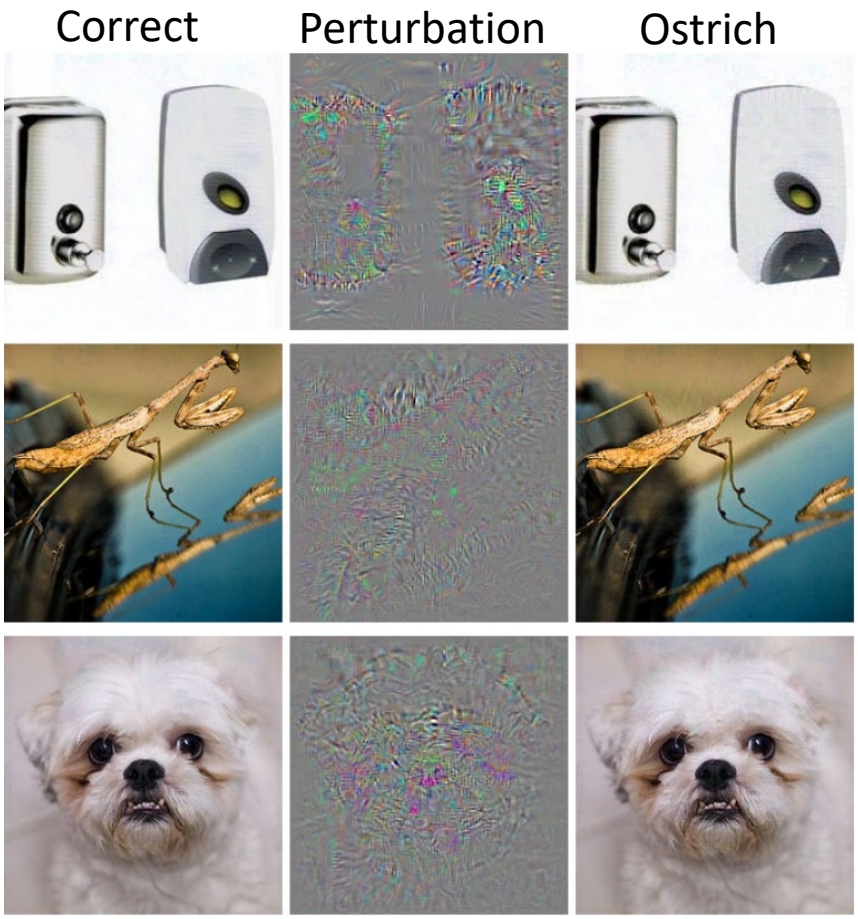




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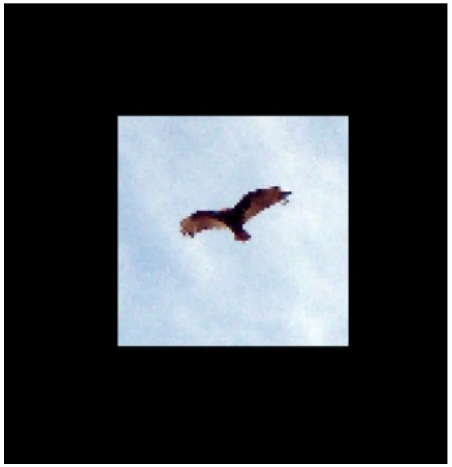
revolver



vulture



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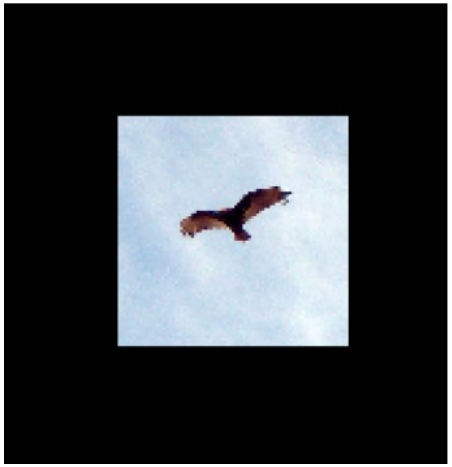

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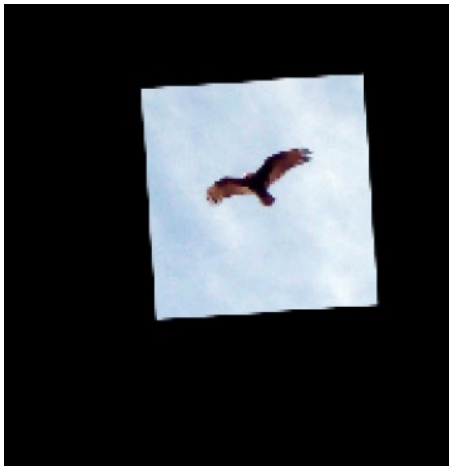



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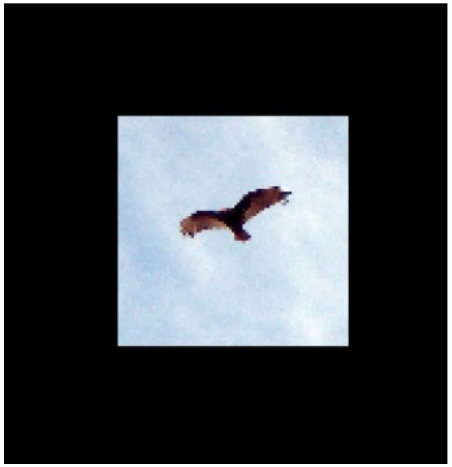
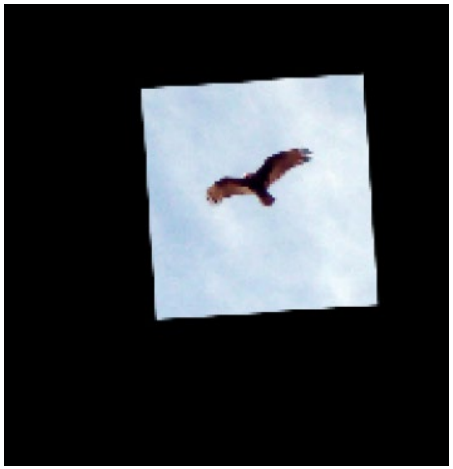


vulture


mousetrap



orangutan



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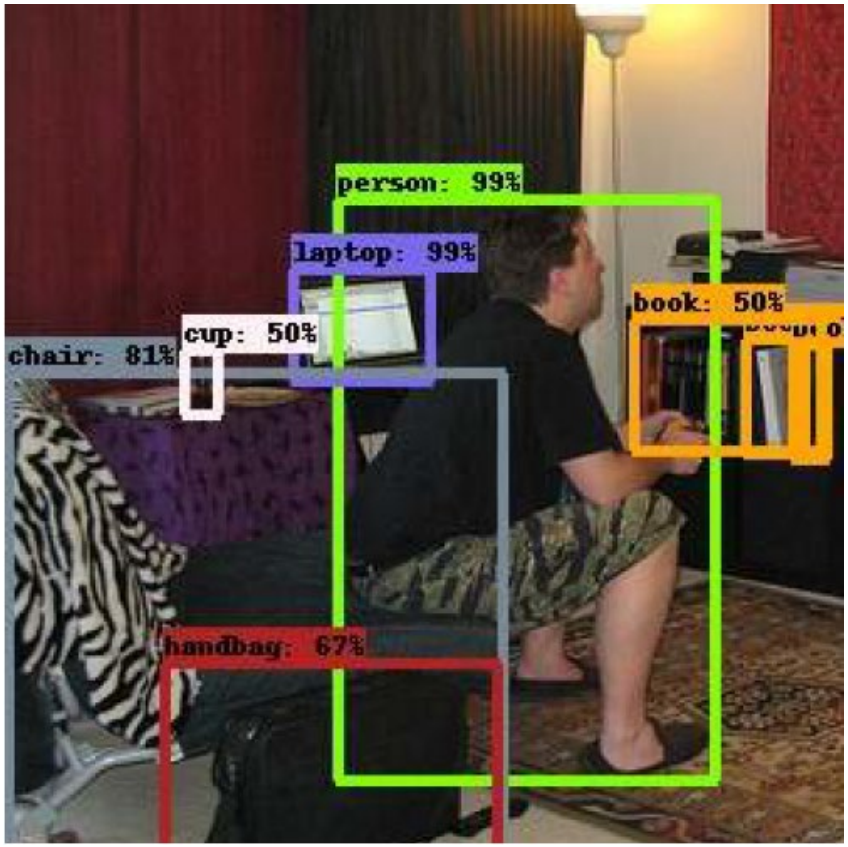




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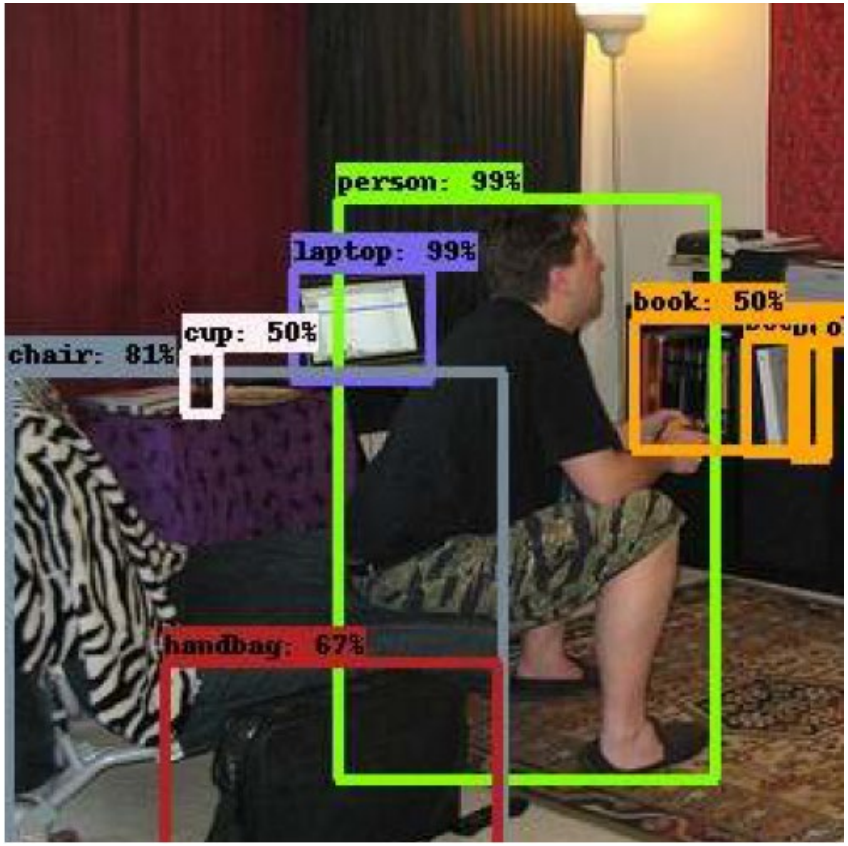


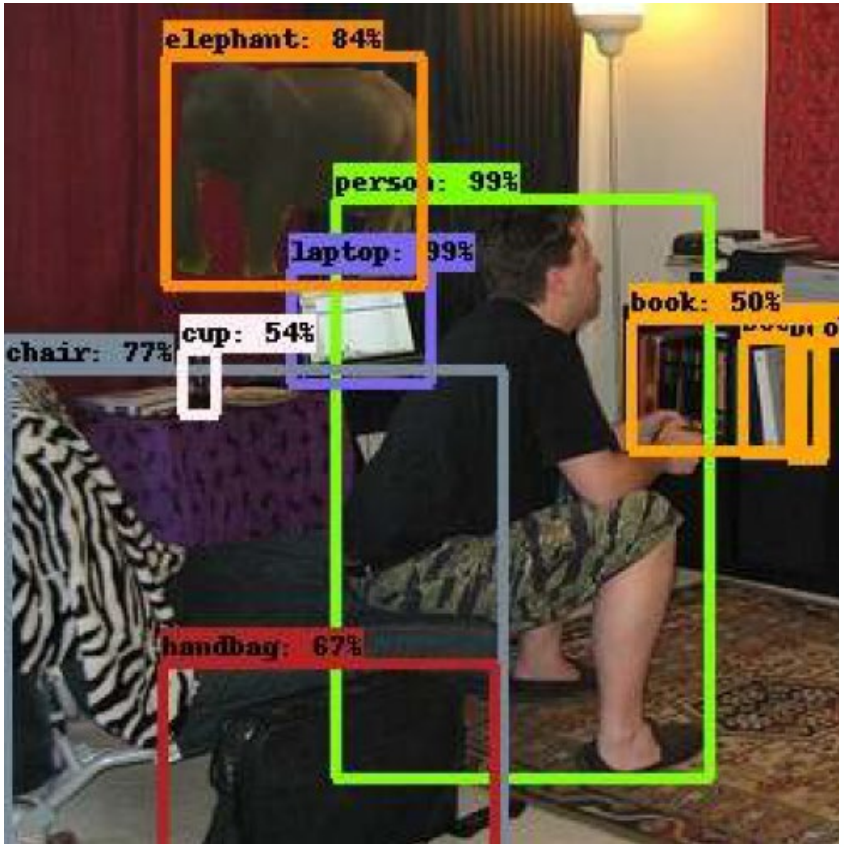




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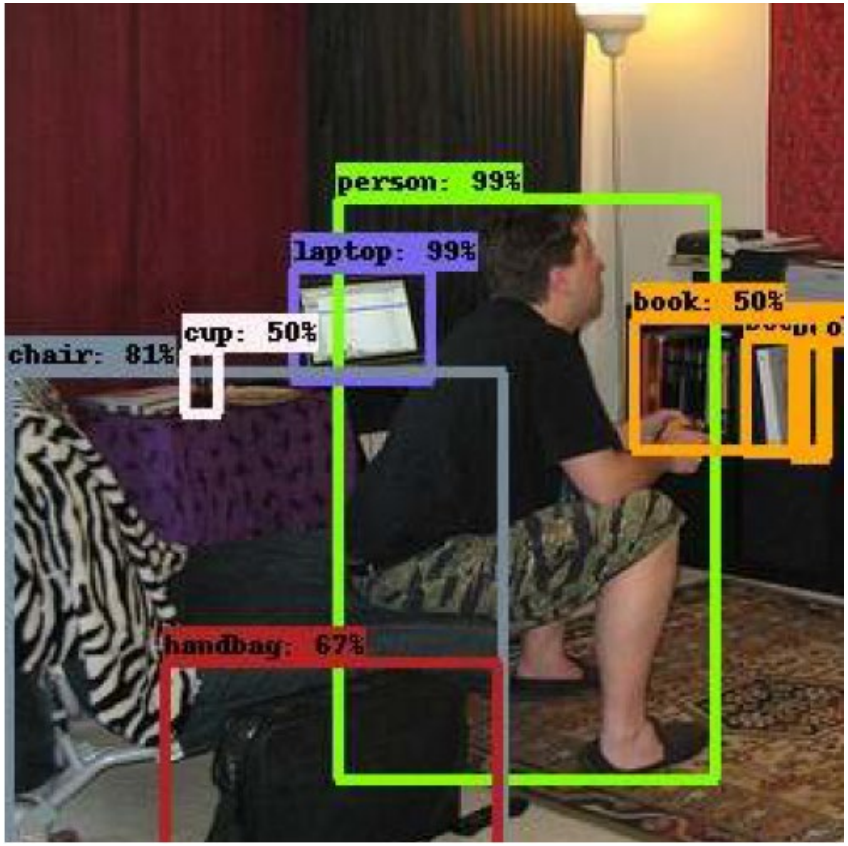


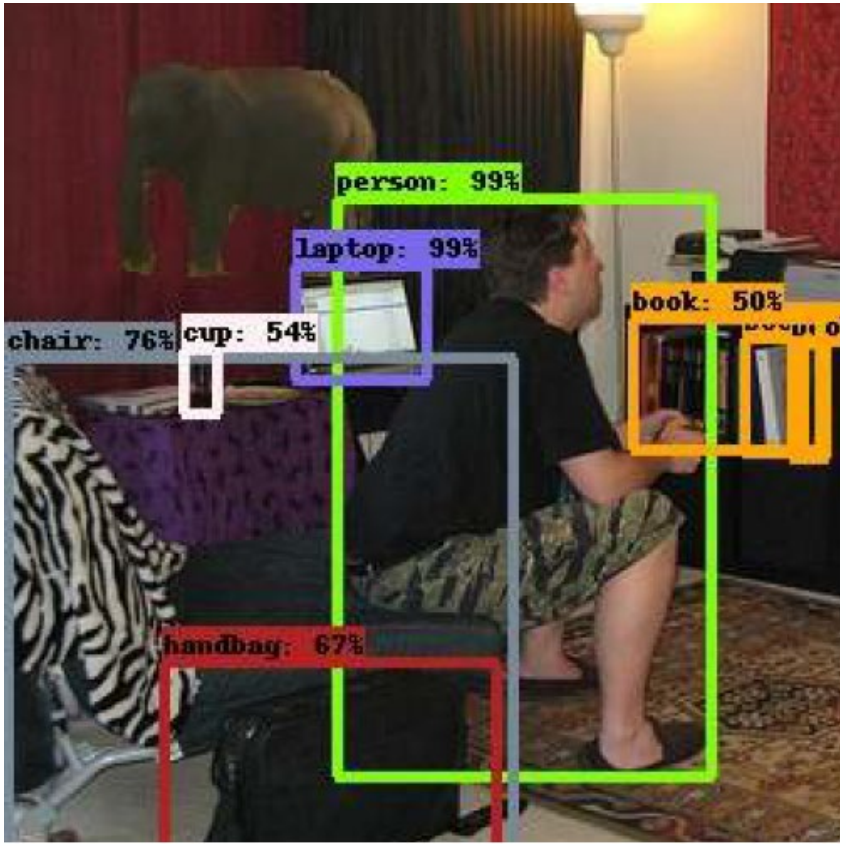




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