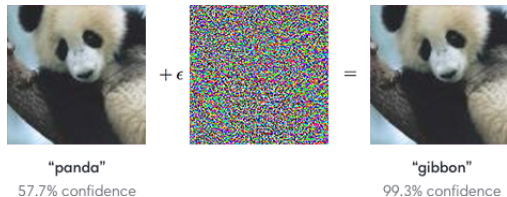


Chapter 9: (Need for) Sanity

The Paradox of Deep Learning

Why does deep learning work so well despite

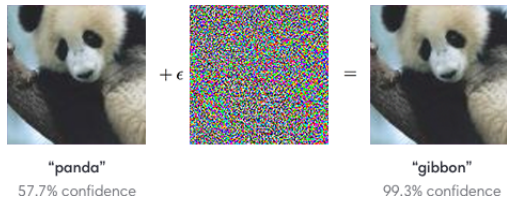


^a<https://arxiv.org/pdf/1710.05468.pdf>

The Paradox of Deep Learning

Why does deep learning work so well despite

- high capacity (susceptible to overfitting)

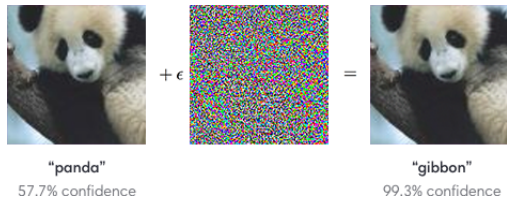


^a<https://arxiv.org/pdf/1710.05468.pdf>

The Paradox of Deep Learning

Why does deep learning work so well despite

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- numerical instability (vanishing/exploding gradients)

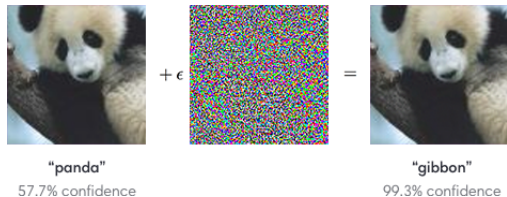


^a<https://arxiv.org/pdf/1710.05468.pdf>

The Paradox of Deep Learning

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- numerical instability (vanishing/exploding gradients)
- sharp minima (leading to overfitting)

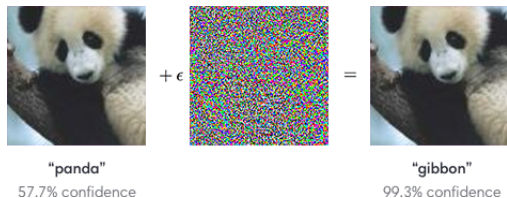


^a<https://arxiv.org/pdf/1710.05468.pdf>

The Paradox of Deep Learning

Why does deep learning work so well despite

- high capacity (susceptible to overfitting)
- numerical instability (vanishing/exploding gradients)
- sharp minima (leading to overfitting)
- non-robustness (see figure)



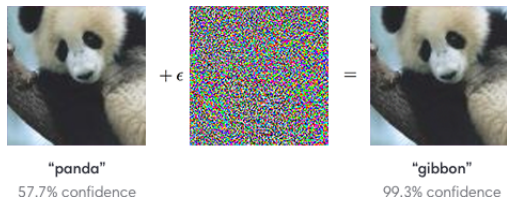
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The Paradox of Deep Learning

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No clear answers yet but ...



^a<https://arxiv.org/pdf/1710.05468.pdf>

The Paradox of Deep Learning

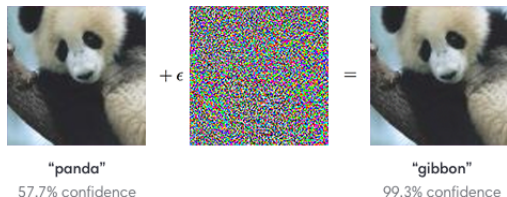
Why does deep learning work so well despite

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- non-robustness (see figure)

No clear answers yet but ...

- Slowly but steadily there is increasing emphasis on explainability and theoretical justifications! ^a

^a<https://arxiv.org/pdf/1710.05468.pdf>



The Paradox of Deep Learning

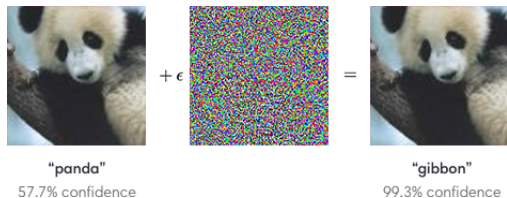
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- non-robustness (see figure)

No clear answers yet but ...

- Slowly but steadily there is increasing emphasis on explainability and theoretical justifications! ^a
- Hopefully this will bring sanity to the proceedings !

^a<https://arxiv.org/pdf/1710.05468.pdf>



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