# Twitter Thread by Alexey Grigorev



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**The toughest data science interview I ever had**

**I got bombarded for 45 minutes with theoretical questions:**

**■ Entropy**
**■ KL divergence, other divergences**
**■ Kolmogorov complexity**
**■ Jacobian and Hessian**
**■ Linear independence**
**■ Determinant**

**Continued ■**

■ Eigenvalues and Eigenvectors
■ SVD
■ The norm of a vector
■ Independent random variables
■ Expectation and variance
■ Central limit theorem

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■ Gradient descent and SGD
■ Other optimization methods
■ The dimension of gradient and hessian for a neural net with 1k params
■ What is SVM
■ Linear vs non-linear SVM
■ Quadratic optimization

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- What to do when a neural net overfits
- What is autoencoder
- How to train an RNN
- How decision trees work
- Random forest and GBM
- How to use random forest on data with 30k features
- Favorite ML algorithm - tell about it in details

That was tough!