# AN ATTEMPT TO EXPLAIN DOUBLE DESCENT IN MODERN MACHINE LEARNING

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We aim to explain mathematically, why the so called double descent observed by Belkin et al. in the article *Reconciling modern machine-learning practice and the classical bias-variance trade-off*, PNAS 116(32) (2019), p. 15849-15854, occurs on the way from the classical approximation regime of machine learning to the modern interpolation regime. We argue that this phenomenon may be explained by a decomposition of the true error on unobserved data into empirical error, complexity of the predictor and nearly constant variances. Further, in case of normally distributed output errors, we apply this decomposition to explain, why LASSO often provides reliable predictors avoiding overfitting.