

ESR and katz

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Symbolic Regression algorithms learn analytic expressions which fit data accurately and in a highly interpretable manner. As such, these methods can be used to help uncover “physical laws” from data or provide simple and interpretable effective descriptions of complex, non-linear phenomena. In this talk I will present two codes aimed to address this task. The first, ESR, efficiently yet exhaustively searches through analytic expressions and selects the optimal fit using a novel information-theoretic criterion which balances accuracy with simplicity. The second, katz, builds on the model selection method used by ESR by constructing priors on functions using a language model. This method preferentially selections functions which contains combinations of operators which appear in previously seen equations, and thus aims to produce physically reasonable expressions.

Auteur principal: BARTLETT, Deaglan (Institut d’Astrophysique de Paris (CNRS & Sorbonne Université))

Orateur: BARTLETT, Deaglan (Institut d’Astrophysique de Paris (CNRS & Sorbonne Université))

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