

Static Analysis Based Validation of Floating-Point Programs Using Affine Arithmetic

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We will present our work on a static analysis of the consequence of rounding errors due to floating-point computations on the accuracy of the outputs of programs. We designed a model and a tool that bounds, for sets of inputs (typically intervals), the floating-point value and the errors due to rounding of all variables at the end of the program. We will in particular show how affine arithmetic is used to improve the accuracy of our analysis.