

SUPPORTING QUANTITATIVE LEARNING WITH AI: THE CASE OF THE NUMTUTOR PLATFORM FOR NUMERICAL METHODS

João Assaoka

UNIFESP

joao.assaoka@unifesp.br

Lucas Castelani Gouveia

UNIFESP

lucas.castelani@unifesp.br

Lucas Molinari

UNIFESP

l.molinari@unifesp.br

Luiz Leduino Salles-Neto

UNIFESP

luiz.leduino@unifesp.br

Thomas Pires Correia

UNIFESP

correia.thomas@unifesp.br

ABSTRACT

This paper presents the development of NumTutor, an educational web platform aimed at teaching Numerical Calculation. The application integrates three main components: (i) the interactive implementation of classical numerical methods (such as bisection, Newton, and secant), accompanied by dynamic visualizations that allow the student to observe the convergence process step by step; (ii) explanatory and didactic content to theoretically support each algorithm; and (iii) a chatbot that serves as a virtual tutor, answering concept questions in natural language. The platform proves to be a promising tool to complement classes, enhancing autonomous learning in Numerical Calculation.

KEYWORDS. Numerical Methods, Applied Artificial Intelligence, Interactive Learning Environments.

Paper topics. AI – OR and AI, OA – Other Applications in OR.