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Mathematical visualizations in undergraduate research projects

Over several decades, a common theme has emerged in the undergraduate research projects I have supervised: the visualization of mathematical ideas via easy-to-use computational tools. The projects cover a diverse set of topics such as algebraic curves, self-similarity of operator spectra, mapping properties of analytic functions, and more. This talk will discuss the lessons learned in supervising students on such projects, including how to make “hard math” accessible and how to navigate rapidly evolving computing environments. Examples will include developing calculus without the use of limits.

Some recent work can be seen here: www.mlamoureux.ca