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Thomas Haslwanter* (thomas.haslwanter@fh-ooe.at). *Bringing quaternions to the people - a 177 year challenge.*

In my research and teaching, I have been facing a constant challenge to explain quaternions to my students and research colleagues, who typically have a background in engineering and not in mathematics.

Over the last few years I have come up with a set of simple rules and tools that I have been using to make quaternions more "palatable" to users, and to allow them to work with rotations, even if they don't understand all the mathematical details. While those rules and tools don't provide any new insight to quaternions, I believe that my experiences may be helpful to other "quaterniologists" for teaching and presentations. Since most students have a very hard time visualizing rotations in rotated coordinate systems, those rules try to keep each individual step as simple as possible, and allow the user to find a correct solution algorithm even if they cannot visualize the bigger picture.

To facilitate the development of real world applications, I have also created a Python package, called "scikit-kinematics", which should allow users to get going with quaternions as quickly as possible, without getting bogged down with numerical implementation problems. (Received September 10, 2020)