Our search for convex pentagons admitting tilings of the plane presented several computational challenges, including problems of computational scale, algorithm implementation on a computing cluster, and analysis of the output. We will discuss how we approached these issues. Further, we are confronted with the challenge of disseminating the results of a massive computer search; how should the data be archived and presented? Lastly, we will discuss the media attention received by our discovery of a 15th type of pentagon and the challenges of communicating mathematical results to a lay audience through the fast-paced digital media. (Received September 23, 2015)