Tell us about yourself – how did you become interested in pharmaceutical engineering?
My work focuses on crystallization and developing general engineering methods and models that are applicable across a broad spectrum; pharmaceuticals happen to be one area where my work with organic crystal molecules and models can contribute significantly. We have many theories and opportunities for exciting discoveries and innovations in the pharma-field, much in the same way they can be applied to geology, fine chemicals, purification, or polymers.

Do you have an analogy or layperson’s way of describing your work?
As some molecules work better at drug delivery or absorption, predicting the shapes of crystals becomes crucial in drug development. One example I use is to compare a needle growth structure to a log jam.

Log jams on rivers used to occur because the long trees would get caught in the bends of a river and cause a dam. Similarly, needle growth structures can be caught in the blood vessels and delay drug absorption. This might be one reason why you would prefer a different growth structure.

Why or how is your area of research and discovery important for ordinary citizens?
My involvement with pharmaceutical technology and advancement means we can help contribute to providing better medicine and streamline production, which could lead to more accessible products. Instead of a more common trial and error method, we digitally hypothesize a crystal’s structure and predict the growth rate of the structure. We’re working to provide useful engineering tools to decrease the gap between discovery chemistry and the final product.

by Amy Chow