Flipping Physics Lecture Notes:

Drag Force Introduction
or
Do Your Feet Affect How Far You Slide on a Water Slide?
http://www.flippingphysics.com/water-slide.html

Which will cause me to slide farther on the Plunge Peak "Green Slide" at Rolling Hills Water Park[1], pointed feet or flat feet?

The question comes down to the drag force caused by my feet:
- The Drag Force is also called a Resistive Force.
- When caused by air, the Drag Force is also called Air Resistance.

$$F_D = \frac{1}{2}\rho v^2 DA$$

- The equation for the drag force is:
  - ρ is the density **of the medium the object is moving through.**
  - v is the velocity of the object.
  - D is the drag coefficient of the object.
  - A is the cross-sectional area of the object normal (or perpendicular) to the velocity.

Be careful to realize the density is the only variable in the equation which is for the medium the object is moving through. The other three variables have to do with the object itself.

The drag coefficient of the object is an experimentally determined value which has to do with the shape of the object and how the medium flows around the object. The more aerodynamic an object is, the smaller its drag coefficient.

The wooden cylinder shown in the video either has a small cross-sectional area equal to the area of the circle, or the larger cross-sectional area equal to the length times the width of the wooden cylinder. The cross-sectional area used depends on the direction of travel.

So, which foot position causes me to slide farther? The answer is the foot position with the smaller cross-sectional area or *pointed feet*.

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[1] https://www.washtenaw.org/607/Rolling-Hills-County-Park