Model of Peacock Tail Feather Based on Its Microscopic Structure

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Abstract: Feathers have different shapes, sizes, lengths, color, and patterns depending on species, age, gender and birds functions. Feathers consist of microscopic structures: Rachis, Barb, and Barbules. From an observation, the microscopic structures are related with each others and have effect on feather shape. In the ornithology field, a research on this observation has also been conducted but has not come to a clear conclusion yet.

This paper proposes a method for generating the peacock tail by converting a mathematical model based on their microscopic structure relations, which affect their skeleton shapes of Rachis and Barb. Then, Bezier curve is used to generate feather image. We demonstrate our model by the rendering of a variety of feathers.

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