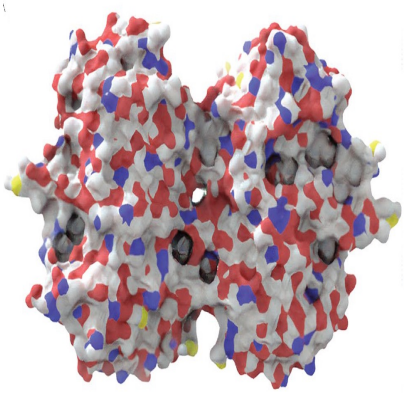
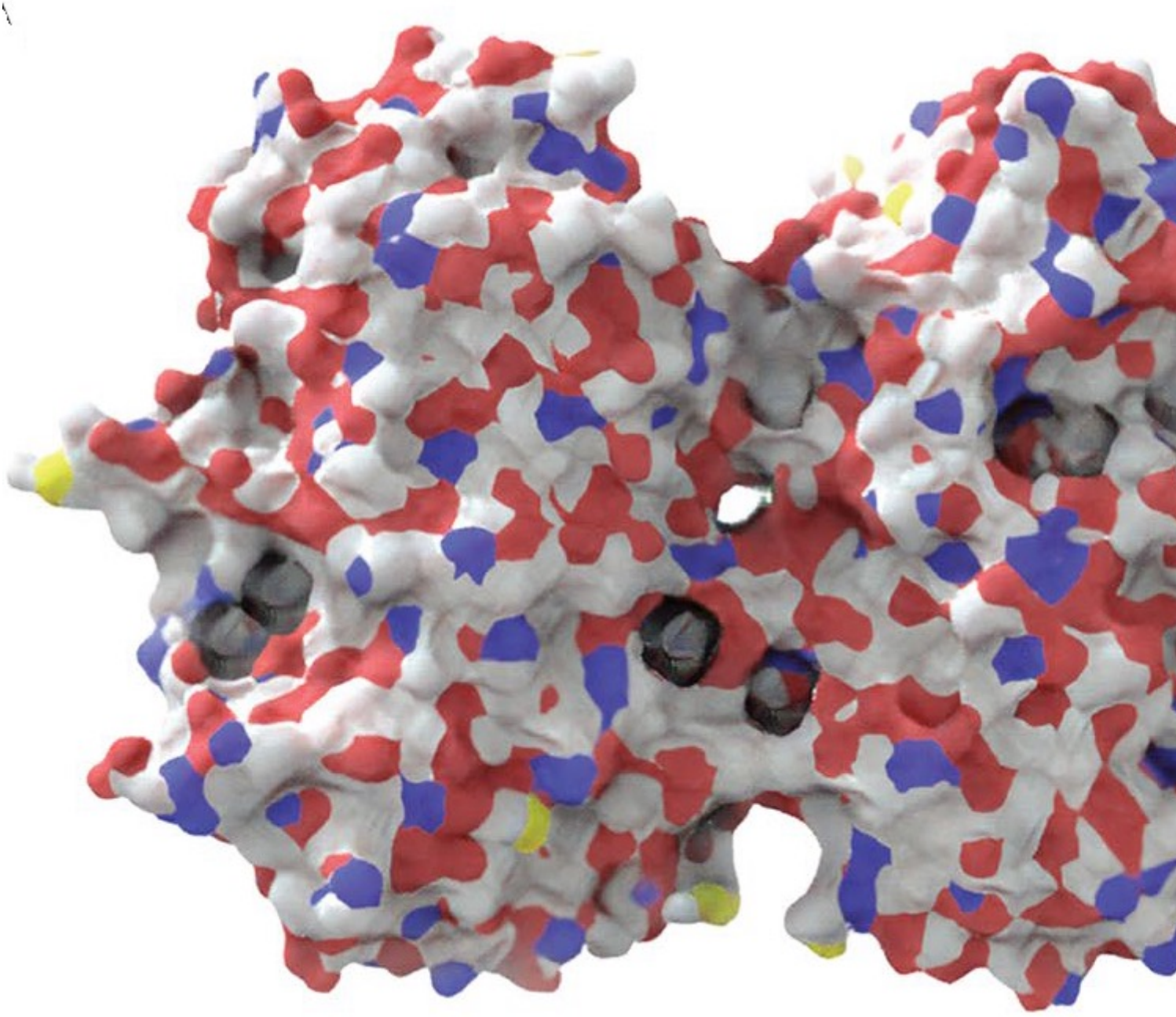


Prot2Prot: a deep learning model for rapid, photorealistic macromolecular visualization

Description

Molecular visualization is a cornerstone of structural biology, providing insights into the form and function of biomolecules that are difficult to achieve any other way. Scientific analysis, publication, education, and outreach often benefit from photorealistic molecular depictions using advanced computer-graphics programs. The article reports developing and applying a deep-learning model called Prot2Prot that quickly imitates photorealistic visualization styles, giving a much simpler, easy-to-generate molecular representation. The resulting images are often indistinguishable from images rendered using industry-standard 3D graphics programs. Still, they can be created in a fraction of the time, even when running in a web browser. Prot2Prot is the first example of image-to-image translation applied to macromolecular visualization.



Prot2Prot is available free of charge, released under the terms of the Apache License, Version 2.0. Users can access a Prot2Prot-powered web app without registration at http://durrantlab.com/prot2prot.

Category

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