Rosetta Commons

State-of-the-art software for macromolecular modeling & design

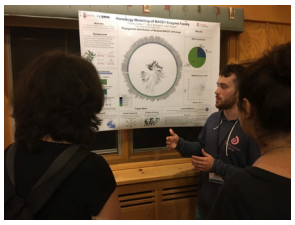
Rosetta Commons is a consortium of researchers who **develop software to understand, predict and design biomolecules** including proteins and nucleic acids.

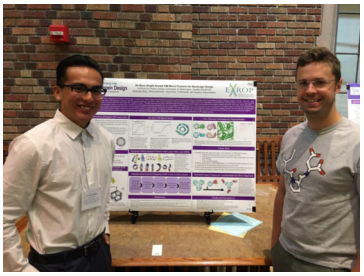
The Commons includes **over 300 developers from over 40 universities and labs worldwide** who contribute and share the Rosetta source code.

Since 1998, Rosetta web servers have run billions of structure prediction and protein design simulations, and billions or trillions more have been run on supercomputer clusters.

The Rosetta community goals:

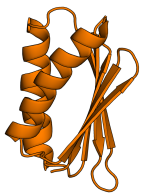
- Understand macromolecular interactions
- Design custom molecules
- Develop efficient ways to search conformation and sequence space
- Find broadly useful energy functions for various biomolecular representations
- Cure diseases and create new molecular technologies



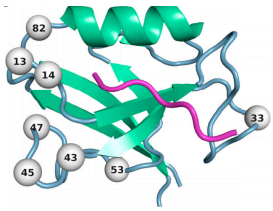


Rosetta is free for academic users and is licensed by major biotech firms and pharmaceutical companies with over 20,000 free licenses already in use worldwide. The Rosetta software has **enabled notable scientific advances** in computational biology, including:

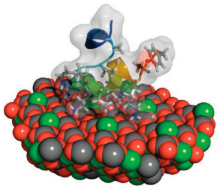
• *de novo* protein design • drug design • materials design •
• structure prediction of biological macromolecules and macromolecular complexes •



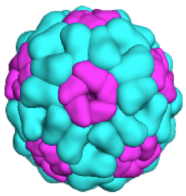
Top7, a *de novo* protein



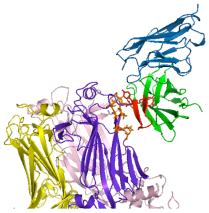
Redesign of binding target specificity



Design of peptide-driven biomineralization



Design of self-assembling protein cages



Prediction of antibody-virus binding sites

…by using advanced computational techniques like:

• optimization • object oriented programming • parallel computing •
• databases • machine-learning • collaborative coding •

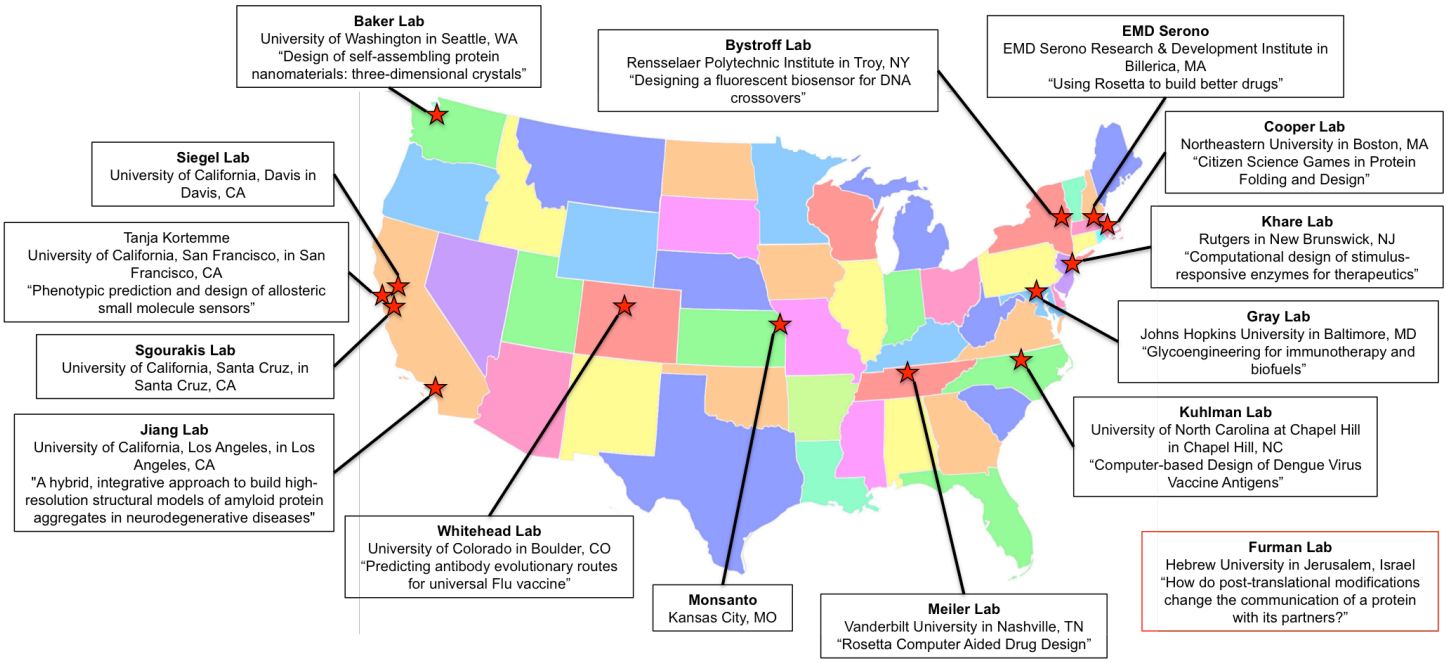
Rosetta@home
Protein Folding, Design, and Docking

foldit
Solve Puzzles for Science

PyRosetta
Interactive Molecular Modeling for Proteins

Rosetta Commons Summer 2019 REU Internships

*** Detailed application information at www.rosettacommons.org/about/intern ***



- **Attend a week long "boot camp" training session** to learn about the Rosetta software
- Spend **8 weeks in a leading Rosetta lab** participating in exciting research
- Train in biomolecular structure prediction, optimization, object oriented programming, parallel computing, databases, machine-learning, and collaborative coding
- Engage in weekly virtual journal clubs, writing and presentation training, and an on-site partnership with a local REU cohort
- Finish your REU by **attending the Rosetta Developers Conference in Seattle, WA**
- Receive **a stipend** and **housing and travel allowances,** funded by the NSF

We seek **sophomore or junior undergraduates** studying **computer science, engineering, chemistry or biology**.

Candidates should be available full-time for at least **10 weeks** during the summer of 2019 and have potential interest in graduate school.

U.S. citizens, permanent residents, and U.S. nationals are eligible to apply. Students from underrepresented racial/minority groups are encouraged to apply.

We are especially interested in candidates with some combination of experiences in scientific or academic research, C++/Python/*nix/databases, software engineering, object-oriented programming, and/or collaborative development (git).

For questions and/or to submit a resume, please email **intern@rosettacommons.org**
For the most updated list of available internships, visit **https://tinyurl.com/RosettaIntern**