# Yuan (John) Yao

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## EDUCATION

Stony Brook University, Stony Brook, NY                                                           Dec. 2014
**Ph.D.** Applied Mathematics & Statistics (Computational Biology)

Shandong University, Jinan, China.                                                               June 2010
**B.S.** School of Life Science (Microbiology)

## SKILLS

Computational Skills:

- Programming: C/C++, python, FORTRAN, B Shell script.
- Proficiency in Matlab and R.
- Experienced Linux OS and super computer cluster usage.
- Website design: HTML, CSS, SQL and limited JavaScript.
- Bio-molecular simulation and visualization programs: Gromacs, Amber, NAMD, VMD, Chimera.
- Structural molecular modeling, Network modeling and Bioinformatics (Bioconductor).

Biological Experiments:

- Basic Microbiology, Cytology and Physiology experimental skills.
- Basic Molecular cloning, Chromatography and Electrophoresis.
- Basic MALDI-TOF mass spectrometry experience.
- Basic Structural NMR.

## RESEARCH EXPERIENCE

Internship, Laufer Center, Stony Brook University, NY                          May. 2015 - present

- Study structural evolution and diversity of antibody V regions.
- Build antibody structural models with PIGS server.

Research Assistant, Dr. Jin Wang's group, Stony Brook University, NY          Sept. 2010-Dec. 2014

- Built all-atom structure-based model for regulatory protein dimers.
- Performed replica exchange sampling and weighted histogram analysis.
- Constructed structure clustering, visualization and 3D free energy landscapes.
- Analyzed diverse coupled binding-folding mechanisms in protein dimers.
- Calculated activation barrier in enzymatic reaction with QM/MM method.

Side projects:

- Discovered patterns in $CO_2$ induced DMRs of Arabidopsis (with Dr. Alison Liu).
- Modeled binding poses of peptide inhibitor/activator of RNA polymerase (with Dr. Paul Freimuth).
- Statistically studied codon pair bias along evolution (a class project).
- Practiced BioNetGen in Rule-based modeling of biochemical systems (a class project).

<u>Senior Year Internship,</u> Dr. Niu Huang's computational chemistry laboratory,
National Institute of Biological Sciences (NIBS), Beijing

July 2009-Feb. 2010

- Searched and collected data from PDB database for human disease related targets.
- Explored several biomedical databases (KEGG, DrugBank, PubChem, BioSystems).
- Experienced the environment of hierarchical virtual screening for drug discovery.

<u>Research Assistant,</u> State Key Laboratory of Microbiology, Jinan, China

July 2008-Sept. 2008

- Applied polyacrylamide gel electrophoresis (PAGE) to separate enzyme
  components in the fermentation of a filamentous fungus.
- Generated peptide mass fingerprint by MALDI-TOF mass spectrometry.

## TEACHING EXPERIENCE

<u>Course Instructor,</u>  Applied Calculus I (Enrolled: 119 undergraduates)

Aug. 2013-Dec. 2013

- Full semester lecturing: two 80 minutes lectures per week.
- Designed syllabus, supervised three TAs, created homework and examinations.

## PUBLICATIONS

**J. Yao** and J. Wang. Neither Two-State nor Three-State: Dimerization of Lambda Cro Repressor. J. Phys. Chem. Lett., 2015, 6, 2022–2026. (2015).

John Yao and Jin Wang. Diverse protein dimerization mechanisms study with all-atom structure based model. (pre-submission)

## ACTIVITIES AND HONORS

- Founder and 1st President of an interdisciplinary graduate student club
- XCHANGE COOP (http://www.xchangecoop.org/).

May-Dec. 2014

- Organized and instructed Matlab plotting mini-workshop (80 minutes, 48 attendants).

Oct. 31th, 2014

- Chief marketing person for a startup group Lunchea.com.

Aug. 2014 -Feb.2015

- Voluntary tennis coach for graduate students (weekly 2-hour lessons, 10 students).

June 6-July 25, 2015

## RELEVANT CLASSES

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|---|---|
| Algorithms in Bioinformatics | A |
| Numerical Methods and Algorithms in Computational Biology | A |
| Introduction to Systems Biology | A |
| Principles in Parallel Computing | A |

## HOBBIES

Ballroom dance, tennis, cycling, swimming; Handcrafting.