Naveen Arunachalam

293 S Holliston Ave., Pasadena, CA, 91106
512-774-5155 email: narunach@caltech.edu

EDUCATION:
California Institute of Technology, Pasadena, CA
Chemical Engineering, Expected June 2018
GPA: 4.1/4.3

HONORS AND AWARDS:
Gross-Lockheed Scholarship of $4,000 per year (2015-17)
Jorgensen Endowed Scholarship of $30,000 per year (2014-17)
Selected Member of the Tau Beta Pi Honor Society (2016)
National Merit Finalist (2014)
ACS Chemistry Olympiad Semifinalist – Top 147, National (2013)

FELLOWSHIPS: Marcella Bonsall Undergraduate Research Fellowship, 2016
Summer Undergraduate Research Fellowship, 2015

RESEARCH EXPERIENCE:

Research Assistant, Polymer dynamics, June 2016-Present (PI: Dr. Thomas Miller)

- Created software tools to analyze ion-polymer simulation data
- Increased time efficiency of mean-squared displacement analysis by 50% and created new tools for dihedral angle characterization.
- Performed simulations and characterized conductivity of polyethylene oxide at varying concentrations of $LiPF_6$.

Research Assistant, Protein structure determination, June 2015 – December 2015 (PI: Dr. William Goddard)

- Collaborated in multidisciplinary team to study the energetics of ligand binding in human olfactory receptors.
- Coded *GPCR Prediction Suite*, increasing time efficiency of structure determination by 40%.

PUBLICATIONS:

Arunachalam N., Webb M., Savoie B., Miller T.F. (2016). "Effect of Lithium Solvation on Local Dihedral Structure of Polyethylene Oxide". *Manuscript in preparation*.

Arunachalam N., Kim S.K., Goddard W.A. (2015). "Computational Prediction of Interactions Between β-Ionone and hOR5A1-6". *Caltech Undergraduate Research Journal*, *17*(1): 13-21. Print.

Miritescu C.A., **Arunachalam N.**, Wei N., Faison M. (2013). "Orbit Determination of Asteroid 1999 KX4". Manuscript, Summer Science Program, New Mexico Institute of Mining and Technology.

PRESENTATIONS:

Arunachalam N., Webb M., Savoie B., Miller T.F. (2016). "Characterization of Li^+ Solvation in PEO: A Computational Study of Ion-Polymer Interactions". Paper presented at SURF Seminar Day at Caltech, Pasadena, CA.

Arunachalam N., Kim S.K., Goddard W.A. (2015). "Structure and Ligand Interactions of OR5A1-6". Paper presented at SURF Seminar Day at Caltech, Pasadena, CA.

TEACHING EXPERIENCE:

Teaching Assistant**,** General Chemistry (Ch 1b), Winter 2015-16

- Led weekly recitation sections (25 undergraduate students), held office hours
- Student evaluation of teaching effectiveness: 3.9/5.0

Teaching Assistant, Separation Processes (ChE 62), Fall 2016-17

- Developed code samples for students and custom tutorial website
- Led office hours and recitation section (15 undergraduate students)
- Student evaluation of teaching effectiveness: 4.0/5.0

AFFILIATIONS:

American Institute of Chemical Engineers, Caltech Chapter

- President, 2016 – present
- Secretary, 2015 – 2016

RESEARCH INTERESTS

Condensed phase molecular dynamics
Computational protein structure prediction
Electronic structure theory