

Christopher T. Lee, Ph.D.

Department of Molecular Biology
University of California San Diego
290E San Diego Supercomputer Center
9836 Hopkins Dr.
La Jolla, CA 92093


Email: ctlee@ucsd.edu
Phone: +1 (858) 534-4429
Web Page: ctlee.github.io
Google Scholar: [oMawRCAAAAAJ](https://scholar.google.com/citations?user=oMawRCAAAAAJ)
Orcid: [0000-0002-0670-2308](https://orcid.org/0000-0002-0670-2308)

: [@ctlee](https://twitter.com/ctlee)
: [@ctlee](https://github.com/ctlee)
: [@ctleeresearch](https://www.linkedin.com/in/ctleeresearch)

EMPLOYMENT

Assistant Professor


Dept. Molecular Biology, University of California San Diego

 July 1, 2024 – Present

 San Diego, CA

Kavli Institute of Brain and Mind Postdoctoral Scholar

University of California San Diego

 June 1, 2019 – June 30, 2024

 San Diego, CA


Advisors: Padmini Rangamani  & Michael Holst 

- Kavli Institute of Brain and Mind Postdoctoral Fellow 2022–2024
- Hartwell Foundation Postdoctoral Fellow 2019–2021
- Developing a multiscale modeling framework to animate the interactions of systems of molecules in virtual synapses featuring physiologically-derived geometries.
- Developed biological mesh generation tool GAMer to convert structural images into finite elements compatible mesh geometries.

EDUCATION


Ph.D. Chemistry

University of California San Diego

 2013 – 2019

 San Diego, CA

Advisors: Rommie E. Amaro  & J. Andrew McCammon 


Dissertation: C. T.-K. Lee. “Forging Pathways to Enable Multiscale Modeling of Cellular Scale Phenomena”. PhD Dissertation. La Jolla, CA: University of California San Diego, May 1, 2019 

- Predictions of passive membrane permeability using physical properties estimated from molecular dynamics simulations
- Developed simplicial complex data structure CASC to support robust mesh generation codes for electrostatics calculations
- Applied enhanced sampling techniques to predict protein and ligand binding dynamics

Computational Physiology Summer Course

Simula Research Laboratory/Universitetet i Oslo/UCSD


 Summer 2017

 Oslo, Norway

- Investigated the affects of drugs on ion channels and the subsequent impact on cellular action potentials using mathematical modeling

M.Sc. Chemistry with a Concentration in Biochemistry

University of Virginia

 2011 – 2013


 Charlottesville, VA

Advisors: Linda Columbus  & Cameron Mura 

Thesis: C. T.-K. Lee. “Broad Specificity of a Zinc-dependent Small Alcohol Dehydrogenase from *Thermotoga Maritima* Involved in the Glycerol Dismutation Pathway”. MSc Thesis. Charlottesville, VA: University of Virginia, May 1, 2012. DOI: [10.18130/V3FD40](https://doi.org/10.18130/V3FD40)


B.Sc. Chemistry & B.A. Computer Science

University of Virginia

 2007 – 2011


 Charlottesville, VA

Advisor: Michael Shirts

- Created the initial prototype of Intermol : a molecular simulation structure, topology, and parameter conversion software

High School

Thomas Jefferson High School for Science and Technology

 2003 – 2007

 Alexandria, VA

HONORS, AWARDS & FELLOWSHIPS

►Fellowships:

2022-2023	KIBM Postdoctoral Scholar ↗ (\$50k/year × 2)	Kavli Institute of Brain and Mind
2019-21	Hartwell Foundation Postdoctoral Fellowship ↗ (\$100k)	The Hartwell Foundation
2018	Distinguished Graduate Fellowship ↗	UCSD Chem/Biochem
2017 – 2018	San Diego Diversity Fellowship	UCSD
2017	Simula Computational Physiology Scholarship	Simula
2014-16	Molecular Biophysics Training Program (NIH T32 GM008326)	UCSD
2011	NBCR Summer Institute Travel Award	NBCR

►Honors:

2019	Postdoc. Appreciation Award ↗	UCSD OPRSA
2019	Schmidt Science Fellows Finalist ↗	Schmidt Futures
2017	Scholarship for Scientific Excellence ↗	American Chemical Society CINF
2017	Biophysical Society Travel Award	Biophysical Society
2017	Bruno Zimm Award ↗	UCSD Chem/Biochem
2017	Carol & George Lattimer Award ↗	UCSD Division of Physical Sciences
2017	NSF Innovation Corps	UCSD
2015	Best Poster	UCSD MBTG Annual Retreat
Sp. 2014	Teaching Assistant Excellence Award	UCSD Chem/Biochem
2012	UCSD SHORE Award	UCSD
2011	Mead Scholar	UVA, Comp. Bio.

PUBLICATIONS

† denotes equal contribution, # denotes corresponding author.

►Peer-Reviewed

- [–] J. M. Griswold, M. Bonilla-Quintana†, R. Pepper†, **C. T. Lee†**, S. Raychaudhuri, S. Ma, Q. Gan, S. Syed, C. Zhu, M. Bell, M. Suga, Y. Yamaguchi, U. V. Nägerl, G. Knott, P. Rangamani#, and S. Watanabe#. “Membrane mechanics dictate axonal morphology and function”. *Nat. Neurosci.* (July 2024). *Conditionally Accepted*. Preprint: BioRxiv [↗](#).
- [1] **C. T. Lee**, M. Bell, M. Bonilla-Quintana, and P. Rangamani#. “Biophysical modeling of synaptic plasticity”. *Annual Review of Biophysics* 53.1 (Feb. 21, 2024). DOI: [10.1146/annurev-biophys-072123-124954](#).
- [2] M. K. Bell, **C. T. Lee**, and P. Rangamani#. “Spatiotemporal Modelling Reveals Geometric Dependence of AMPAR Dynamics on Dendritic Spine Morphology”. *The Journal of Physiology* 601.15 (2023), pp. 3329–3350. DOI: [10.1113/JP283407](#). Preprints: BioRxiv [↗](#), PMC: [9280073](#).
- [3] K. Venkatraman, **C. T. Lee†**, G. C. Garcia†, A. Mahapatra†, G. Perkins, K.-Y. Kim, H. A. Pasolli, S. Phan, J. Lippincott-Schwartz, M. Ellisman, P. Rangamani#, and I. Budin#. “Cristae formation is a mechanical buckling event controlled by the inner membrane lipidome”. *The EMBO Journal* 42.24 (Dec. 11, 2023), e114054. DOI: [10.15252/embj.2023114054](#). Preprints: BioRxiv [↗](#), PMC: [10054968](#).
- [4] J. G. Laughlin, J. S. Dokken, H. N. T. Finsberg, E. A. Francis, **C. T. Lee**, M. E. Rognes, and P. Rangamani#. “SMART: Spatial Modeling Algorithms for Reaction and Transport”. *Journal of Open Source Software* 8.90 (Oct. 19, 2023), p. 5580. DOI: [10.21105/joss.05580](#). Preprint: arXiv: [10.48550/arXiv.2306.07368 \[q-bio\]](#).
- [5] H. Nakamura#, E. Rho, **C. T. Lee**, K. Itoh, D. Deng, S. Watanabe, S. Razavi, H. T. Matsubayashi, C. Zhu, E. Jung, P. Rangamani, S. Watanabe, and T. Inoue#. “ActuAtor, a Listeria-inspired molecular tool for generating force in living cells: Controlled deformation of intracellular organizations”. *Cell Reports* 42.10 (Oct. 2023), p. 113089. DOI: [10.1016/j.celrep.2023.113089](#). Preprint: PMC: [10872831](#).
- [6] F. Yuan, **C. T. Lee**, J. Houser, A. Sangani, L. Wang, E. Lafer, P. Rangamani#, and J. Stachowiak. “The ins and outs of membrane bending by intrinsically disordered proteins”. *Science Advances* 9.27 (July 7, 2023), eadg3485. DOI: [10.1126/sciadv.adg3485](#). Preprints: BioRxiv [↗](#), PMC: [10328403](#).
- [7] C. Zhu, **C. T. Lee#**, and P. Rangamani#. “Mem3DG: An open-source software framework for 3-D membrane mechanochemical dynamics using discrete differential geometry on triangulated meshes”. *Biophys. Reports* 2.3 (Sept. 14, 2022), p. 100062. DOI: [10.1016/j.bpr.2022.100062](#). Preprints: BioRxiv [↗](#), PMC: [9495267](#).
- [8] I. López-Peña, **C. T. Lee**, J. J. Rivera, M. J. Tauber, and J. E. Kim#. “Role of the Triplet State and Protein Dynamics in the Formation and Stability of the Tryptophan Radical in an Apoazurin Mutant”. *J. Phys. Chem. B* (Aug. 17, 2022). DOI: [10.1021/acs.jpcc.2c02441](#). Preprint: PMC: [9483921](#).
- [9] M. K. Bell†, M. V. Holst†, **C. T. Lee**, and P. Rangamani#. “Dendritic Spine Morphology Regulates Calcium-Dependent Synaptic Weight Change”. *J. Gen. Physiol.* 154.8 (July 1, 2022), e202112980. DOI: [10.1085/jgp.202112980](#). Preprints: BioRxiv [↗](#), PMC: [9280073](#).

- [10] J. L. Gan, D. Kumar, C. Chen, B. C. Taylor, B. R. Jagger, R. E. Amaro[#], and **C. T. Lee[#]**. “Benchmarking Ensemble Docking Methods in D3R Grand Challenge 4”. *J. Comput. Aided. Mol. Des.* 36.2 (Feb. 1, 2022), pp. 87–99. DOI: [10.1007/s10822-021-00433-2](https://doi.org/10.1007/s10822-021-00433-2). Preprints: BioRxiv [↗](#), PMC: [8907095](https://pubmed.ncbi.nlm.nih.gov/8907095/).
- [11] R. Mendelsohn[†], G. C. Garcia[†], T. M. Bartol, **C. T. Lee**, P. Khandelwal, E. Liu, D. J. Spencer, A. Husar, E. A. Bushong, S. Phan, G. Perkins, M. H. Ellisman, A. Skupin, T. J. Sejnowski[#], and P. Rangamani[#]. “Morphological Principles of Neuronal Mitochondria”. *J. Comp. Neurol.* 530.6 (Nov. 1, 2021), pp. 886–902. DOI: [10.1002/cne.25254](https://doi.org/10.1002/cne.25254). Preprints: BioRxiv [↗](#), PMC: [8831469](https://pubmed.ncbi.nlm.nih.gov/8831469/).
- [12] **C. T. Lee**, M. Akamatsu, and P. Rangamani[#]. “Value of Models for Membrane Budding”. *Curr. Opin. Cell Biol.* 71 (Aug. 1, 2021), pp. 38–45. DOI: [10.1016/j.ceb.2021.01.011](https://doi.org/10.1016/j.ceb.2021.01.011). Preprint: PMC: [8328869](https://pubmed.ncbi.nlm.nih.gov/8328869/).
- [13] T. Hempel, M. J. del Razo[†], **C. T. Lee[†]**, B. C. Taylor[†], R. E. Amaro[#], and F. Noé[#]. “Independent Markov Decomposition: Towards modeling kinetics of biomolecular complexes”. *Proc. Natl. Acad. Sci.* 118.31 (July 28, 2021). DOI: [10.1073/pnas.2105230118](https://doi.org/10.1073/pnas.2105230118). Preprints: BioRxiv [↗](#), PMC: [8346863](https://pubmed.ncbi.nlm.nih.gov/8346863/).
- [14] R. Vasan, M. P. Rowan, **C. T. Lee**, G. R. Johnson, P. Rangamani, and M. Holst[#]. “Applications and Challenges of Machine Learning to Enable Realistic Cellular Simulations”. *Front. Phys.* 7 (Jan. 21, 2021). DOI: [10.3389/fphy.2019.00247](https://doi.org/10.3389/fphy.2019.00247). (2019 Frontiers in Physics Editors Choice). Preprint: arXiv: [1911.05218](https://arxiv.org/abs/1911.05218) [[physics.bio-ph](#)].
- [15] **C. T. Lee[†]**, J. G. Laughlin[†], N. Angliviel de La Beaumelle, R. E. Amaro, J. A. McCammon, R. Ramamoorthi, M. J. Holst, and P. Rangamani[#]. “3D Mesh Processing Using GAMer 2 to Enable Reaction-Diffusion Simulations in Realistic Cellular Geometries”. *PLOS Comp. Biol.* 16.4 (Apr. 6, 2020), e1007756. DOI: [10.1371/journal.pcbi.1007756](https://doi.org/10.1371/journal.pcbi.1007756). Preprints: arXiv: [1901.11008](https://arxiv.org/abs/1901.11008) [[q-bio.QM](#)], BioRxiv [↗](#), PMC: [6716611](https://pubmed.ncbi.nlm.nih.gov/6716611/).
- [16] **C. T. Lee[#]**, J. G. Laughlin, J. B. Moody, R. E. Amaro, J. A. McCammon, M. J. Holst, and P. Rangamani[#]. “An Open Source Mesh Generation Platform for Biophysical Modeling Using Realistic Cellular Geometries”. *Biophys. J.* 118.5 (Mar. 10, 2020), pp. 1003–1008. DOI: [10.1016/j.bpj.2019.11.3400](https://doi.org/10.1016/j.bpj.2019.11.3400). Preprints: arXiv: [1909.04781](https://arxiv.org/abs/1909.04781) [[physics.comp-ph](#)], BioRxiv [↗](#), PMC: [7063475](https://pubmed.ncbi.nlm.nih.gov/7063475/).
- [17] **C. T. Lee^{†#}**, J. B. Moody[†], R. E. Amaro, J. A. Mccammon, and M. J. Holst. “The Implementation of the Colored Abstract Simplicial Complex and Its Application to Mesh Generation”. *ACM Trans. Math. Softw.* 45.3 (Aug. 8, 2019), pp. 1–20. DOI: [10.1145/3321515](https://doi.org/10.1145/3321515). Preprints: arXiv: [1807.01417](https://arxiv.org/abs/1807.01417) [[cs.MS](#)], PMC: [6716611](https://pubmed.ncbi.nlm.nih.gov/6716611/).
- [18] B. C. Taylor, **C. T. Lee**, and R. E. Amaro[#]. “Structural Basis for Ligand Modulation of the CCR2 Conformational Landscape”. *Proc. Natl. Acad. Sci.* 116.17 (Apr. 23, 2019), pp. 8131–8136. DOI: [10.1073/pnas.1814131116](https://doi.org/10.1073/pnas.1814131116). Preprints: BioRxiv [↗](#), PMC: [6486717](https://pubmed.ncbi.nlm.nih.gov/6486717/).
- [19] B. R. Jagger, **C. T. Lee**, and R. E. Amaro[#]. “Quantitative Ranking of β -cyclodextrin Ligand Binding Kinetics With SEEKR, a Hybrid MD/BD/Milestoning Approach”. *J. Phys. Chem. Lett.* 9.17 (Sept. 6, 2018), pp. 4941–4948. DOI: [10.1021/acs.jpcllett.8b02047](https://doi.org/10.1021/acs.jpcllett.8b02047). (Featured on Journal Cover). Preprints: ChemRxiv [↗](#), PMC: [6443090](https://pubmed.ncbi.nlm.nih.gov/6443090/).
- [20] **C. T. Lee** and R. E. Amaro[#]. “Exascale Computing: A New Dawn for Computational Biology”. *Comput. Sci. Eng.* 20 (Aug. 30, 2018), pp. 18–25. DOI: [10.1109/MCSE.2018.05329812](https://doi.org/10.1109/MCSE.2018.05329812). (Special issue on the National Strategic Computing Initiative). Preprint: PMC: [6458592](https://pubmed.ncbi.nlm.nih.gov/6458592/).
- [21] L. W. Votapka[†], **C. T. Lee[†]**, and R. E. Amaro[#]. “Two Relations to Estimate Membrane Permeability Using Milestoning”. *J. Phys. Chem. B* 120.33 (Aug. 25, 2016), pp. 8606–8616. DOI: [10.1021/acs.jpccb.6b02814](https://doi.org/10.1021/acs.jpccb.6b02814). (Special issue J. Andrew McCammon Festschrift). Preprint: PMC: [5002937](https://pubmed.ncbi.nlm.nih.gov/5002937/).
- [22] J. R. Wagner[†], **C. T. Lee[†]**, J. D. Durrant, R. D. Malmstrom, V. A. Feher, and R. E. Amaro[#]. “Emerging Computational Methods for the Rational Discovery of Allosteric Drugs”. *Chem. Rev.* 116.11 (June 8, 2016), pp. 6370–6390. DOI: [10.1021/acs.chemrev.5b00631](https://doi.org/10.1021/acs.chemrev.5b00631). Preprint: PMC: [4901368](https://pubmed.ncbi.nlm.nih.gov/4901368/).
- [23] **C. T. Lee**, J. Comer[#], C. Herndon, N. Leung, A. Pavlova, R. V. Swift, C. Tung, C. N. Rowley, R. E. Amaro[#], C. Chipot[#], Y. Wang[#], and J. C. Gumbart[#]. “Simulation-Based Approaches for Determining Membrane Permeability of Small Compounds”. *J. Chem. Inf. Model.* 56.4 (Apr. 25, 2016), pp. 721–733. DOI: [10.1021/acs.jcim.6b00022](https://doi.org/10.1021/acs.jcim.6b00022). Preprint: PMC: [5280572](https://pubmed.ncbi.nlm.nih.gov/5280572/).
- [24] C. Gray[†], C. W. Price[†], **C. T. Lee**, A. H. Dewald, M. A. Cline, C. E. McAnany, L. Columbus[#], and C. Mura[#]. “Known Structure, Unknown Function: An Inquiry-Based Undergraduate Biochemistry Laboratory Course”. *Biochem. Mol. Biol. Educ.* 43.4 (July 8, 2015), pp. 245–262. DOI: [10.1002/bmb.20873](https://doi.org/10.1002/bmb.20873). Preprint: PMC: [4758391](https://pubmed.ncbi.nlm.nih.gov/4758391/).
- [25] R. D. Malmstrom, **C. T. Lee**, A. T. Van Wart, and R. E. Amaro[#]. “Application of Molecular-Dynamics Based Markov State Models to Functional Proteins”. *J. Chem. Theory Comput.* 10.7 (July 8, 2014), pp. 2648–2657. DOI: [10.1021/ct5002363](https://doi.org/10.1021/ct5002363). (Special issue on free energy). Preprint: PMC: [4248791](https://pubmed.ncbi.nlm.nih.gov/4248791/).

►Book Chapters

- [26] C. T. Lee[#] and P. Rangamani[#]. “Modeling the Mechanochemical Feedback for Membrane-Protein Interactions Using a Continuum Mesh Model”. *Methods in Enzymology*. Ed. by M. Deserno, T. Baumgart, and D. Marquardt. Vol. 2. 2 vols. Biophysical Approaches to Lateral and Transverse Lipid Membrane Heterogeneity. Academic Press, 2024. DOI: [10.1016/bs.mie.2024.03.016](https://doi.org/10.1016/bs.mie.2024.03.016).

GRANTS AND FUNDING

›Active Funding

Innovative Research Grant [🔗](#)

KIBM PI: C. T. Lee

📅 7/1/2021 -- 6/30/2022

Award Amount: \$50,000 (\$38,000 to CTL)

- co-PIs: Courtney Glavis-Bloom, Casey Vanderlip, John Reynolds, Sammy Weiser Novak, Uri Manor, Miriam K. Bell, Mayte Bonilla-Quintana, Padmini Rangamani
- Investigating the relationships between synaptic energy efficiency and age-related cognitive decline
- Hosted summer internships for 2 high school aged students

›Completed Funding

TruffleSnout

NSF I-Corps PI: C. T. Lee and B. C. Taylor

📅 FY2017

Award Amount: \$1000

- Team selected to participate in the UCSD NSF I-Corps Winter 2017 cohort
- Investigated the potential to commercialize microbiota to assist in growing difficult specialty crops such as truffles

Investigating the Structure, Function, and Dynamics of Complex Biological Systems

NSF CHE-060063 PI: Rommie E. Amaro

📅 FY2016

Award Amount: PSC Bridges: 1,348,335 SUs, SDSC Comet: 4,881,881 SUs, TACC Stampede: 2,119,112 SUs, SDSC Gordon: 2,860,924 SUs (~\$568,772)

- Coordinated contributions, organized, and wrote this proposal

Structural and Dynamical Determinants of Influenza Pathogenicity and Virulence

NSF ACI-1440087 PI: Rommie E. Amaro

📅 9/1/2014 – 8/31/2015

Award Amount: \$10,500, 6 million node-hours on Blue Waters (~\$2,400,000)

- Contributed to the writing and development of this NSF Petascale Computing Resource Allocation (PRAC) proposal

Investigating the Structure, Function, and Dynamics of Complex Biological Systems

NSF CHE-060063 PI: Rommie E. Amaro

📅 FY2015

Award Amount: SDSC Gordon: 2,916,406 SUs, TACC Stampede: 4,637,760 SUs (~\$407,770.84)

- Contributed to and facilitated the submission of this computing time request

PRESENTATIONS

›Invited

- [1] *Telluride Workshop – Complexity in the Chemistry and Physics of Lipid Membranes*. Telluride, CO, June 2025.
- [2] *Dept. of Molecular Biophysics*. La Jolla, CA, Apr. 2024.
- [3] *Telluride Workshop – Complexity in the Chemistry and Physics of Lipid Membranes*. Telluride, CO, June 2023.
- [4] *International Meshing Roundtable*. Amsterdam, Netherlands, Mar. 2023.
- [5] *Simula*. La Jolla, CA, Aug. 2021.
- [6] *Telluride Workshop – Complexity in the Chemistry and Physics of Lipid Membranes*. Telluride, CO, June 2021. (Declined).
- [7] *Society for Brain Mapping and Therapeutics*. Los Angeles, CA, Mar. 2021.
- [8] *UCSD CSE Pixel Cafe*. La Jolla, CA, Nov. 2020.
- [9] *Center for Computational Mathematics*. La Jolla, CA, May 2019.
- [10] *University of Virginia*. Charlottesville, VA, Apr. 2011.

›Contributed Talks

- [11] *UCSD MBTG Annual Retreat*. La Jolla, CA, Apr. 2019.
- [12] *UCSD Industry Interaction Day*. La Jolla, CA, May 2017.
- [13] *UCSD MBTG Annual Retreat*. La Jolla, CA, May 2017.
- [14] *UC-wide Symposium for Chemical Sciences*. Lake Arrowhead, CA, Mar. 2016.
- [15] *UCSD MBTG Seminar*. La Jolla, CA, Jan. 2016.
- [16] *UCSD MBTG Seminar*. La Jolla, CA, Mar. 2015.

›Conference Abstracts (Poster)

- [17] *Biophysical Society National Meeting*. Philadelphia, PA, Feb. 2024.
- [18] *Biophysical Society National Meeting*. San Diego, CA, Feb. 2023.
- [19] *Biophysical Society National Meeting*. San Francisco, CA, Apr. 2022.
- [20] *Biophysical Society National Meeting*. San Diego CA, Feb. 2020.
- [21] *BASF CARA Spring Review*. La Jolla, CA, Mar. 2019.
- [22] *Biophysical Society National Meeting*. Baltimore MD, Mar. 2019.
- [23] *Biological Diffusion and Brownian Dynamics Brainstorm 4*. Heidelberg, Germany, Apr. 2018.
- [24] *Biophysical Society National Meeting*. San Francisco, CA, Feb. 2018.
- [25] *American Chemical Society National Meeting*. San Francisco, CA, Apr. 2017. (Selected for ACS CINF Scholarship for Scientific Excellence).
- [26] *Biophysical Society National Meeting*. New Orleans, LA, Feb. 2017. (Travel Award).
- [27] *UCSD MBTG Annual Retreat*. La Jolla, CA, Jan. 2015. (Best Poster).
- [28] *National Biomedical Computation Resource, Summer Institute*. La Jolla, CA, Aug. 2011.
- [29] *ACS Virginia Section*. Charlottesville, VA, Apr. 2011.

PROFESSIONAL SERVICE

›Peer Review:

- AFOSR LRIR Review
- Chemistry and Physics of Lipids
- Journal of Chemical Information and Modeling
- Journal of Physical Chemistry
- Physical Review Journals
- Nature Communications Biology
- Soft Matter

›Community Outreach:

ENLACE Mentor [↗](#)

University of California San Diego

 Summer 2019

- Supervised summer research for two undergraduate level students from Mexico
- The students constructed geometric mesh models of neuronal mitochondria from electron tomograms

PNAS Journal Club Panelist [↗](#)

fontmatter.pnas.org

 2018-19

- Worked with PNAS Front Matter group to select exciting and recent articles for their science writers to highlight

BioChemCoRe [↗](#): Program Director

University of California San Diego

 Summer 2018

- Organized and ran the annual Amaro Lab outreach program
- Developed a 7 week curriculum to teach computational drug discovery and soft skills (teach science as we do science)
- The students worked to predict the IC50s of a set of Hsp90 inhibitors based upon a provided training set
- Tutorials and course material can be found online at: <https://ctlee.github.io/BioChemCoRe-2018/>

Student Invited Speaker Committee [↗](#)


University of California San Diego

 2017

- Inaugural member of the Chem. & Biochem. student invited speaker committee
- Selected and hosted various speakers on behalf of the students
- Lobbied to add the seminar series into the responsibilities of the Chemistry Graduate Student Council to ensure future oversight, funding, and support

PRIME Mentor

University of California San Diego

 2015 - 17

- Mentor "Promoting Retention Innovation and Mentorship Enrichment" for incoming graduate students
- Program designed to improve graduate student success, completion efforts, develop a culture of effective mentorship, and to further promote a positive environment of inclusivity and diversity

BioChemCoRe : Research Mentor

University of California San Diego

 Summers 2014 – 17

- 8 week annual summer outreach program seeking to increase retention of under-privileged and diverse students in science
- Organized and presented teaching materials on computational chemistry methods
- Sponsored and advised student research projects

Graduate Recruitment Committee

University of California San Diego

 March 2014-16

- Represented the Theoretical and Computational Chemistry Track at incoming graduate recruitment events
- Answered questions from interested students

BioLED: Biochemistry Lab Education Resource

University of Virginia

 2011

- Developed inquiry based modules to teach computational bioinformatics
- Contributed to curriculum where students investigate a protein that has a determined structure, but the function has not been experimentally investigated

TEACHING AND MENTORING

›Teaching Activities:

- | | |
|--|----------------|
| • NBCR Data to Structural Models (UCSD) | Summer 2016-18 |
| • BioChemCoRe (UCSD) | Summer 2014-18 |
| • TA, CHEM 167: Medicinal Chemistry (UCSD) | Spring 2014 |
| • TA, CHEM 6bh: General Chemistry II Honors (UCSD) | Winter 2014 |
| • TA, CHEM 6a: General Chemistry I (UCSD) | Fall 2013 |
| • TA, CHEM 4421: Biological Chemistry Lab II (UVA) | Spring 2012 |
| • TA, CHEM 4411: Biological Chemistry Lab I (UVA) | Fall 2011 |

›Mentorship:

Graduate Research:

- | | |
|---|-------------|
| • Natalia Reis (Chemistry and Biochemistry, UCSD) | 2023 |
| • Cuncheng Zhu (Mechanical Engineering, UCSD) | 2019 – 2022 |
| • Justin Laughlin (Mechanical Engineering, UCSD) | 2019 – 2022 |
| • Miriam Bell (Mechanical Engineering, UCSD) | 2019 – 2022 |
| - NDSEG Fellow | |
| • Andrew Nguyen (Mechanical Engineering, UCSD) | 2020 – 2022 |
| - Honorable Mention–2020 NSF GRFP | |

Undergraduate Research:

- | | |
|--|----------------------|
| • Andrew Nguyen (Bioengineering, UCSD) | 2019 – 2020 |
| • Justin Oshiro (Mechanical Engineering, UCSD) | 2019 – 2020 |
| • Meagan P. Rowan (Bioengineering, UCSD) | 2019 – 2020 |
| • Andrea S. Jacinto (Chemistry, UNAM) | ENLACE, Summer 2019 |
| • Aranza S. M. Lopez (Nanoengineering, UPSIN) | ENLACE, Summer 2019 |
| • Nils Angliviel de La Beaumelle (Environmental Engineering, UCSD) | 2018 – 2019 |
| • Chirag Krishna (Bioinformatics, UCSD) | 2014 – 15 |
| - Amgen Scholar | |
| • Shelby Friends (Undeclared, Palomar College) | NSF REU, Summer 2015 |

High School Research:

- | | |
|--|----------------|
| • Nandana Madhukara (Canyon Crest Academy) | 2022 – Present |
| - 1st Place Computational Systems (Medical)–2023 California Sci. & Eng. Fair  | |
| - 2nd Place–2023 UCLA Brain Research Award  | |
| - Invited to International Sci. & Eng. Fair | |
| • Aditi Telang (Olympian High School) | 2021 – 2022 |
| • Kavya Gupta (Westview High School) | 2020 – 2023 |
| - Invited to American Junior Academy of Science Conference | |
| • Eleanor Jung (Mt. Carmel High School) | 2020 – 2023 |
| - 4th Place–2021 Intermountain JSHS | |
| - Grand Award Runner-Up–2021 Greater San Diego Sci. & Eng. Fair | |
| - 4th Place Comp. Bio. and Bioinform.–2021 International Sci. & Eng. Fair (ISEF)  | |

- **Maven Holst** (Canyon Crest Academy) 2018 – 2021
 - 1st Place–2019 Greater San Diego Sci. & Eng. Fair
 - 2nd Place–2019 California Sci. & Eng. Fair
 - Invited to International Sci. & Eng. Fair
- **Jessie Gan** (San Diego Jewish Academy) 2018 – 2021
 - Finalist (Top 40)–2021 Regeneron Science Talent Search Finalist [↗](#)
 - 2020 Davidson Fellow [↗](#)
 - Awards from Sigma Xi and Broadcom MASTERS, California Sci. & Eng. Fair, Greater San Diego Sci. & Eng. Fair
- **Dhruv Kumar** (Rancho Bernardo High School) 2018 – 2021
- **Cynthia Chen** (Canyon Crest Academy) 2018 – 2019
- **Gray Thoron** (San Diego Metropolitan Regional and Technical) 2018

BioChemCoRe (Summers of years 2014 – 2018, UG and HS):

Hillary Pratt, Aditya Ravipathi, Kevin Cheng, Cynthia Chen, Jessie Gan, Michael Murphy, Divya Ghoshal, Gaurie Gunasekaran, Tyler Kraft, Dhruv Kumar, Emmanuel Ledesma, Kien Malarney, Neel Mittal, Michael Tu

PROFESSIONAL MEMBERSHIPS

2006 – 2008	AAAS
2016 – 2018	American Chemical Society
2016 – 2023	Biophysical Society

REFERENCES

Available upon request