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PRESENT ADDRESS Henry Samueli School of Engineering and Applied Science
Department of Bioengineering
University of California, Los Angeles
5121 Engineering V
Los Angeles, CA 90095

RESEARCH INTERESTS AND EXPERTISE Molecular biophysics, soft matter physics, infectious disease, immunology, autoimmune diseases, antimicrobial peptides, bioinformatics, computational biology, machine learning

EDUCATION

David Geffen School of Medicine, UCLA, Los Angeles, CA USA **2012 - Present**

M.D. Candidate
- Expected graduation date: June 2020
- USMLE Step 1 Exam: Pass - 267 (June 2014)

Henry Samueli School of Engineering and Applied Science, UCLA,
Los Angeles, CA USA **2014 - 2018**

Ph.D. in Bioengineering (Molecular Cellular Tissue Therapeutics Track)
- Research Advisor: Professor Gerard C.L. Wong, Ph.D.
- Dissertation: "Discovery and Design of Multifunctional Membrane-Active and Immunomodulatory Peptides and Proteins" (Defended December 12, 2017)
- Ph.D. Conferral date: June 2018
- Cumulative GPA: 4.0

California Institute of Technology, Pasadena, CA USA **2008 - 2012**

B.S. with Honors in Physics, June 2012
- Research Advisor: Professor Stephen L. Mayo, Ph.D.
- Cumulative GPA: 4.1

Torrey Pines High School, San Diego, CA USA **2004 - 2008**

HONORS AND AWARDS
- UCLA Department of Bioengineering Outstanding Ph.D. Student Award, 2018
- Peptide Therapeutics Foundation Travel Grant, 2017
- NIH NIAMS T32 Dermatology Scientist Training Program Grant (T32AR071307), UCLA, 2017-2018
- National Psoriasis Foundation Travel Grant, 2017
- National Psoriasis Foundation Early Career Research Grant, 2017-2018
- UCLA Doctoral Student Travel Grant, 2017
- UCLA Bioengineering Department Graduate Student Supplemental Fellowship, 2017
- NIH NIGMS T32 Systems and Integrative Biology Training Program Grant (T32GM008185), UCLA, 2015 - 2016
- Hertz Foundation Graduate Fellowship Finalist, 2015
- NIH NIGMS T32 Systems and Integrative Biology Training Program Grant (T32GM008185), UCLA, 2014 - 2015
- UCLA Inventathon 2013, UCLA Business of Science Center, 3rd Prize, 2013

- NIH NIGMS T32 Medical Scientist Training Program Grant (T32GM008042), David Geffen School of Medicine at UCLA, 2012 - 2020
- Øistein and Rita A. Skjellum Summer Undergraduate Research Fellowship, Caltech, 2011
- Rose Hills Foundation Scholarship, Caltech, 2010 - 2011
- Spence Reese Scholarship in Medicine, Boys & Girls Clubs of Greater San Diego, 2008 - 2012
- U.S. Presidential Scholars Program Semifinalist, 2008
- College Board National Advanced Placement Scholar, 2007

RESEARCH
EXPERIENCE

Department of Bioengineering, University of California, Los Angeles, Los Angeles, CA USA

Graduate Student under Professor Gerard C.L. Wong, Ph.D.   **2013, 2014 - Present**

- Developed multifunctional antimicrobials with synergistic functions to target drug-resistant bacteria.
- Used SAXS to probe the ability of neuropeptides, antimicrobial peptides, cell penetrating peptides, amyloids, and viral fusion proteins to generate negative-Gaussian curvature in lipid membranes.
- Developed machine learning predictions of antimicrobial and membrane curvature-generating peptides and discovered new families of membrane-active peptides.
- Studied the structural basis of autoimmune disease pathogenesis, including hyperactivation of immune cells via superselective targeting of TLR9 in dendritic cells by self-assembled protein-DNA complexes, and targeting of TLR3 in keratinocytes by self-assembled protein-dsRNA complexes.
- Characterized the structures of chromatin immune complexes relevant to TLR9 activation in cell death, autoimmune disease, and chronic inflammation.
- Conducted nanophotonic light-scattering simulations to predict three-dimensional trajectories of spinning bacteria in early biofilm formation, discovering new flagellum-driven surface motility modes.

Department of Physics, University of California, Los Angeles, Los Angeles, CA USA

Rotation Student under Professor Mayank R. Mehta, Ph.D.   **2014**

- Developed computational tools to analyze sharp wave-ripple events in the local field potential of neuronal recordings from rat hippocampi and investigated their role in coordinating learning and memory between cerebral hemispheres.

Department of Biology and Biological Engineering, California Institute of Technology, Pasadena, CA USA

Undergraduate Researcher under Professor Stephen L. Mayo, Ph.D.   **2010 - 2012**

- Applied high-throughput screening to generate a thermodynamic stability database of the GB1 protein domain.
- Developed computational algorithms for large-scale quantitative analysis of experimental protein stability data to improve the thermodynamic stability calculations and predictions of protein design software.

The Salk Institute for Biological Studies, La Jolla, CA USA

Research Assistant under Professor Joseph Noel, Ph.D.   **2007 - 2009**

- Programmed the Tecan Systems Freedom Evo 200 automated liquid handling robot to conduct targeted protein crystallization screens, develop automated methods for an HIV infectivity assay, and initiate a genome wide shRNA screen for neuroprotective genes against amyloid-beta toxicity.

Research Assistant under Professor Charles Stevens, Ph.D.   **2006 - 2007**

- Developed a sensor for optical imaging of neural activities using a pH-sensitive green fluorescent fusion protein.

Peer-Reviewed
Publications

1. **Lee, E.Y.**, Lee, C.K., Schmidt, N.W., Jin, F., Lande, R., Curk, T., Frenkel, D., Dobnikar, J., Gilliet, M., Wong, G.C.L. A review of immune amplification via ligand clustering by self-assembled liquid-crystalline DNA complexes. *Advances in Colloid and Interface Science*, 232: 17-24 (2016). DOI: 10.1016/j.cis.2016.02.003
   - Invited article for special issue "Polyelectrolytes"

2. Sankhagowit, S., **Lee, E.Y.**, Wong, G.C.L., Malmstadt, N. Oxidation of Membrane Curvature-Regulating Phosphatidylethanolamine Lipid Results in Formation of Bilayer and Cubic Structures. *Langmuir*, 32(10): 2450-2457 (2016). DOI: 10.1021/acs.langmuir.5b04332

3. Realegeno, S., Kelly-Scumpia, K.M., Dang, A.T., Lu, J., Teles, R., Liu, P.T., Schenk, M., **Lee, E.Y.**, Schmidt, N.W., Wong, G.C.L., Sarno, E.N., Rea, T.H., Ochoa, M.T., Pellegrini, M., Modlin, R.L. S100A12 Is Part of the Antimicrobial Network against *Mycobacterium leprae* in Human Macrophages. *PLoS Pathogens*, 12(6): e1005705 (2016). DOI: 10.1371/journal.ppat.1005705

4. **Lee, E.Y.**, Fulan, B., Wong, G.C.L., Ferguson, A.L. Mapping membrane activity in undiscovered peptide sequence space using machine learning. *Proc Natl Acad Sci USA*, 113(48): 13588-13593 (2016). DOI: 10.1073/pnas.1609893113
   - Received press coverage in multiple news outlets

5. Kaplan, A.*, Lee, M.W.*, Wolf, A.J., Limon-Tello, J., Becker, C.A., Ding, M., Murali, R., **Lee, E.Y.**, Liu, G.Y., Wong, G.C.L., Underhill, D.M. Direct Antimicrobial Activity of Interferon-β. *Journal of Immunology*, 198(10): 4036-4045 (2017). DOI: 10.4049/jimmunol.1601226
   *Indicates equal contribution

6. Tursi, S.A., **Lee, E.Y.**, Medeiros, N.J., Lee, M.H., Butter B., Galluccci S., Wilson, R.P., Wong, G.C.L., Tukel C. Bacterial amyloid curli acts as a carrier for DNA to elicit an autoimmune response via TLR2 and TLR9. *PLoS Pathogens*, 13(4): e1006315 (2017). DOI: 10.1371/journal.ppat.1006315

7. **Lee, E.Y.**, Wong, G.C.L., Ferguson, A.L. Machine learning-enabled discovery and design of membrane-active peptides. In press, *Bioorganic & Medicinal Chemistry* (2017). DOI: 10.1016/j.bmc.2017.07.012
   - Invited article for "Peptide Therapeutics" symposium-in-print

8. Stolzenberg, E., Berry, D., Yang, D., **Lee, E.Y.**, Kroemer, A., Kaufman, S., Wong, G.C.L., Oppenheim, J., Sen, S., Fishbein, T., Bax, A., Harris, B., Barbut, D., Zasloff, M.A. A Role for Neuronal Alpha-Synuclein in Gastrointestinal Immunity. *Journal of Innate Immunity*, 9(5): 456-463 (2017). DOI: 10.1159/000477990
   - Highlighted in *Science* DOI: 10.1126/science.aan7025
   - Highlighted in the *Journal of Innate Immunity* DOI: 10.1159/000479653
   - *Journal of Innate Immunity* cover article, September 2017 Link

9. De Anda, J.*, **Lee, E.Y.***, Lee, C.K.*, Bennett, R.R., Ji, X., Soltani, S., Harrison, M.C., Baker, A.E., Luo, Y., Chou, T., O'Toole, G.A., Armani, A.M., Golestanian, R., Wong, G.C.L. High-Speed "4D" Computational Microscopy of Bacterial Surface Motility. *ACS Nano*, 11(9): 9340-9351 (2017). DOI: 10.1021/acsnano.7b04738
   *Co-first authorship

10. **Lee, E.Y.**, Lee, M.W., Fulan, B., Ferguson, A.L., Wong, G.C.L. What can machine learning do for antimicrobial peptides, and what can antimicrobial peptides do for machine learning? *Interface Focus*, 7(6): 20160153 (2017). DOI: 10.1098/rsfs.2016.0153
    - Invited article for special issue "Self-assembled peptides: from nanostructure to bioactivity"

11. Lee, M.W., **Lee, E.Y.**, Lai, G.H. Kennedy, N.W., Posey, A.E., Xian, W., Ferguson A.L., Hill, R.B., Wong, G.C.L. Molecular Motor Dnm1 Synergistically Induces Membrane Curvature To Facilitate Mitochondrial Fission. *ACS Central Science*, 3(11): 1156-1167 (2017). DOI: 10.1021/acscentsci.7b00338
    - Received press coverage in multiple news outlets and featured on the front page of the U.S.

12. **Lee, E.Y.**, Takahashi, T., Curk, T., Dobnikar, J., Gallo, R.L., Wong, G.C.L. Crystallinity of Double-Stranded RNA-Antimicrobial Peptide Complexes Modulates Toll-Like Receptor 3-Mediated Inflammation. *ACS Nano*, 11(12): 12145-12155 (2017). DOI: 10.1021/acsnano.7b05234

13. Takahashi, T., Kulkarni, N.N., **Lee, E.Y.**, Zhang, L-J., Wong, G.C.L., Gallo, R.L. Cathelicidin promotes inflammation by enabling binding of self-RNA to cell surface scavenger receptors. *Scientific Reports*, 8(1):4032 (2018). DOI: 10.1038/s41598-018-22409-3

14. Lee, C.K.*, De Anda, J.*, Baker, A.E., Bennett, R.R., Luo, Y., **Lee, E.Y.**, Keefe, J.A., Helali, J.S., Ma, J., Zhao, K., Golestanian, R., O'Toole, G.A., Wong, G.C.L. Multigenerational Memory and Adaptive Adhesion in Early Bacterial Biofilm Communities. In press, *Proc Natl Acad Sci USA* (2018). DOI: 10.1073/pnas.1720071115
*Indicates equal contribution

15. **Lee, E.Y.**, Lee, M.W., Wong, G.C.L. Modulation of Toll-like receptor signaling by antimicrobial peptides. In press, *Seminars in Cell & Developmental Biology* (2018). DOI: 10.1016/j.semcdb.2018.02.002
● Invited article for special issue "Antimicrobial peptides"

16. Silvestre-Roig, C.*, Braster, Q.*, Wichapong, K., **Lee, E.Y.**, Teulon, J.M., Berrebeh, N., Winter, J., Froese, A., Adrover, J.M., Ortega-Gomez, A., Marschner, J., Paulin, N., Lemnitzer, P., Schmuski, A., Winter, C., Schoufour, T., Hartwig, H., Ramos, S.G., Kamp, F., Megens, R.T.A., Weber, C., Lutgens, E., Daemen, M., Anders, H.-J., Nikolaev, V.O., Hidalgo, A., Pellequer, J.-L., Wong, G.C.L., Nicolaes, G., Soehnlein, O. Externalized histone H4 orchestrates chronic inflammation by inducing lytic cell death. In revision, *Nature* (2018).
*Indicates equal contribution

17. Lee, M.W., **Lee, E.Y.**, Wong, G.C.L. What can pleiotropic proteins in innate immunity teach us about bioconjugation and molecular design? Submitted, *Bioconjugate Chemistry* (2018).
● Invited article for special issue "Biomimetic Materials".

PAPERS IN PREPARATION

1. **Lee, E.Y.**, Zhang, C., Di Domizio, J., Jin, F., Connell, W., Hung, M., Malkoff, N., Veksler, V., Gilliet, M., Ren, P., Wong, G.C.L. Criteria for immunomodulation by α-helical antimicrobial peptides. In preparation (2018).

2. Lande, R., **Lee, E.Y.**, Palazzo, R., Dufour, A., Mattenberger, Y., Bianco, M., Pietraforte, I., Stefanantoni, K., Spadaro, F., Falchi, M., Alvarez, M., Riccieri, V., Truchetet, M.-E., Wong, G.C.L., Chizzolini, C., Frasca, L. CXCL4 organizes DNA into nanocrystalline complexes to amplify IFN-α production in systemic sclerosis. In preparation (2018).

3. **Lee, E.Y.**, Di Domizio, J., Curk, T., Abbaspour, L., Berezhnoy, N., Fazli, H., Nordenskiold, L., Dobnikar, J., Gilliet, M., Wong, G.C.L. Neutrophil extracellular traps and necrotic cell death: structural basis of chromatin-mediated inflammation. In preparation (2018).

INVITED TALKS

1. **Lee, E.Y.** Machine learning and membrane remodeling activity. Aspen Center for Physics 2018 Winter Conference: "Data-driven Discovery and Design in Soft and Biological Materials", Aspen, CO, January 7-13, 2018 [Oral]

PRESENTED ABSTRACTS

1. **Lee, E.Y.**, Nisthal, A., Mayo, S.L. Application of high-throughput screening to the generation of a thermodynamic stability database of the GB1 protein domain. SURF Caltech SFP Abstract Book (2011). Presented at the Summer Undergraduate Research Fellowship Seminar, Caltech, October 15, 2011 [Oral] Link

2. **Lee, E.Y.**, Xian, W., Wong, G.C.L. Improving design rules for antimicrobial peptides using bioinformatics. Presented at the GATP-BWF-SIB Joint Research Symposium, UCLA, May 26, 2015 [Oral]

3. **Lee, E.Y.**, Fulan, B., Wong, G.C.L., Ferguson, A.L. Mapping the undiscovered sequence space of antimicrobial peptides using machine learning: A taxonomy of membrane-active peptides. Presented at the Big Data-BWF-CHIP-GATP-SIB Joint Research Symposium, UCLA, April 28, 2016 [Poster]

4. **Lee, E.Y.**, Fulan, B., Wong, G.C.L., Ferguson, A.L. Mapping the undiscovered sequence space of antimicrobial peptides using machine learning: A taxonomy of membrane-active peptides. Presented at the Gordon Research Conference on Antimicrobial Peptides, Ventura, CA, February 26 - March 3, 2017 [Poster]

5. **Lee, E.Y.**, Takahashi, T., Curk, T., Dobnikar, J., Gallo, R.L., Wong, G.C.L. Liquid crystalline ordering of antimicrobial peptide-RNA complexes controls TLR3 activation. *Journal of Investigative Dermatology*, May 2017, 137(5), Supplement 1, Page S12. DOI: 10.1016/j.jid.2017.02.083. Presented at the 2017 Society of Investigative Dermatology Annual Meeting, Portland, OR, April 26-29, 2017 [Oral and Poster].

6. **Lee, E.Y.**, Di Domizio, J., Curk, T., Abbaspour, L., Berezhnoy, N., Fazli, H., Nordenskiold, L., Dobnikar, J., Gilliet, M., Wong, G.C.L. Neutrophil extracellular traps and necrotic cell death: Structural basis of chromatin-mediated inflammation in psoriasis. Presented at the 2017 National Psoriasis Foundation Research Symposium, Chicago IL, August 3-5, 2017 [Poster]

7. **Lee, E.Y.**, Takahashi, T., Curk, T., Dobnikar, J., Gallo, R.L., Wong, G.C.L. Crystallinity of dsRNA-AMP immune complexes modulates TLR3-mediated inflammation. Presented at the 2017 National Psoriasis Foundation Research Symposium, Chicago IL, August 3-5, 2017 [Poster]

8. **Lee, E.Y.**, Di Domizio, J., Curk, T., Abbaspour, L., Berezhnoy, N., Fazli, H., Nordenskiold, L., Dobnikar, J., Gilliet, M., Wong, G.C.L. NETs generate immune complexes to amplify TLR9-based inflammation in psoriasis. Presented at the 2017 National Psoriasis Foundation Research Trainee Symposium, Portland OR, October 11-12, 2017 [Oral and Poster]

9. **Lee, E.Y.**, Fulan, B., Wong, G.C.L., Ferguson, A.L. Mapping membrane activity in undiscovered peptide sequence space using machine learning. Presented at the 12th Annual Peptide Therapeutics Symposium, The Salk Institute for Biological Studies, La Jolla, CA, October 26-27, 2017 [Poster] Link

10. **Lee, E.Y.**, Zhang, C., Di Domizio, J., Jin, F., Connell, W., Hung, M., Malkoff, N., Veksler, V., Gilliet, M., Ren, P., Wong, G.C.L. Design Rules for Immunomodulation by Host-Defense Peptides. Presented at the APS March Meeting 2018, Los Angeles, CA, March 5-9, 2018 [Oral] Link

11. **Lee, E.Y.**, Takahashi, T., Curk, T., Dobnikar, J., Gallo, R.L., Wong, G.C.L. Crystallinity of dsRNA-Antimicrobial Peptide Complexes Modulates TLR3-Mediated Inflammation. Presented at the APS March Meeting 2018, Los Angeles, CA, March 5-9, 2018 [Oral] Link

CONTRIBUTED (NON-PRESENTED) ABSTRACTS

1. **Lee, E.Y.**, Xian, W., Wong, G.C.L. Species-specific antibiotics from design rules for antimicrobial peptides. UCLA Medical Scientist Training Program Annual Report (2013).

2. Yule, A.C., Plurad, D., **Lee, E.**, Bricker, S., Bongard, F., Neville, A., Putnam, B., Kim, D.Y., Harbor-UCLA Medical Center. Clamshell Thoracotomy: Underutilized or Overly Aggressive? Annual Meeting of the American Association for the Surgery of Trauma, Philadelphia, PA, Sept. 10-13, 2014. Link

3. **Lee, E.Y.**, Mehta, M. Detection and analysis of sharp wave-ripples in local field potential recordings from rat hippocampi. UCLA Medical Scientist Training Program Annual Report (2014).

4. Tursi, S., **Lee, E.**, Lee, M., Medeiros, N., Wilson, P., Galluccci S., Wong, G.C., Tukel C. Bacterial amyloid curli acts as a carrier for DNA to elicit an autoimmune response via TLR2 and TLR9. *J Immunol* May 1, 2017, 198 (1 Supplement) 77.12. AAI Immunology Annual Meeting, Washington, D.C., May 12-16, 2017. Link

5. Tursi, S., **Lee, E.**, Medeiros, N.J., Lee, M.H., Buttaro, B., Galluccci S., Wong, G.C., Tukel C. Bacterial amyloid curli acts as a carrier for DNA to elicit an autoimmune response via TLR2 and TLR9. ASM Microbe 2017, Atlanta, GA, June 7-11, 2017. Link

6. **Lee, E.Y.**, Fulan, B., Wong, G.C.L., Ferguson, A.L. Mapping membrane activity in undiscovered peptide sequence space using machine learning. 18th Annual UC Systemwide Bioengineering Symposium, UCLA, Los Angeles, CA, June 28-30, 2017.

7. **Lee, E.Y.**, Takahashi, T., Curk, T., Dobnikar, J., Gallo, R.L., Wong, G.C.L. Crystallinity of dsRNA-AMP immune complexes modulates TLR3-mediated inflammation. 18th Annual UC Systemwide Bioengineering Symposium, UCLA, Los Angeles, CA, June 28-30, 2017.

8. De Anda, J., **Lee, E.Y.**, Lee, C.K., Bennett, R.R., Ji, X., Soltani, S., Harrison, M.C., Baker, A.E., Luo, Y., Chou, T., O'Toole, G.A., Armani, A.M., Golestanian, R., Wong, G.C.L. High-Speed "4D" Computational Microscopy of Bacterial Surface Motility. APS March Meeting 2018, Los Angeles, CA, March 5-9, 2018. Link

9. Takahashi, T., Kulkarni, N.N., **Lee, E.Y.**, Zhang, L-J., Wong, G.C.L., Aiba, S., Gallo, R.L. Discovery of a receptor-dependent step in cathelicidin activation of inflammation identifies a novel therapeutic target for psoriasis and rosacea. *Journal of Investigative Dermatology*, May 2018, 138(5), Supplement 1, Page S151. DOI: 10.1016/j.jid.2018.03.898. 2018 International Investigative Dermatology Meeting, Orlando, FA, May 16-19, 2018. [Upcoming]

OTHER PRESENTATIONS

1. Predicting the three-dimensional tilt states of bacteria. Physical Microbiology Meeting, UC Irvine, February 24, 2016 [Oral]

2. Immunogenicity of nucleosome core particles explained by altered chromatin wrapping states. Multidisciplinary Immunology Seminar Series, UCLA, April 6, 2016 [Oral]

3. Mapping membrane activity in undiscovered peptide sequence space using machine learning. UCLA MSTP Research Conference 2016, UCLA, September 9, 2016 [Poster]

4. Mapping membrane activity in undiscovered peptide sequence space using machine learning. MSTP Monday Tutorial Series, UCLA, October 17, 2016 [Oral]

5. Soft matter physics meets innate immunity: A new understanding of autoimmune diseases. Institute for Molecular Engineering, de Pablo Lab, University of Chicago, August 2, 2017 [Oral]

6. Liquid crystalline ordering of antimicrobial peptide-RNA complexes controls TLR3 activation. UCLA MSTP Research Conference 2017, UCLA, September 8, 2017 [Poster]

7. Neutrophil extracellular traps and necrotic cell death: Structural basis of chromatin-mediated inflammation in psoriasis. UCLA MSTP Research Conference 2017, UCLA, September 8, 2017 [Poster]

8. Discovery and Design of Multifunctional Membrane-Active and Immunomodulatory Peptides and Proteins. Dissertation Defense, UCLA, December 12, 2017 [Oral]

PROFESSIONAL AND VOLUNTEER EXPERIENCES

David Geffen School of Medicine, UCLA, Los Angeles, CA USA

Co-Chair, UCLA-Caltech MSTP Education Committee **2017 - Present**
• Planned the annual MSTP Research Conference and bi-annual retreat, selected keynote speakers, and organized the weekly Monday night MSTP tutorial.

Committee Member, DGSOM IT Prioritization Committee (DGITPC) **2016 - Present**
• Worked directly with the Deans of the School of Medicine, physicians, faculty, and IT specialists

on a committee to spearhead new information-technology and HIPPA-compliant security initiatives in the DGSOM and the UCLA Health System.

Peer Tutor for the DGSOM Tutoring Program **2014 - Present**
- Tutored medical students and organized review sessions for all aspects of the MS1 and MS2 curriculum, including microbiology, physiology, pathology, and pharmacology. I also tutored at-risk students specifically for USMLE Step 1.

Co-Director, Medical Innovations Interest Group **2013 - 2014**
- Organized a seminar series introducing medical students to translational opportunities beyond clinical medicine, including commercialization of basic research, protection of intellectual property, and entrepreneurship. Done in collaboration with the Business of Science Center at UCLA.

Co-Director, Student Interest Group in Neurology **2013 - 2014**
- Organized a specialized interest group exposing medical students to current advances in neuroscience and their applications to clinical neurology.

Department of Bioengineering, UCLA, Los Angeles, CA USA

Multidisciplinary Immunology Seminar Series Organizer **2016**
- I spearheaded the inaugural edition of this multi-departmental seminar series aimed at fostering on-campus scientific collaboration at the intersection of immunology, chemistry, physics, and mathematics. Speakers primarily included students and postdoctoral scholars from various research groups at UCLA.

UCLA Cross-disciplinary Scholars in Science and Technology Summer Program (Link), Los Angeles, CA USA

Co-Mentor **2015**
- Mentored physics undergraduate exchange student Xiang Ji (Sun Yat-sen University) on COMSOL simulations of tilted bacteria, optics, and image processing; this led to a publication in preparation.

Medigram (Link), Los Altos, CA USA

Consultant at UCLA **2013 - 2015**
- Helped trial a novel iOS-based physician communication tool to improve quality of patient care and worked with UCLA Neurosurgery to roll out a live pilot study.

California Institute of Technology, Pasadena, CA USA

University Tutor **2010 - 2012**
- Tutored peers in undergraduate and graduate level physics, organic chemistry, biology, and mathematics.

Southern California State Science Olympiad (Link), Los Angeles, CA USA

Event Coordinator **2008 - Present**
- Proctored various building and study-based Science Olympiad events at the middle school and high school level.

MEMBERSHIPS
- American Physical Society (APS)
- National Psoriasis Foundation (NPF)
- Science Olympiad

SKILLS
- Laboratory Skills: Small-angle X-ray scattering, protein expression, protein engineering, high-throughput screening, light microscopy, electron microscopy, mammalian cell culture, antimicrobial assays, immune stimulation assays, ELISA

- Computational Skills: Mathematica, Matlab, LaTeX, R, Java, Python, Objective C, COMSOL Multiphysics, VMD
- Other Skills: Adobe Illustrator CC, Adobe Photoshop CC, InDesign CC
- Languages: English (fluent), Mandarin Chinese (proficient), Spanish (proficient)
- Operating Systems: Mac OS X/Unix, Windows, iOS

UNDERGRADUATE
MENTORSHIP
- Xiang Ji (Sun Yat-sen University, UCSD Physics), William Connell (UCLA), Jennifer Wang (UCLA), Juelline Lieng (UCLA), Sandra Zarmer (UCLA), Mandy Hung (UCLA), Cole Malkoff (UCLA), Yashes Srinivasan (UCLA), Veronica Veksler (UCLA), Giancarlo Santos (UCLA), Deepti Kannan (Stanford)

REFERENCES
- Gerard C.L. Wong, Ph.D.
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  Departments of Bioengineering and Chemistry & Biochemistry
  California NanoSystems Institute
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- Andrew L. Ferguson, Ph.D.
  Associate Professor of Materials Science and Engineering
  Associate Professor of Chemical and Biomolecular Engineering
  Affiliated Associate Professor of Physics
  Affiliated Associate Professor of Computational Science and Engineering
  204 Materials Science and Engineering Building
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- Carlos Portera-Cailliau M.D., Ph.D.
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- Tom Chou, Ph.D.
  Professor
  Departments of Biomathematics & Mathematics
  Life Sciences 5209
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