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Citations 3166 h-index 25 i10-index 49. (Google Scholar 6/15/2023)

Education

Ph.D. in Chemistry, University of Pennsylvania 1988
Advisor: William P. Reinhardt

B.A. in Chemistry (Honors) and Mathematics 1983
University of Maryland, Baltimore County

Positions

Senior Beamline Scientist (Senior Research Associate-II),
Cornell High-Energy Synchrotron Source, Cornell **2000-present**

Visualization Specialist/Research Scientist/Sr Tech Advisor 1992-
2000 Cornell Theory Center (CTC), Cornell University, Ithaca NY

Postgraduate Research Chemist for Kent R. Wilson 1990-1992
Department of Chemistry, University of California, San Diego

Postdoctoral Research Associate for Gregory S. Ezra 1988-1990
Department of Chemistry, Cornell University

Awards, Professional Activities (recent)

Fellow of the American Crystallographic Association (elected 2021)

DOE Beamline Review Panel (APS) Nov 2022

DOE BER (ALS) Renewal Review Panel Apr 2022

NSF (CHRS) Renewal Review Panel, March 2020

NIH (APS) P41 Scientific Advisory Committee 2019, **Chair** 2020-2022

DOE BER (ALS) Renewal Review Panel Nov 2018

DOE (APS) Scientific Advisory Committee Beamline Review April 2018

NIH (APS) P41 Review Panel July 2015

NCNR Future Directions August 2014

Thesis Committee for Robert Miller
Cornell Department of Chemistry 2022

External Examiner, Dissertation Committee for Thomas Grant
SUNY Buffalo/HWI Jan 2013

Proposal Evaluator, Vinnova (Sweden's Innovation Agency), industrial
beamtime proposals, appointed 2019

Chair, Small Angle Scattering Scientific Interest Group,
American Crystallographic Association, **elected 2012**

CHESS User Mtg. Poster: "High-Throughput BioSAXS: disposable tip pipetting and quick-change capillary flow cells" S. Neilsen, M. Moller, R. Gillilan (**1st Prize, Best Technical Achievement**) 2011

Chair, Oxford Cryosystems Poster Prize Committee
American Crystallographic Association 2008

Chair, Synchrotron Scientific Interest Group,
American Crystallographic Association, **elected 2006**

Postdoctoral researchers supervised:

Durgesh Rai
Jesse Hopkins
Alvin Acerbo
Soren Skou

Press Releases (recent):

Cornell Chronicle: Wild blue wonder: X-ray beam explores food color protein **Dec 2, 2021** (news.cornell.edu/stories/2021/12/wild-blue-wonder-x-ray-beam-explores-food-color-protein)

AIP/ACA: X-Ray Scattering Facility for Extreme Biology Opens for Research **July 28, 2020** (www.newswise.com/articles/x-ray-scattering-facility-for-extreme-biology-opens-for-research)

AIP/ACA: High-Pressure Biology Seeks Answers to Early Life Beginnings, **July 18, 2019** (www.newswise.com/articles/high-pressure-biology-seeks-answers-to-early-life-beginnings)

Workshops/Conferences Organized (recent)

"High Pressure Structural Biology and Extreme Biophysics Workshop",
Cornell University, (with C. Royer, S. Gruner, N. Ando) **April 7-10, 2022**

"Biology Under Extreme Conditions: 2030 and Beyond", CHESS **Jul 15-16, 2021**

"High Pressure Biology with hands-on data collection", CHESS **April 2021**

ACA WK.01: Applications of Small Angle Scattering to Structural Biology: An Introduction (co-organized with J. Hopkins and K. Gupta) Online **Jul 2020**

ACA WK.04 "Applications of Small Angle Scattering to Structural Biology: An Introduction" (co-organized with K. Gupta, J. Hopkins ...) **Jul 2018**

International Small Angle Scattering Meeting (SAS2018) "BioSAS: Advanced Applications" course (Co-organized with J. Hopkins, E. Brooks et al) **Oct 2018**

"BioSAXS Essentials" training workshops (annual), Wilson Lab, Cornell **March 2011, May 2011, Feb 2012, March 2013, Oct 2014, May 2017, Apr 2018**

ACA WK.04: Small Angle Scattering: Structural Biology and Soft Matter, Philadelphia, PA, **July 2015**

ACA WK.01 Biological Small Angle Solution Scattering: Theory & Practice

National-level training workshop held in conjunction with the annual ACA meeting, Honolulu, HI, **July 2013**

Professional Meeting Sessions Organized/Chaired (selected)

ACA Session "Phase Separation and Aggregation of Biomolecular Systems and Intrinsically Disordered Proteins", co-organized with Y. Liu (Aug 2, 2022)

Co-organized/ran ACA Session-1-1-1 "Macromolecular Structure Under Physiological Conditions" (July 21, 2019)

BioMolecules Under Pressure (co-organized with Rai and Gruner), Cornell (June July 2019)

ACA Transactions Symposium: Neutron & Synchrotron Sources: Crystallography Session I - Small Angle Scattering (July 2013)

ACA 13.14: Microcrystal Session **chair** (ACA 13.14, June 5, 2008) (selected speakers, ran meeting, managed funds, wrote meeting report)

"Frontier Applications of X-ray Science in Biology: The Energy Recovery Linac X-ray Source" (Summer ERL meeting series, Cornell) June 2006

Invited Lectures (recent)

"Biological X-ray Scattering Under Intense Pressure: A Quick HOW-TO", High Pressure MX Workshop 2023 (CHESS, Cornell) Jun 10, 2023.

"SAXS Overview", Everything BioSAXS 9 (Advanced Photon Source) Feb 2023

Advanced Photon Source/Argonne National Lab, Everything BioSAXS 8: "SAXS Overview" 3/2022

"BioSAXS/HP-Bio: from biomolecules to extreme biophysics and beyond", Small-angle Scattering Seminar Series (SAXS-SIG, Advanced Photon Source) Jan 2022

"High Pressure Cold Dissociation of a Protein Complex Characterized by Chromatography-Coupled X-ray Scattering", 10th Asian Conference on High Pressure Research (S. Korea, virtual) Nov 2021

SUNY UpState Medical University
course B666 (Protein Structure): 2012, 2016, 2018, 2020, 2022 (alt years)

Advanced Photon Source/Argonne National Lab, Everything BioSAXS 7: "SAXS Overview" 3/2021

Cornell University Chem 7889 (Ando) Fall 2023

Binghamton University
Chem 583P-01 (Structural Biology) Fall 2020, Fall 2022
BCHM403 (S. Solmaz Biochemistry Class), Spring 2021, Spring 2023
BCHM403 (L. Musselman Biochemistry Class), Fall 2021

"BioSAXS Essentials", Methods in Biophysics class, RPI, Troy NY
Nov. 2018

"BioSAXS Essentials", CHM 515 Princeton University Oct 2015

"Une introduction pratique à BioSAXS : acquisition de données et
d'analyse", *Département de Biochimie, Université de Montréal,
Canada, Jan 16-17m 2013*

*"Amazing things behind the beamstop: what small-angle x-ray scattering
tells us about proteins in solution"*, University of Alabama, Birmingham,
May 16-18, 2012

SUNY UpState Medical University
Lecture/lab session for Course GS 632, Dec 2011

Cornell Biophysics Colloquium, "Shapes from solutions: high-throughput
x-ray solution scattering for molecule biology". Sept. 2010

Cornell Biophysics Colloquium, "New Opportunities for Structural
Biology with Cornell's Energy Recovery Linac" Apr. 2006

NY Structural Biology Group, "New Opportunities for Structural
Biology with Cornell's Energy Recovery Linac" 1/24/06 Manhattan

Recent Contributed Lectures (selected)

"Biological X-ray scattering under intense pressure: what we can learn",
2023 Extreme Biophysics and Biology Conference (Scripps Institute of
Oceanography, San Diego) April 29, 2023

"Biological X-ray scattering under intense pressure: what we can learn",
2023 Extreme Biophysics and Biology Conference, April 28-May1, 2023

"Solution Scattering and High Pressure Biology" in Mapping Free Energy
Landscape of Molecular Machines ACA session 1.1.2, July 2021

"HP-Bio: High Pressure BioSAXS for Deep Life and Extreme Biophysics" in
Frontiers in SAS ACA session July 2020

"Structural Biology in the Abyss: SEC-SAXS at Deep Ocean Pressures" in
Crystallography at Extreme Conditions ACA session 1.2.2, July 2019

"MacCHESS: The Macromolecular Diffraction Facility at the Cornell
High-Energy Synchrotron Source" (July 2010 Chicago)

MacCHESS Workshop (June 10, 2009) "Young Again at 70: SAXS and Biology
in the 21st Century"

American Crystallographic Association (ACA Knoxville TN, 2008)
"The State of Microcrystallography" (Microcrystal session) R. E. Gillilan

Microscopy and Microanalysis 2008 (Albuquerque, NM, Aug 2008)
"Using Molecular Envelope Information Derived from SAXS and EM for
Crystallographic Phasing" Quan Hao, Xinguo Hong, and Qun Liu (presented by
Richard Gillilan)

American Crystallographic Association (Salt Lake City, 2007)
"Microcrystals and Microbeams at MacCHESS" R. E. Gillilan, M. J. Cook, S. Cornaby, Detlef Smilgies, T..A. Szebenyi and D. H. Bilderback

Pittsburgh Diffraction Conference (Buffalo, 10/25/07-10/27/07)
"How to Get Diffraction from Almost Nothing: Microcrystals and Microbeams at MacCHESS", R. E. Gillilan, M. J. Cook, S. Cornaby, Detlef Smilgies, T..A. Szebenyi and D. H. Bilderback

Peer review activities (recent)

Astrobiology, Molecular Pharmacology (ACS), Journal of Synchrotron Radiation, Journal of Applied Crystallography, Protein Science, Biophysical Reviews, IUCr Journal, Journal of Molecular Biology, Biopolymers, X-Ray Optics and Instrumentation, ACTA D

Peer-reviewed publications

- Jinqiu Wang, Tejaswi Koduru, Balasubramanian Harish, Scott A. McCallum, Kevin P. Larsen, Karishma S. Patel, Edgar V. Peters, **Richard E. Gillilan**, Elisabetta V. Puglisi, Joseph D. Puglisi, George Makhataadze and Catherine A. Royer, "Pressure pushes tRNA^{Lys3} into excited conformational states" In Press, PNAS Jun 19, 2023
- Gabrielle Illava, **Richard Gillilan**, Nozomi Ando (2023) Development of in-line anoxic small-angle X-ray scattering and structural characterization of an oxygen-sensing transcriptional regulator. bioRxiv:2023.05.18.541370.
- Ford, R. R. et al. Micelle Formation and Phase Separation of Poloxamer 188 and Preservative Molecules in Aqueous Solutions Studied by Small Angle X-ray Scattering. *Journal of Pharmaceutical Sciences* 112, 731-739 (2023).
- Miller, R. C., Cummings, C., Huang, Q., Ando, N. & **Gillilan, R. E.** Inline small-angle X-ray scattering-coupled chromatography under extreme hydrostatic pressure. *Protein Science* **31**, e4489 (2022).
- **Gillilan, R. E.** High-pressure SAXS, deep life, and extreme biophysics. in *Methods in Enzymology* (Academic Press, 2022). doi:[10.1016/bs.mie.2022.08.025](https://doi.org/10.1016/bs.mie.2022.08.025).
- Zhang, S., McCallum, S. A., **Gillilan, R. E.**, Wang, J. & Royer, C. A. High Pressure CPMG and CEST Reveal That Cavity Position Dictates Distinct Dynamic Disorder in the PP32 Repeat Protein. *J. Phys. Chem. B* (2022) doi:[10.1021/acs.jpcc.2c05498](https://doi.org/10.1021/acs.jpcc.2c05498).
- Trewhella, J. et al. A round-robin approach provides a detailed assessment of biomolecular small-angle scattering data reproducibility and yields consensus curves for benchmarking. *Acta Crystallographica Section D* **78**, (2022)
- Allsopp, R. et al. Antimicrobial Peptide Mechanism Studied by Scattering-Guided Molecular Dynamics Simulation. *J. Phys. Chem. B* (2022) doi:[10.1021/acs.jpcc.2c03193](https://doi.org/10.1021/acs.jpcc.2c03193).

- Lokareddy, R. K. *et al.* Terminase Subunits from the Pseudomonas-Phage E217. *Journal of Molecular Biology* **434**, 167799 (2022).
- Florio, T. J., Lokareddy, R. K., Yeggoni, D. P., Sankhala, R. S., Ott, C. A., **Gillilan, R. E.** & Cingolani, G. (2022). *Nature Communications*. **13**, 1207.
- Doll, S. G. *et al.* Recognition of the TDP-43 nuclear localization signal by importin α 1/ β . *Cell Reports* **39**, 111007 (2022).
- Zovo, K., Pupart, H., Van Wieren, A., **Gillilan, R. E.**, Huang, Q., Majumdar, S. & Lukk, T. (2022). *ACS Omega*. **7**, 6184-6194.
- Li Y, **Gillilan R**, Abbaspourrad A. 2021. Tuning C-Phycocyanin Photoactivity via pH-Mediated Assembly Disassembly. *Biomacromolecules* 22(12):5128-5138
- Harish B, **Gillilan RE**, Zou J, Wang J, Raleigh DP, Royer CA. 2021. Protein unfolded states populated at high and ambient pressure are similarly compact. *Biophysical Journal*. 120(12):2592-98
- Rai, D.K., **Gillilan, R.E.**, Huang, Q., Miller, R., Ting, E., Lazarev, A., Tate, M.W., Gruner, S.M., 2021. High-pressure small-angle X-ray scattering cell for biological solutions and soft materials. *Journal of Applied Crystallography* 54, 111-122. <https://doi.org/10.1107/S1600576720014752>
- Ando, N., Barquera, B., Bartlett, D.H., Boyd, E., Burnim, A.A., Byer, A.S., Colman, D., **Gillilan, R.E.**, Gruebele, M., Makhatadze, G., Royer, C.A., Shock, E., Wand, A.J., Watkins, M.B., 2021. The Molecular Basis for Life in Extreme Environments. *Annu. Rev. Biophys.* <https://doi.org/10.1146/annurev-biophys-100120-072804>
- Coombs, S.E., Banjade, S., Kriksunov, K., Clemente, N., Zhao, J., Wang, C., **Gillilan, R.E.**, Oswald, R.E., 2020. In Vitro Effects of (+)MK-801 (dizocilpine) and Memantine on β -Amyloid Peptides Linked to Alzheimer's Disease. *Biochemistry* 59, 4517-4522. <https://doi.org/10.1021/acs.biochem.0c00813>
- Biophysical analysis of Pseudomonas-phage PaP3 small terminase suggests a mechanism for sequence-specific DNA binding by lateral interdigititation
Niazi, Marzia; Florio, Tyler; Yang, Ruoyu; Lokareddy, Ravi; Swanson, Nicholas; **Gillilan , Richard**; Cingolani, Gino, *Nucleic Acids Research* (2020 online <https://doi.org/10.1093/nar/gkaa866>)
- Structure and function of the juxtamembrane GAF domain of potassium biosensor KdpD
S Kumar, RE Gillilan, DA Yernool *Protein Science* 29 (9), 2009-2021 2020

- Quantitative measure of the size dispersity in ultrasmall fluorescent organic-inorganic hybrid core-shell silica nanoparticles by small-angle X-ray scattering
KP Barteau, K Ma, FFE Kohle, TC Gardinier, PA Beaucage, RE Gillilan, ...
Chemistry of Materials 31 (3), 643-657 2019
- Molecular architecture of the inositol phosphatase Siw14
TJ Florio, RK Lokareddy, RE Gillilan, G Cingolani
Biochemistry 58 (6), 534-545. 2018
- Predicting data quality in biological X-ray solution scattering. Wang C, Lin Y, Bougie D, **Gillilan** RE. Acta Crystallogr D Struct Biol. 2018 Aug 1;74(Pt 8):727-738.
- The consequences of cavity creation on the folding landscape of a repeat protein depend upon context. Jenkins KA, Fossat MJ, Zhang S, Rai DK, Klein S, Gillilan R, White Z, Gerlich G, McCallum SA, Winter R, Gruner SM, Barrick D, Royer CA., Proc Natl Acad Sci U S A. 2018 Aug 28;115(35):E8153-E8161
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- Lorenzo Alamo, Natalia Koubassova, Antonio Pinto, **Richard Gillilan**, Andrey Tsaturyan, Raúl Padrón. Lessons from a tarantula: new insights into muscle thick filament and myosin interacting-heads motif structure and function. Biophys Rev Vol 9 (5) 461-480 (2017).
- Extended low-resolution structure of a Leptospira antigen offers high bactericidal antibody accessibility amenable to vaccine design, Ching-Lin Hsieh Christopher P Ptak Andrew Tseng Igor Massahiro de Souza Suguiura Sean P McDonough Tepyuda Sritrakul Ting Li Yi-Pin Lin **Richard E Gillilan** Robert Oswald, eLife 2017;6:e30051 DOI: 10.7554/eLife.30051
- Lorenzo Alamo James S Ware Antonio Pinto **Richard E Gillilan** Jonathan G Seidman Christine E Seidman Raúl Padrón. Effects of myosin variants on interacting-heads motif explain distinct hypertrophic and dilated cardiomyopathy phenotypes, eLife 2017;6:e24634 DOI: 10.7554/eLife.24634
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(*) **Corresponding author**
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- Donald H. Bilderback, Alexander Kazimirov, **Richard Gillilan**, Sterling Cornaby, Arthur Woll, Chang-Sheng Zha, and Rong Huang, "Optimizing Monocapillary Optics for Synchrotron X-ray Diffraction, Fluorescence Imaging, and Spectroscopy Applications", AIP Conf. Proc. 879, 758 (2007)
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- **Richard E. Gillilan**, Stephen D. Ayers and Noa Noy, "Structural Basis for Activation of Fatty Acid-binding Protein 4" J. Mol. Biol. (2007) 372, 1246-1260
- Nicole Hofer, Olga Kolaj, Hui Li, Vadim Cherezov, **Richard Gillilan**, J. Gerard Wall, and Martin Caffrey "Crystallization and preliminary X-ray diffraction analysis of a soluble domain of the putative zinc transporter CzcB from *Thermus thermophilus*" Acta Cryst (2007). F63, 673-677
- Stephen D. Ayers, Katherine L. Nedrow, **Richard E. Gillilan**, and Noa Noy* "Continuous Nucleocytoplasmic Shuttling Underlies Transcriptional Activation of PPAR by FABP4" *Biochemistry*, 46 (23), 6744 -6752, 2007
- Joseph E. Wedekind, **Richard Gillilan**, Alena Janda, Jolanta Krucinska, Jason D. Salter, Ryan P. Bennett, Jay Raina, and Harold C. Smith "Nanostructures of APOBEC3G Support a Hierarchical Assembly Model of High Molecular Mass Ribonucleoprotein Particles from Dimeric Subunit" J. Biol. Chem., Dec 2006; 281: 38122 - 38126
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- Trevor Hart, **Richard Gillilan**, Ryan Lilien, Steven Ness and Randy Read, "Molecular docking with a view: the integration of a Monte Carlo docking program into a virtual reality environment" in High Performance Computing Systems and Applications. Kluwer Academic Publisher (Summer 1998).
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- F. Wood, D. Brown, R. Amidon, J. Alferness, B. Joseph, **R. Gillilan**, and C. Faerman, Workspace and the Study of Chagas' Disease IEEE Computer Graphics and Applications Vol 16, (4) pp 72-78 July 1996
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- **R.E. Gillilan** and F. Wood, Visualization, Virtual Reality, and Animation within the Data Flow Model of Computing, Computer Graphics, 29, 55-58 (1995).
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J. Chem. Phys. 97 (3) pp 1757-1772 (1992)
- **R.E. Gillilan** and G.S. Ezra. Transport and Turnstiles in Multidimensional Hamiltonian Mappings for Unimolecular Fragmentation: Application to Van der Waals Predissociation. J. Chem. Phys. 95 (1991)
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Chem. Phys. Lett. 156, pp 478-482 (1988)
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- R.L. Waterland, J. Yuan, C.C. Martens, **R.E. Gillilan** and W.P. Reinhardt. Quantum-Classical Correspondence in the Presence of Global Chaos. Phys. Rev. Lett. 61, 2733-2736 (1988)
- W.P. Reinhardt and **R.E. Gillilan**, Semi-classical Quantization on Adiabatically Generated Tori, or Einstein on the Brink. Path Integrals from meV to MeV, edited by M.C. Gutzwiller et al. World Scientific, Singapore and Philadelphia pp 154-172 (1986)
- **R.E. Gillilan**, T.M. Pohl and D.L. Whalen. alpha and beta Deuterium Isotope Effects in the Hydrolysis of Naphthalene Tetrahydro Epoxides: Rate-Limiting Hydrogen Migration in the Spontaneous Hydrolysis of 6-Methoxy-1,2,3,4-tetrahydronaphthalene Oxide.
J. Am. Chem. Soc. 104, 4482-4484 (1982)
- **R.E. Gillilan**, T.M. Pohl and D.L. Whalen. Substituent Effects on Rates and Product Distributions in the Hydrolysis Reactions of Naphthalene Tetrahydro Epoxides. Models for Tetrahydro Epoxides of Polycyclic Aromatic Hydrocarbons. J. Am. Chem. Soc. 104, 4481-4482 (1982)

Meeting and Research Reports (pre-2015)

Gillilan RE, WK.04: Small Angle Scattering - Structural Biology and Soft Matter ACA Reflexions (workshop report), (Fall 2015)

Richard E. Gillilan, Søren S. Nielsen, *X-Ray Lab-on-a-Chip: Sample Dialysis for Small-Angle X-Ray Solution Scattering* (2011-2012 CNF Research Accomplishments Report)

R.E. Gillilan, S.S. Nielsen, "X-Ray Lab on a Chip: A Microfluidic Mixing System for Small-Angle X-ray Solution Scattering" (CNF Report 2011 #1940-10)

Richard E. Gillilan "Structures from Solutions: Biomolecular Small-Angle Solution Scattering at MacCHESS"
Chess News Magazine (2009) pp 53-56

Richard Gillilan and Ruslan Sanishvili "Microcrystallography", ACA Reflexions, Fall 2008 pp 49-50

Richard Gillilan and Gerd Rosenbaum, "Microcrystals, Microbeams, and Multiple Crystals" ACA Reflexions (American Crystallographic Association) Number 3, Fall 2007 p54

Richard Gillilan

CHESSE User Meeting Workshop

Report on the MacCHESSE Workshop

Synchrotron Radiation News, Vol. 18, No. 2, 2005

Book Chapters

"Single-bounce Monocapillary X-ray Optics: Design and Biological Applications"

Richard E. Gillilan and Donald H. Bilderback, Chapter 2 in Synchrotron Radiation and Structural Proteomics (26 pages), Pan Stanford Series on Nanobiotechnology New York 2010

"Daniel C. Dennett" (biography) in ICONS of UNBELIEF: Atheists, Agnostics, and Secularists, **Richard Gillilan**, Ed. S.T. Joshi, GREENWOOD Icons series, pp 39-50, Greenwood Press, Westport, Connecticut 2008

"Visualizing Enzyme Electrostatics with IBM Visualization Data Explorer"

R.E. Gillilan and D.R. Ripoll, , pp 61-81 in Data Visualization in Molecular Science Jack E. Bowie ed., Addison-Wesley, New York 1995

Film and video productions

Photoactive Yellow Protein (6:00)

Paul Bash (Argonne National Laboratory), Richard Gillilan (CTC) video, music and narration, 1997

Computational Enzymology: The Reaction in Malate Dehydrogenase (5:44)

Paul Bash (Argonne National Laboratory), Richard Gillilan (CTC) and T. Jackman (IBM) video, music and narration, 1996

Chorismate Mutase (4:32)

Angela Y. Lee, Ping Kongsaree, Bruce Ganem, Jon Clardy (Cornell), Richard Gillilan and Wayne Lytle (CTC) video, music and narration, 1995

Select Modes of Filamentous Actin (5:17)

Monique Tirion, Daniel Ben-Avraham (Clarkson University), Richard Gillilan (CTC) video, narration only, 1995

Acetylcholinesterase (4:00)

Daniel Ripoll (CTC), Joel Sussman, Israel Silman (Weizmann Institute), Richard Gillilan (CTC) video, no sound, 1993

Visualization in Chemistry (2:50)

Richard Gillilan (UCSD)

16mm film, music only, 1992

Solution Reaction Dynamics, The Movie

Robert Whitnell, Richard Gillilan and Kent Wilson (UCSD)

16mm stereo film, music only, 1991

Film Appearances (work-related)

The Age of Viruses (Indaganda Producciones, New Atlantis, 2005)

Articles about my past visualization work written by others

"The Frontiers of Virtual Reality And Visualization in Biochemical Research",
Scientific Computing and Automation July 96 pp 20-22

"Researchers Battle Disease in Cornell Theory Center's SC'95 I-WAY Demo",
ForeFronts (Cornell Theory Center Magazine) Vol 10 (4) 1995

"Flickering on the CAVE Walls, Reality in Another Dimension",
Washington Post Nov 28, 1994

"Data Explorer Hunts a Parasite", IBM Visions (2) 1995

"Acetylcholinesterase: Molecules Take Visual Forms", IBM Visions (3) 1993

Journal cover artwork (CTC era)

Chemistry and Biology (Clardy PBP Jan 2000)

Structure (Clardy DHODH Jan 2000)

Proteins Structure Function and Genetics, v34 #1 Jan 1999

IBM Visions, Issue 2 1995

IBM Systems Journal, Vol 34, (2) 1995

Chemistry and Biology, Vol 1 (2) Oct. 1994

In Chemistry, Vol 3, No. 4, 1993

Short courses and workshops organized (CTC era)

MacCHESS Annual User Meeting (co-organizer) Cornell University	2000
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Flexible Ligand Docking II (workshop) Cornell Theory Center	1998
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Flexible Ligand Docking (workshop) Cornell Theory Center	1997
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Molecular Graphics and Animation (multiple 2-3 day workshops) Cornell Theory Center	April 1994, October 1994 and June 1995
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Visualization of Chemical Systems (one day course) SuperComputing 93	1993
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Invited lectures (CTC era)

SIGGRAPH 98,97 Course 15 (Applied Virtual Reality) <i>Scientific Applications of Virtual Reality</i>	1998,1997
VR Expo '96, New Delhi, India <i>Molecular Modeling and Virtual Reality</i>	1996
NCI-Frederick Cancer Research and Development Center <i>Visualization, Animation and Virtual Reality for Chemistry and Biology</i>	1996
New Trends in Bio-Pharmaceutical Discovery, IBM T.J. Watson Structure-Based Drug Design and Virtual Reality	1995
Visualization Technology to Find and Develop More Oil, (keynote speaker):Visualization and Virtual Reality Woodlands, Texas	1995

Continuing Education (courses and schools attended)

DataCol 99 (synchrotron diffraction data collection) Brookhaven, NY	1999
Protein NMR (BioBM 730, audit)	1999
Protein-Nucleic Acid Interaction (BioMI 692, audit)	1998
Survey of Cell Biology (BIOBM 432, audit)	1997
Macromolecular Crystallography (BioBM 738 credit)	1997
NATO Advanced Study Institute LII: Chaos and Quantum Phys. Les Houches, France	1989

Lectures and demonstrations given in various Cornell courses (CTC era)

• Protein Structure and Function (Bio631, 2 lectures+demo)	1997
• Freshman Engineering (170, 1 lecture)	1998
• Society for Humanities "Virtuality" (1 lecture/demo)	1999
• Science and Society (1 lecture/demo)	1999

Early Teaching Experience and research assistantships

Supervision of undergraduate and masters student independent study projects in computer science (CS490,CS790)	1995-1999
Mentor: NASA SHARP Plus Program for high school students	1999,2001
Employment of undergraduate, Masters and H.S. students	1995-1999
University of Pennsylvania* (Physical Chemistry TA)	1983-1984
University of Colorado (Physical Chemistry TA)	1985
University of Maryland, Baltimore County Undergraduate Research Assistant in Organic Chemistry	1980-1982
University of Maryland, Baltimore County Teaching assistant in Introductory Chemistry	1981

**I moved with W.P. Reinhardt's group to UPenn in 1984*