

CURRICULUM VITÆ

20th August, 2009

Phillip Ross SMITH, PhD, MD

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Personal Data

Born: Napier, N.Z.
Citizenship: New Zealand; US Permanent Resident.
Marital Status: Married
Children: Two children

EDUCATION

Year	Degree	Field	Institution
1967	B.Sc. (Hons)	Physics	University of Canterbury, Christchurch, NZ
1967	M.Sc. (Distinction)	Physics	University of Canterbury, Christchurch, NZ
1971	Ph.D.	High Energy Physics	University of Cambridge, Cambridge, UK
1977	Cert.Mol.Bio.	Molecular Biology	SKMB (at University of Basel, Switzerland)
1986	M.D.	Medicine	NYU School of Medicine, New York, NY.

Postdoctoral Training

1971-2	Medical Imaging	Prof. R.H.T. Bates	University of Canterbury, Christchurch, NZ.
1986-7	Pediatric Intern		NY Hospital/Cornell, New York, NY.

Licensure and Certification

1987 Licensed to practice Medicine in New York State.

Academic Appointments

1977	Privat Dozent	University of Basel, Switzerland.
1978	Assistant Professor	New York University
1986	Adjunct Associate Professor	New York University
1987	Associate Professor (Tenured 1990)	New York University

Awards and Honors

1971 University Postdoctoral Fellow, University of Canterbury, Christchurch, NZ
1980 Irma T. Hirschl Career Scientist.
1998 Alpha Omega Alpha (alumnus member)
2000 Society Fellow, Master Scholars Program.
2007 NYU 25-year Faculty Service Award.

Current Departmental Appointments

Member, Department of Cell Biology, NYU School of Medicine (Primary)

Member, Center for Health Informatics and Bioinformatics

Major Committee Assignments

National

1979 – *Ad hoc* reviewer for the NIH in the areas of electron microscopy, image processing, structural biology instrumentation, bioinformatics, the SBIR, RCMI, COBRE and INBRE programs and NCCR informatics resources. For the NSF for the Biological Instrumentation Resources Program, Computational Biology Activities and the Academic Research Infrastructure review panel.
1992 – 1995 NSF – Member, “Instrumentation and Instrument Development” permanent review panel.
2002 – 2005 NIH – Member, Special Study Section (SSS-9).
2005 – 2007 NIH – Charter member of the “Biomedical Computing and Health Informatics” (BCHI) Study Section.

New York University

- 1990 – NYU Faculty Working Group on IT (previously the “Data Communications Task-Force”)
- 2001 – 2004 University Senator - elected by the faculty of the School of Medicine
- 2002 – 2003 HIPAA Working Group.
- 2002 – 2004 Academic Affairs Committee of the University Senate.
- 2005 – University Identity and Access Management Steering Committee.

NYU School of Medicine

- 1983 – 1984 Appointed Student Council representative the NYU Committee on Student Life, and as an Alternate University Senator.
- 1983 – 1986 MD-PhD Advisory Committee
- 1989 – 1999 Management Information Systems Steering Committee
- 1989 – 2009 Member, General Clinical Research Center Advisory Committee (GAC)
- 1994 – 1998 Clinical Executive Management Committee of the Kaplan Comprehensive Cancer Center.
- 1998 – 1999 School of Medicine Computing Subcommittee (of the LCME Self-Study Accreditation Committee). Co-Chair.
- 2003 – 2004 Dean’s Task-Force on Tenure-Based Compensation.
- 2009 – Member, Clinical Translational Science Institute Scientific Review Committee (SRC)

Faculty Representation

- 1975 – 1977 Assistenten Konferenz des Biozentrums (Uni. Basel). President, 1975-76.
- 1992 – Faculty Council’s Planning and Budget Committee. Vice-Chair 1995 - 2001.
- 1995 – 2000 Elected Alternate Senator to the University Senate.
- 1997 – Faculty Council’s Academic Affairs Committee.
- 2001 – 2007 Faculty Senators Council’s Administrative Issues Committee.
- 2001 – 2006 Faculty Senators Council’s Personnel and Affirmative Action Committee.
- 2002 – 2004 Faculty Senators Council’s Educational Policies Committee.
- 2003 – 2006 Faculty Council’s Elections Committee. Chair 2003.
- 2004 – 2006 Elected Alternate Senator to the University Senate.

Memberships, Offices, And Committee Assignments In Professional Societies

- 1973 – Swiss Society for Cell and Molecular Biology.
- 1978 – 1999 New York Society of Electron Microscopists.
 - 1980 – 83, 1989 - 92. Member of the Board of Directors
 - 1990 – 91. President of the Society.
- 1978 – Microscopy Society of America.
- 1979 – American Society for Cell Biology.
- 1980 – Swiss Society for Crystallography.
- 1981 – 1986 American Medical Students' Association.
- 1983 – 1991 Medical Society of the State of New York.
 - 1984 – 85 Appointed to the MSSNY Committee on Drug Abuse
- 1983 – American Medical Association
- 1986 – 1993 American Academy of Pediatrics
- 1986 – New York Academy of Sciences
- 1997 – Internet Society
 - 1999 – 2000 Member of the Program Committee for “ISOC-2000” held in Japan.
- 1997 – American Medical Informatics Association
- 2002 – Association for the Advancement of Computing in Education
- 2002 – Association for Patient-Oriented Research

Editorial Positions

- 1986 – 2002 Member of the Editorial Board of the “Journal of Structural Biology” (formerly “J. Ultrastruct. Mol. Struct. Res.”). Managing editor of the special issues of the journal “Advances in Computational Image Processing for Microscopy” (with Dr. Bridget Carragher) and “Web-based Visualization Tools” (with Drs. Alasdair Steven and Andreas Engel).
- 1992 – 1994 Associate Editor: “IEEE Transactions on Medical Imaging”.

Major Administrative Responsibilities

- 1991 – 1997 Assistant Program Director for the CDMAS, General Clinical Research Center.
- 1997 – 2002 co-Director: Academic Computing, Office of the Dean.
- 1998 – 2009 Associate Program Director for Informatics, General Clinical Research Center.
- 1999 – 2000 Interim Chief Information Officer, NYU School of Medicine.

Teaching Experience

National & International Courses and Conferences

1977. Organizer of an international course entitled “Image Processing in Electron Microscopy” sponsored by the European Molecular Biology Organization (EMBO) and the Swiss Commission for Molecular Biology (SKMB).
1989. Lecturer in the NYSEM 2-day Workshop “Sterology and Morphometry: Applications to Image Analysis” (Dec. 1989).
- 1990 & 1992 Organizer of Courses at the Pittsburgh Supercomputer Center entitled “Supercomputing and Image Processing in Structural Biology” with Drs. Joachim Frank (1990) and Dean Hillman (1990, 1992) co-organizers.
- 1996 – 1998. Organizer of three annual conferences at NYU School of Medicine entitled: “The WWW and the Academic Medical Enterprise”.

University Teaching Experience

- 1967 – 1970 Supervisor in Mathematics for Trinity College, Cambridge, UK.
- 1971 Lecture Course on High Energy Scattering Theory for final B.Sc.(Hons) students, University of Canterbury, NZ.
- 1973 Lectures on Basic Image Processing at the Biozentrum, Basel (with Dr. E. Kellenberger, organizer).
- 1978 Lectures on Image Processing of Plane Layers at the Biozentrum, Basel (with Dr. A.C. Steven).
- 1980 Organizer of an intensive course given at the Biozentrum, Basel, entitled “Image Processing of Electron Micrographs of Biomacromolecular Assemblies” (with Dr. U. Aebi, organizer).
- 1988 – 1998 Lab Instructor and Lecturer in the “Cell Biology” course for medical and graduate students.
- 1989 – 1997 Organizer of a Tutorial entitled “Introduction to Computing for Molecular Biology” for Graduate Students at NYUMC (with Drs John Hill & Stuart Brown).
- 1993 – 1996 Organizer of a Tutorial entitled “Introduction to Image Processing” for Graduate Students (with Dr. D. Hillman).

Current NYU School of Medicine activities.

- 1979 – Lecturer and Lab Instructor in the Cell Biology and Histology courses for medical and graduate students. Annual contact hours: 62.
- 1995 – 2009 Lecturer in the annual GCRC “Clinical Research” training course.
- 2000 – 2007 Mentor, Master Scholars Program.
- 2002 – Developer of new electronic methods for assisting student study (applied in the production of new materials for the Histology, Anatomy and Medicine courses).

Teaching Awards Received

None

Major Research Interests

I have a continuing interest in Informatics development for educational activities and am continually involved in developing educational materials in Anatomy, Histology and Medicine.

In the context of clinical research, I am the Bioinformatics Operations Director for the NCCR-supported CTSI and am involved in the rebuilding and extending the CTSI's informatics resources for the grant support period 2009-2014.

Grants Received

Prior Support

June 1973 – June 1975. Co-investigator with Prof. E. Kellenberger in Grant 3.9920.72 from the Swiss National Science Foundation “Preservation and Treatment of Information in Electron Microscopy”. (SFr. 203,920.)

June 1975 – Oct. 1977. Principal Investigator in Grant No. 3.4330.74 from the Swiss National Science Foundation “The Analysis of Structural Information in Electron Micrographs”. (SFr. 202,264.)

1978 – 1991 Principal Investigator in nine “Basic Research Support Grants” from NIH (RR 05399) administered by NYU Medical Center (S.J. Farber, PI). The grants were for periods of one year: the sums involved ranged from \$9,000 to \$54,000. (*This program has been discontinued by the NIH.*)

July 1979 – June 1987. Principal Investigator in Grant No. GM 26723, from NIH (NIGMS). “Biological Structural Studies Using Image Processing”. Total direct cost 1979-82: \$243,689.--, 1982-87: \$492,535.--.

Jan. 1980 – Aug. 1982. Irma T. Hirschl Career Scientist Award from the Irma T. Hirschl Trust. An award of \$15,000 per annum.

March 1982. Principal Investigator in Grant No. GM 26723-03S1 from NIH (NIGMS), “NIGMS Shared Instrumentation Grant”. Total direct cost \$143,406. (For the purchase and maintenance of an electron microscope shared facility in Cell Biology).

June 1983. Recipient of a Special Equipment Grant from Digital Equipment Corporation. The equipment consists of a PDP 11/44 computer and ancillary hardware. Total equivalent cost \$56,000.

Sept. 1983 – Aug. 1984. Co-Investigator with Dr. D.D. Sabatini (PI) and others in Grant No. RR 01581, from the NIH DRR. “A Shared SEM Facility for the NYU Medical Center”. Total direct costs \$110,000.

July 1985 – June 1986. Co-Principal investigator with Dr. F. Maxfield (PI) and others in an equipment grant from Digital Equipment Corporation, Inc. “Computer Equipment for Image Processing”. (\$100,000.)

Aug. 1985 – July 1988. Co-Principal investigator and subsequently PI (with Dr. F. Maxfield, initial PI) and others in grant DMB-8515392 from NSF. “Acquisition of Equipment for Image Processing”. Total direct costs: \$16,805.

Sept. 1985 – Aug. 1988. Co-Principal Investigator with Dr. M. Mohraz (PI) in Grant No. GM-35399, from NIH (NIGMS): “Structure Determination of the Na/K-ATPase”. Total direct cost \$183,209.

July 1989 – Dec. 1991. Principal Investigator with Drs. D'Eustachio, Jelinek, Samuels and Ziff (Co-PIs) in grant DIR-8908095 from the National Science Foundation: “A Central Shared Computer Resource for Cellular and Molecular Biology”. Total direct costs: \$134,036.

July 1989 – Dec. 1991. Principal Investigator in a grant entitled “A Central Shared Computer Resource for Cellular and Molecular Biology”: from Digital Equipment Corporation. Total direct costs: \$106,679.

March 1990 – Dec. 1991. Project coordinator for the “NYU Medical Center Network Project: Fiber Optic Cable installation to interconnect the Medical Center, Dental Center, OCME and Bellevue Hospital.” Total project cost \$256,000.

Sept. 1990 – Aug. 1995. Collaborator with Dr. Ralph Roskies (PI) [Mellon Institute, Pittsburgh Supercomputing Center] and others in a Research Resource Grant from NIH “Supercomputing for Biomedical Research”.

April 1992 – June 2009. Associate GCRC Program Director for Informatics for NYU's NIH-NCRR supported General Clinical Research Center. (RR-00096, Robert Grossman, MD, PI) (0.15 FTE).

April 1994 – Sept. 1997. Principal Investigator in grant BIR-9318128 from the National Science Foundation entitled “A Central Shared Computer Resource for Cellular and Molecular Biology”. Total direct costs: \$287,994.

Oct. 1994 – Sept. 1998. Principal Investigator in grant BIR-9410750 from the National Science Foundation entitled “Development of the Micrograph Data Processing Program”. Total direct costs: \$216,377 (0.10 FTE).

Dec. 1993 – Nov. 1998. Director of the Coordinated Computing Facility of the KCCC, NYU's NCI-funded Cancer Center (CA-16087, Franco Muggia, MD, PI) (0.10 FTE)

July 2007 – August 2008. Lead Investigator. “Risk Management in the Healthcare Sector: What and Where are the Agents of Opportunity and Why?” (Contract number: W81XWH-07-1-0517, Department of Defense – Army. Lewis R. Goldfrank, MD, PI) (0.20 FTE).

Current Support

July 2009 – June 2014. Bioinformatics Operations Director for the NIH-NCRR supported “NYU-HHC Clinical Translation Science Award”. (U54 RR-024386, Bruce Cronstein, MD and Judy Hochman, MD, co-PIs) (0.15 FTE).

Patents

None

Boards and Community Organizations

Member of the Board of Directors of “Professional Examination Service”, a not-for-profit corporation incorporated in 1971 under the laws of the State of Missouri: elected for two three-year terms 2004-2010. Elected Secretary of the Board 2009; elected to the Executive Committee 2009; to the Finance Committee 2005-2009; to the Nominating Committee 2007-2008.

Military Service

None

Bibliography

Original Reports

- P.R. Smith and B.G. Wybourne**, Selection Rules and the Decomposition of the Kronecker Squares of Irreducible Representations, *J. Math. Phys.*, 8, 2434-2440 (1967).
- P.R. Smith and B.G. Wybourne**, Plethysm and the Theory of Complex Spectra, *J. Math. Phys.*, 9, 1040-1051 (1968).
- P.R. Smith and C. Wilkin**, Final State Interactions in Large Momentum Transfer Inelastic Electron-Deuteron Scattering, *Lett. al Nuovo Cimento*, 4, 657-652 (1970).
- P.R. Smith and C. Wilkin**, Final State Interactions in Large Momentum Transfer Inelastic Electron-Deuteron Scattering, *Ann. Physics*, 75, 103-131 (1973).
- P.R. Smith, T.M. Peters and R.H.T. Bates**, Image Reconstruction from Finite Numbers of Projections. *J. Phys. A: Math., Nucl. Gen.*, 6, 361-382 (1973).
- T.M. Peters, P.R. Smith and R.D. Gibson**: Computer Aided Transverse Body-Section Radiography. *Brit. J. Radiol.*, 46, 313-317 (1973).
- U. Aebi, P.R. Smith, J. Dubochet, Carol Henry and E. Kellenberger**. A Study of the Structure of the T-layer of Bacillus Brevis, *J. Supramol. Struct.*, 1, 498-515 (1973). With an appendix by P. R. Smith and U. Aebi, pp. 516-522.
- U. Aebi, R. Bijlenga, J.v.d. Broek, R.v.d. Broek, F. Eiserling, C. Kellenberger, E. Kellenberger, V. Mesyanzhinov, L. Muller, M. Showe, R. Smith and A. Steven**, The Transformation of tau-Particles into T4 Heads. Part II, *J. Supramol. Struct.*, 2, 253-275 (1974).
- P.R. Smith and U. Aebi**, Computer Generated Fourier Transforms of Helical Particles, *J. Phys. A. Math., Nucl. Gen.*, 7, 1627-1633 (1974).
- P.R. Smith, T.M. Peters, H.R. Muller and M. Elke**. Towards the Assessment of the Limitations on Computerized Axial Tomography. *Neuroradiology*, 9, 1-8 (1975).
- P.R. Smith, U. Aebi, R. Josephs and M. Kessel**, Studies of the structure of the T4 Bacteriophage Tail Sheath: I. The Recovery of 3-dimensional Structural Information from the Extended Sheath, *J. Mol. Biol.*, 106, 243-271 (1976). With an Appendix by P.R. Smith and U. Aebi, The determination of the helical screw angle of a helical particle from its diffraction pattern, pp. 271-275.
- U. Aebi, R.K.L. Bijlenga, B. ten Heggeler, J. Kistler, A.C. Steven and P.R. Smith**. A comparison of the Structure and Chemical Composition of Giant T-even Phage. *J. Supramol. Struct.*, 5, 475-492 (1976). With an appendix by P.R. Smith and U. Aebi, pp. 493-495.
- J. Tschopp and P.R. Smith**. Extra long T4 Tails Produced under in vitro Conditions. *J. Mol. Biol.*, 114, 281-286 (1977).
- U. Aebi, R. van Driel, R.K.L. Bijlenga, B. ten Heggeler, R. van den Broek, A.C. Steven and P.R. Smith**. Capsid Fine Structure of T-even Bacteriophages: Binding and Localization of Two Dispensible Capsid Proteins into the P23* Surface Lattice. *J. Mol. Biol.*, 110, 687-698 (1977).
- P.R. Smith and J. Kistler**. Surface Reliefs Computed from Micrographs of Heavy Metal Shadowed Specimens. *J. Ultrastruct. Res.*, 61, 124-133 (1977).
- A.C. Steven, P.R. Smith and R.W. Horne**. Capsid Fine Structure of Cowpea Chlorotic Mottle Virus: from a Computer Analysis of Negatively Stained Virus Arrays. *J. Ultrastruct. Res.*, 64, 63-73 (1978).
- P.R. Smith**. An Integrated Set of Computer Programs for Processing Electron Micrographs of Biological Structures. *Ultramicroscopy*, 3, 153-160 (1978).
- T. Hohn, B. Hohn, A. Engel, M. Wurtz and P.R. Smith**. Isolation and Characterization of the Host Protein groE Involved in Bacteriophage Lambda Assembly, *J. Mol. Biol.*, 129, 359-373 (1979).
- U. Aebi, R. van den Broek, P.R. Smith, B. ten Heggeler, J. Dubochet, V.V. Mesyanzhinov, A. Tsugita and J. Kistler**. Crystalline Aggregation of a Proteolytic Fragment of the Major Head Protein of Bacteriophage T4, *J. Mol. Biol.*, 130, 255-272 (1979).
- P.R. Smith**. A Trough Designed to Facilitate the Coating of Electron Microscope Grids, *Science Tools*, 26, 51-52 (1979).
- P.R. Smith and I. Emanuilov Ivanov**. Surface Reliefs Computed from Micrographs of Isolated Heavy Metal Shadowed Particles, *J. Ultrastruct. Res.*, 71, 25-36 (1980).
- P.R. Smith**. Freeze-Drying Specimens for Electron Microscopy. *J. Ultrastruct. Res.*, 72, 380-384 (1980).
- U. Aebi, P.R. Smith, G. Isenberg and T.D. Pollard**. Structure of Crystalline Actin Sheets. *Nature (London)*, 288, 296-298 (1980).
- P.R. Smith**. Bilinear Interpolation of Digital Images. *Ultramicroscopy*, 6, 201-204 (1981).
- U. Aebi, W.E. Fowler, G. Isenberg, T.D. Pollard and P.R. Smith**. Crystalline Actin Sheets: Their Structure and Polymorphism. *J. Cell Biol.*, 91, 340-351 (1981).
- P.R. Smith**. The Interpolation of Fourier Transform data in Tilted-View three-dimensional reconstruction. *Ultramicroscopy*, 7, 155-160 (1981).
- P.R. Smith**. A Trough Designed to Facilitate the Coating of Electron Microscope Grids. *Philips Electron Optics Bulletin*, No. 115, 13-14 (1981).
- S. Papadopoulos and P.R. Smith**. The Structure of the Tail of the Bacteriophage Phi-CbK. *J. Ultrastruct. Res.*, 80: 62-70 (1982).

- M.H. Heggeness, P.R. Smith, I. Ulmanen, R.M. Krug and P.W. Choppin.** Studies on The Helical Nucleocapsid of Influenza Virus. *Virology*, 118, 466-470 (1982).
- U. Aebi, W.E. Fowler and P.R. Smith.** Three-dimensional Structure of Proteins Determined by Electron Microscopy. *Ultramicroscopy*, 8, 191-206 (1982).
- T.D. Pollard, U. Aebi, J.A. Cooper, W.E. Fowler, D.P. Kiehart, P.R. Smith and P.C. Tseng.** Actin and Myosin Function in *Acanthamoeba*. *Phil. Trans. Roy. Soc. (Lond)*, 299, 237-245 (1982).
- M.H. Heggeness, P.R. Smith and P.W. Choppin.** In Vitro Assembly of the Nonglycosylated Membrane Protein (M) of Sendai Virus. *Proc. Natl. Acad. Sci. USA*, 79, 6232-6236 (1982).
- P.R. Smith, W.E. Fowler, T.D. Pollard and U. Aebi.** The Structure of the Actin Molecule Determined from Electron Micrographs of Crystalline Actin Sheets: With a Tentative Alignment of the Molecule in the Actin Filament. *J. Mol. Biol.* 167, 641-660 (1983).
- M. Mohraz and P.R. Smith.** The Structure of the (Na⁺,K⁺)-ATPase as Revealed by Electron Microscopy and Image Processing. *J. Cell Biol.*, 98, 1836-1841 (1984).
- P.R. Smith, W.E. Fowler and U. Aebi.** Towards an Alignment of the Actin Molecule Within the Actin Filament. *Ultramicroscopy*, 13, 113-124 (1984).
- M. Mohraz, C.A. Rinder, M.V. Simpson and P.R. Smith.** The Structure of the (Na,K)-ATPase as Revealed by Electron Microscopy. *Ann. NY Acad. Sci.*, 435, 561-563 (1985).
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- J. van Oostrum, P.R. Smith, M. Mohraz and R.M. Burnett.** The Vertex Morphology of the Adenovirus Capsid. *Ann. NY Acad. Sci.*, 494, 423-426 (1987).
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- P.D. Canoll, P.R. Smith, S. Gottesman and J.M. Musacchio.** Autoradiographic Localization of [³H]Dextromethorphan in Guinea Pig Brain: Allosteric Enhancement by Ropizine. *J. Neuroscience Research*, 24, 311-328 (1989).
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- P.D. Canoll, P.R. Smith and J.M. Musacchio.** Ropizine Concurrently Enhances and Inhibits [³H]Dextromethorphan Binding to Different Structures of Guinea Pig Brain: Autoradiographic Evidence for Multiple Binding Sites. *Life Sciences*, 46, PL9-16 (1990).
- S.M. Staugaitis, P.R. Smith and D.R. Colman.** Expression of Myelin Basic Protein Isoforms in Non-Glial Cells. *J. Cell Biol.* 110, 1719-1728 (1990).
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- S.M. Staugaitis, T. Rowan, D.H. Sanes, D.R. Colman and P.R. Smith.** Applications of Confocal Microscopy to the Study of Myelin Development and Neuron Structure. *J. Elec. Microsc. Tech.* 18, 31-37 (1991).
- P.R. Smith, A.J. Ropelewski, D.A. Balog, S. Gottesman and D.W. Deerfield.** A simple approach for the distribution of computationally intense tasks in a heterogeneous environment: distribution of the MDPP image-processing package. *Comput. Appl. Biosci.* 7, 501-507 (1991).
- E. Kocsis, B.L. Trus, A.C. Steven, P.R. Smith, J. Hannah, M.J. Brennan and M. Kessel.** Orientation of Porin Channels in the outer Membrane of *Bordetella Pertussis*. *Mol. Microbiol.*, 9, 469-476 (1993).
- A. Bremer, C. Henn, K.N. Goldie, A. Engel, P.R. Smith and U. Aebi.** Towards atomic interpretation of F-Actin filament three-dimensional reconstructions. *J. Mol. Biol.* 242(5), 683-700 (1994).
- X.W. Guo, P.R. Smith, B. Cognon, D. D'Arcangelis, E. Dolginova and C.A. Manella.** Molecular design of the voltage-dependent anion-selective channel in the mitochondrial outer membrane. *J. Struct. Biol.* 114(1), 41-59 (1995).
- P.R. Smith, S. Gottesman and W.K. Jones.** Managing the electronic NIH-Guide for Grants and Contracts. *J. Am. Med. Inform. Assn.* 2(2), 94-100 (1995).
- P.R. Smith and S. Gottesman.** The Micrograph Data Processing Program (MDPP). *J. Struct. Biol.* 116(1), 35-40 (1996).

Reviews and Book Chapters

- P. R. Smith**, Some Mathematical and Physical Aspects of Computerized Axial Tomography in 'Medizinische Phys', vol. 1, 127-156 (1977). Edited by W. J. Lorenz (Alfred Huthig, Heidelberg, BRD) (Invited review).
- U. Aebi and P.R. Smith**, Structural Studies of Biomacromolecular Assemblies Using Image Processing of Electron Micrographs (Tutorial paper), in *Proceedings of the Conference on Signal Processing*, M. Kunt and F. de Coulon (eds.), pp. 219-228, (North Holland, Amsterdam, 1980).
- U. Aebi and P.R. Smith**. Image Processing of Electron Micrographs of Biomacromolecular Assemblies. *The Optronics Journal*, May, 1980 (Invited Review).
- T.D. Pollard, U. Aebi, J. A. Cooper, M. Elzinga, W. E. Fowler, L.M. Griffith, I. M. Herman, J. Heuser, G. Isenberg, D.P. Kiehart, J. Levy, S. MacLean-Fletcher, P. Maupin, M.S. Mooseker, M. Runge, P.R. Smith and P. Tseng**. The Mechanism of Actin Filament Assembly and Cross-Linking in "Cell and Muscle Motility" vol 2, R.M. Dowben and J.W. Shay eds. (Plenum Publishing Corp., New York, 1982), pp 15-44.
- U. Aebi, W.E. Fowler, E.L. Buhle and P.R. Smith**. Electron Microscopy and Image Processing Applied to the Study of Protein Structure and Protein-Protein Interactions. *J. Ultrastruct. Res.*, 88, 143-176 (1984) (Invited Review).
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- B. Carragher and P.R. Smith (Special issue guest editors)**. "Advances in Computational Image Processing for Microscopy." *J. Struct. Biol.* 116(1) (1996).
- R. Smith**. Health Care Institutions Confront Confidentiality on the Net. in "Patient Resources on the Internet: 1998-1999 Edition", E. Levy, editor, Faulkner & Gray, New York, pp 147-154 (1998) (Invited chapter).
- R. Smith, A. Engel and A. Steven (Special issue guest editors)**. "Web-based Visualization Tools" *J. Struct. Biol.* 125(2) (1999).
- R. Smith and B. Carragher**. "Software Tools for Molecular Microscopy." *J. Struct. Biol.* 163(3), 224-228 (2008) (Review).

Educationally Relevant Abstracts and Publications

- P.R. Smith and V.H. Black**. Automated Study Questions for Medical Students Using the Web. *E-Learn 2002*, M. Driscoll and T. Reeves (eds.) Association for the Advancement of Computing in Education, Norfolk, VA. pp 2743-44 (2002).
- P.R. Smith**. Software Implementing Web-based Study Questions for Medical Students. *Int. J. E-Learn.* 2(2), 29-34 (2003).
- P.R. Smith**. KEYSEARCH. Access at: <http://mdpp.med.nyu.edu/keysearch> (Jan, 2004).
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