# CURRICULUM VITAE: September 2019
# ELIZABETH ALISON THOMPSON

Title; Professor of Statistics — Date of birth 5/22/49
Citizenship; U.S.A (from 10/29/97) — SSN; ***-**-****

**Please note:** A list of publications and statement of research interests can be found at my web page http://www.stat.washington.edu/thompson/

## Education

| | | |
|---|---|---|
| 1967 | Matriculated, Newnham College | Cambridge University |
| 1968-70 | First class honours, Mathematics Tripos | Cambridge University |
| 1970 | B.A. (Honours) Degree | Cambridge University |
| 1971 | Diploma in Mathematical Statistics (Distinction) | Cambridge University |
| 1974 | M.A. | Cambridge University |
| 1974 | Ph.D.(Statistics) | Cambridge University |
| 1974-5 | S.R.C./NATO postdoctoral fellow | Stanford University |

Thesis title: Mathematical Analysis of Human Evolution and Population Structure
Thesis adviser; Dr. A. W. F. Edwards, Cambridge University.
Post-doc adviser; Prof. L L. Cavalli-Sforza, Dept. Genetics, Stanford University

## Employment

| | |
|---|---|
| 1975–1976 | Research fellow, King's College, Cambridge |
| 1976–1985 | University Lecturer, Department of Pure Mathematics and Mathematical Statistics, Cambridge University (tenured from March 1979) |
| 1978–1981 | Official Fellow and Financial Tutor, King's College, Cambridge |
| 1979 | Pre-elected to official fellowship, Newnham College, Cambridge |
| 1981–1985 | Official Fellow, College Lecturer and Director of Studies in Mathematics, Newnham College, Cambridge |
| 1985/12 –2018/09 | Professor, Department of Statistics, University of Washington and Chair, Department of Statistics, 1989-94 and 2011-14 and Professor, Department of Biostatistics, 1988-2004 |
| 2000–2005 | and Adjunct Professor of Statistics, North Carolina State University |
| 2000–2018 | and Adjunct Professor of Genome Sciences (until 2001, Genetics), University of Washington |
| 2006–2018 | and Adjunct Professor of Biostatistics, University of Washington |
| 2018/09– | Emeritus Professor of Statistics, University of Washington |

## Academic Honors

| | |
|---|---|
| 1968–74 | Prizes, scholarships and studentships, Newnham College, Cambridge |
| 1973 | Smith's Prize (for predoctoral research), University of Cambridge |
| 1973–74 | Sims Scholarship, University of Cambridge |
| 1975 | Stott Prize (for postdoctoral research), Newnham College |
| 1974–78 | Junior Research Fellowship, King's College, Cambridge |
| 1978–82 | Senior Research Fellowship, King's College, Cambridge |
| 1981 | Elected to International Statistical Institute |

**Academic Honors continued**

1988 Awarded Doctor of Science degree, University of Cambridge.
1998 Elected to American Academy of Arts and Sciences.
2000 Nominated by graduate students for Distinguished Teaching Award, UW.
2001 Awarded the inaugural Jerome Sacks Award for Cross-Disciplinary Research from the National Institute for Statistical Science.
2001 Awarded the Weldon Prize for contributions to Biometric Science, University of Oxford, UK.
2002 Awarded Guggenheim Fellowship, for period 9/2002-3/2003.
2006 Nominated for Marsha L. Landolt Distinguished Graduate Mentor Award, UW.
2006 Visiting Rothschild Professor of University of Cambridge, UK (Nov-Dec).
2008 Elected to the US National Academy of Sciences.
and so also Founding Member, Washington State Academy of Sciences
2013 Elected an Honorary Fellow of Newnham College, Cambridge, UK.
2016 Elected, Carnegie Centenary Visiting Professor, Jan-July 2017.

**Academic Honors: special award lectures**

1991 IMS Special Invited Lecturer; Santa Barbara Meeting; July 1991.
1994 R.A.Fisher Lecture, Joint Statistical Meetings, Toronto.
1996 Neyman Lecture (IMS), Joint Statistical Meetings, Chicago.
2003 Allen T. Craig Distinguished Lecturer, U. Iowa.
2004 Buehler-Martin Distinguished Lecturer, U. Minnesota.
2005 Mary Cartwright Lecturer, London Mathematical Society, UK.
2005 Milton Sobel Lecturer, U. California Santa Barbara.
2006 Fields Institute (Toronto) Distinguished Lecturer in Statistical Science
2006 Bahadur Lecturer, University of Chicago
2006 XXVII Fisher Memorial Lecture, Cambridge, UK
2008 Inaugural Tukey Lecture, IMS & Bernoulli World Congress, Singapore
2008 Krishnaiah Lecture, Penn State University.
2009 2008 Cockerham Lecture, NCSU.
2012 Woodroofe Lecture, University of Michigan
2015 Rustagi Lecture, Ohio State University
2017 Carnegie Lecture, School of Biology, University of St Andrews, Scotland
2017 Mitchell Lecture, School of Mathematical Sciences, Glasgow Universoty

**Current major professional responsibilities**

Director, Statistical Genetics Interdisciplinary Certificate Program, UW. (2000–)
Member, Elizabeth Scott Award Committee (COPSS Cttee; IMS nominee), 2014-2019
Member, NRC Board of Mathematical Sciences and Analytics, 2014-2019

**Federal Research and Foundation Awards**

| | | |
|---|---|---|
| 1986 | NSF-DMS-8604240 | Math Sciences Equipment Grant ($20K). |
| 1987–88 | NIH-RR03768 | SBIR phase I grant; An expert system for genetic epidemiology ($50K). |
| 1987–90 | NSF-BSR-8619760 | Genealogical and Genetic Structure of Small Populations ($126K). |
| 1988–90 | USDA 88-37151-3958 | Pedigree analysis of disease resistance in Brassica. ($100K; joint with T. Mitchell-Olds, U. Montana) |
| 1990–93 | NSF-DEB-8921839 | Methods of genealogical and genetic analysis in conservation biology. ($164K) |
| 1991–95 | NIH-GM-46255 | Methods for the Genetic Epidemiology of Complex Traits. ($583K) |
| 1993–97 | NSF-BIR-9305835 | Computational Methodology for the Inference of Genealogical structure from genetic data. ($210K) |
| 1994–99 | NSF-DMS-9406348 | Program in Mathematics and Molecular Biology; member.<br>($ 2.4M total; Director, Cozzarelli, UCB). |
| 1995–99 | NIH-GM-46255 | Methods for the Genetic Epidemiology of Complex Traits.<br>($ 1.1M) |
| 1997–2002 | NSF ACI-9619020 | National Partnership for Advanced Computational Infrastructure (PI:Karin) |
| | 1998-99 | UW subcontract (Thompson) |
| 1998–2002 | NSF-BIR-9807747 | Computational methods for inference of population parameters ($166K) |
| 1997–2005 | Burroughs Welcome Fund | Program in Mathematics and Molecular Biology;<br>($ 3.5M total; Director, Sumners, FSU)<br>$ 35K/year in member student support and training<br>$ 5K (2001), $15K (2003) for UW student workshops |
| 1999–2003 | NIH-GM-46255 | Methods for the Genetic Epidemiology of Complex Traits. (Years 9-12) ($ 1.4M) |
| 2003–2005 | NIH-GM-45344-14S1 | UW supplement subcontract to Weir Program Project ($ 160K) |
| 2003–2007 | NIH-GM-46255 | Methods for the Genetic Epidemiology of Complex Traits (Years 13-16). ($ 1.5M) |
| 2007-2010 | NIH-HG004175 | Efficient Software and Algorithms for Analyzing Markers Data on General Pedigrees ($ 1.1M total: PI, Dechter, UCI)<br>UW subcontract $ 66K each year. |
| 2009–2012 | NIH-GM-46255-S18 | ARRA Competitive supplement<br>ARRA Methods for the Genetic Epidemiology of Complex Traits. ($450K total) |
| 2007–2017 | NIH-GM-46255 | Converted to R37 MERIT award 2008<br>Methods for the Genetic Epidemiology of Complex Traits (Years 17-26). ($ 4.0M) |
| 2012–2017 | NIH P01 GM 099568<br>Project 4 (Thompson) | (PI Weir) Statistical and Quantitative Genetics<br>Resolving Complex Traits through Inferred Coancestry of Genome Segments (Total Project 4 costs: approx 0.8M) |

**Major research experience outside of regular employment.**

| | |
|---|---|
| 1973 | Visiting Research Student, Dept. of Statistics, University of Aarhus, Denmark (3/73-6/73) |
| 1975 | Visiting Scholar, Dept. of Human Genetics, Univ. of Michigan, Ann Arbor (3/75-5/75) |
| 1975 | Visiting Scholar, Department of Biophysics, University of Utah (7/75) |
| 1976 | Visiting Research Consultant, University of Utah (6/76-8/76) |
| 1977–78 | Visiting Scholar, University of Michigan (6/77-9/77), University of Utah (4/78-9/78) |
| 1986–88 | Visiting Consultant, University of Utah (7/86); Consultant, DMS Inc., Salt Lake City, Utah (12/87-3/88) |
| 1988 | Visiting Scholar, University of Michigan (6/88-8/88) |
| 1991–92 | Visiting Professor, Rutgers University (Center for Theoretical and Applied Genetics) (12/91-3/92) |
| 1994–2005 | Member, Program in Mathematics and Molecular Biology. |
| 1994 | Visiting Scholar, Department of Biostatistics, University of Michigan 9/94-12/94 |
| 1995 | Visiting Scholar, Department of Biological Sciences, Rutgers, University (1/95-3/95) |
| 1995 | Visiting Scholar, Department of Human Genetics, McGill University (4/95-6/95) |
| 2002–03 | Visiting Professor, Department of Statistics, North Carolina State University (09/2002-03/2003) |
| 2006 | Visiting Rothschild Professor of University of Cambridge, UK (Nov-Dec). |
| 2017 | Carnegie Centenary Visiting Professor, visiting University of St Andrews, and other Scottish Unversities, Jan-July 2017. |

**Editorial activities**

| | |
|---|---|
| 1980–91 | Associate Editor, Theoretical Population Biology |
| 1983–2002 | Associate Editor, IMA J. of Math. Appl. in Medicine and Biology |
| 1984–86 | Associate Editor, Proceedings of Cambridge Philosophical Society |
| 1987–92 | Associate Editor, Genetics |
| 1987–94 | Editorial Board, Genomics |
| 1989–94 | Editorial Board, Statistics in Medicine |
| 1992–94 | Editorial Board, Chapman & Hall Interdisciplinary Monograph Series in Statistics |
| 1993–96 | Associate Editor, Biometrics (Shorter Communications) |
| 1993– | Editorial Board, Journal of Computational Biology |
| 1994–2003 | Associate Editor, Annals of Statistics |
| 1995–2001 | Editorial Board, IBS Monograph Series: Case Studies in Biometry. |
| 2002–2012 | Co-editor, Statistical Applications in Genetics and Molecular Biology (Bepress electronic journal). |

**Other major professional activities**

| | |
|---|---|
| 1979–81 | Member, Electors to Fellowships, King's College, Cambridge |
| 1982–85 | Cambridge University General Board and Faculty Board committees on College and University teaching, Tripos reform, etc. |
| 1984–86 | Faculty Board of Mathematics, University of Cambridge |
| 1989–1994 | Chair, Department of Statistics, UW |
| 1990–1991 | Graduate School (UW) review committee to establish the interdisciplinary QERM program |
| 1991–1992 | NHLBI expert panel on future of Genetic Epidemiological research in heart lung and blood diseases. |
| 1991–2002 | Member, QERM Interdisciplinary Faculty Group, UW. |
| 1993 | NSF Advisory Panel on future of Computational Biology |
| 1993 | NAS/NRC Advisory Panel on Forensic DNA |
| 1994–1997 | Member, NRC Committee of Applied and Theoretical Statistics |
| 1995–1998 | Graduate Program Coordinator, Statistics, University of Washington. |
| 1997-1999 | Executive Committee, West North American Region of the International Biometric Society (President, 1998) |
| 1998-1999 | Alternate Graduate Coordinator, QERM Interdisciplinary Program, University of Washington. |
| 1997–2000 | Member, Technology working group of the NIJ panel on Forensic DNA |
| 1997–2001 | Member of Council, International Statistical Institute |
| 1997-1998 | Member of National Institute Stat. Sciences Corporation. |
| 1999–2000 | Graduate Program Coordinator, Statistics, University of Washington. |
| 1999–2002 | Member, Computational Molecular Biology faculty group, UW. |
| 2000–2002 | Member, Scientific Program Committee, IBC 2002 |
| 2002-2003 | Member, RSS 2003 Meeting on Statistical Genetics, Program Committee. |
| 2002–2004 | Member, Scientific Program Committee, IBC 2004 |
| 2002–2004 | Member, Board of Trustees, National Institute of Statistical Science (2002-3). (Member of Sacks Award Committee, 2002-4; Chair 2003) |
| 1999–2004 | Coordinator, Statistical Genetics, Statistics and Biostatistics, UW |
| 2002–2005 | Member, Scientific Review Board, Pacific Institute of Mathematical Sciences. |
| 2004–2007 | Member of COPSS Fisher Lecture Award Committee (Chair 2006-7) |
| 2005–2009 | Member, Scientific Advisory Board, Banff International Research Station |
| 2006–2009 | Member of Council, International Biometric Society |
| 2010 | Member, Best paper review Committee for Dutch region of IBS |
| 2009–2010 | Member, Program Committee, IMS/Bernoulli Congress; (Gottenberg 2010). |
| 2009–2011 | Member, NRC Committee to review Science of 2001 Anthrax Mailings. |
| 2010 | Member of General Officer Nominating Committee, International Biometric Society |
| 2010-2012 | Member, College of CSR Reviewers (Center for Scientific Review, NIH) |
| 2010–2012 | Member, Elizabeth Scott Award Committee (COPSS Cttee; WNAR nominee) |
| 2009–2013 | Member, Scientific Advisory Board, Institute for Pure and Applied Mathematics (IPAM) |

**Other major professional activities** (contd.)

| | |
|---|---|
| 2011–2013 | Member, National Academy of Sciences Class 3 Membership Committee. |
| 2010–2013 | Member of Council, International Biometric Society. |
| 2011–2014 | Chair, Department of Statistics, University of Washington. |
| 2012–2014 | Member, International Program Committee for IBC XXV11, Florence, Italy. |
| 2016 | Member, NSF Directorate of Mathematical Sciences Committee of Visitors |
| 1999–2016 | Coordinator, Statistical Genetics Interdiscoplinary Faculty Group, UW |
| 2007–2016 | Co-director, NIH Statistical Genetics Training Grant, UW. |
| 2015-18 | President of the International Biometric Society<br>President-elect 2015; President 2016-2017; Outgoing President 2018. |
| 2018 | Member, NAS Nominating Committee |

**Postdoctoral Advisees** (*: with independent support)

1. 1982-1983* Tom Meagher, Fullbright Fellow
   Statistical Laboratory, University of Cambridge
   Current Position; Professor, Univ. of St. Andrews, UK
2. 1986-1987* Alun Thomas, Acting Assistant Professor
   Department of Statistics, University of Washington
   Current Position; Professor of Medical Genetics, University of Utah
3. 1988-1989* Paul Joyce, Acting Assistant Professor
   Department of Statistics, University of Washington
   Final Position; Dean of Sciences, University of Idaho
4. 1995-1997 Simon Heath, Department of Statistics, University of Washington
   Current Position; Statistical Genomics and Bioinformatics Development Group Leader, National Center for Genomic Analysis, Barcelona, Spain.
5. 1997-1999 Jochen Kumm, Department of Statistics, University of Washington
   Current Position; Director of Bioinformatics, Stanford Genome Technology Center
6. 1997-2000 E. Warwick Daw; Statistics and Medical Genetics, Univ. Washington
   Current Position: Research Statistician, Division of Statistical Genomics Washington University, St. Louis
7. 2002* David Henderson, Visiting Assistant Professor
   Department of Statistics, University of Washington
   Current Position; Independent Genomics Research Consultant, Seattle.
8. 2000-2002 Andrew George, Department of Statistics, University of Washington
   Current Position; University of Queensland, Australia
9. 2001-2004 * Oliver Will, NSF VIGRE Postdoctoral Fellow
   Department of Statistics, University of Washington
   Current Position; Biotechnology Research Scientist, Philadelphia.
10. 2004-2006 Adele Mitchell, Department of Statistics and Genome Training Grant, University of Washington
    Current position; Merck, Boston, MA, USA.
11. 2004-2007 Liping Tong, Department of Statistics, University of Washington
    Current Position; Department of Public Health Sciences, Loyola University, Chicago.
12. 2010-2012 Chaozhi Zheng, Department of Statistics, University of Washington
    Current position, Research Scientist, Biometris, University of Wageningen
13. 2013-2015 Jesse Raffa, Department of Statistics, University of Washington
    Current position; Research Scientist, Laboratory for Computational Physiology, Massachusetts Institute of Technology
14. 2014-2015 John Ranola, Department of Statistics and Genome Training Grant, University of Washington
    Current position; Research Statistical Geneticist, Department of Laboratory Medicine, University of Washington

**Graduate Students; Ph.D. Students**

1. Fall 1981; Kevin Donnelly; Ph. D., Cambridge University
   a.k.a Caoimhin adrai O'Donnail
   Genetic linkage, detectable relationships and other topics.
2. Dec. 1985; Alun Thomas, Ph.D., Cambridge University.
   Data structures, methods of approximation and optimal computation for pedigrees
3. March 1988; Gary Churchill, Ph.D. Biostatistics, University of Washington.
   Stochastic models for DNA sequence data
4. June 1990; Charles Geyer ; Ph.D., Statistics, University of Washington.
   Likelihood and exponential families
5. Aug. 1990; Nuala Sheehan; Ph.D., Statistics, University of Washington.
   Genetic restoration on complex pedigrees.
6. Dec. 1990; Mariza de Andrade; Ph.D., Biostatistics, University of Washington.
   Estimation of genotypic parameters under non-normal models.
7. Dec. 1991; Sun Wei Guo; Ph.D., Biostatistics, University of Washington.
   Monte Carlo methods in quantitative genetics
8. June 1993; Shili Lin; Ph.D., Statistics, University of Washington.
   Markov chain Monte Carlo estimates of probabilities on complex structures.
9. Aug. 1993; Heike Blossey (Bickeboeller); Ph.D., Statistics, University of Washington.
   The Poisson clumping heuristic and survival of a genome continuum.
10. Aug. 1995; Hongzhe Li; Ph.D., Statistics, University of Washington.
    Semiparametric estimation of major gene and random environmental effects for age of onset.
11. June 1996; Ian Painter; Ph.D., Statistics, University of Washington.
    Inference in a discrete parameter space.
12. Aug. 1998; Jinko Graham; Ph.D. Biostatistics, University of Washington.
    Disequilibrium fine-mapping of a rare allele via coalescent models of gene ancestry.
13. July 1999; Sharon Browning; Ph.D., Statistics, University of Washington
    Monte Carlo likelihood calculation for identity by descent data.
14. Aug, 2000; Mary Beatrix Jones; Ph.D., Statistics, University of Washington
    Likelihood inference for parametric models of dispersal
15. June 2001; Nicola Chapman; Ph.D., Biostatistics, University of Washington.
    Genome descent in isolated populations
16. Aug. 2001; Eric Anderson; Ph.D., Quantitative Ecology and Resource Management, University of Washington.
    Monte Carlo methods for inference in population genetic models
17. Aug. 2003 Amy Anderson; Ph.D., Statistics, University of Washington.
    The genetic structure of related recombinant inbred lines
18. Aug. 2003 Na (Michael) Li; Ph.D., Biostatistics, University of Washington.
    Modeling and inference for linkage disequilibrium and recombination
    (Co-adviser with Matthew Stephens)
19. Aug. 2003 Solveig (Solly) Sieberts; Ph.D., Statistics, University of Washington.
    Joint relationship inference from three of more individuals in the presence of genotyping error

**Graduate Students; Ph.D. . Thesis advisees (contd.)**

| | |
|---|---|
| 20. Dec. 2003 | Anne-Louise Leutenegger; Ph.D. Biostatistics, Univ. of Washington.<br>Estimation of random genome sharing: Consequences for linkage detection<br>(Co-adviser with Francoise Clerget-Darpoux for Univ. Paris XI) |
| 21. Aug. 2005 | Saonli Basu; Ph.D., Statistics, University of Washington.<br>Allele-sharing methods for linkage detection using extended pedigrees |
| 22. Nov. 2005 | William Stewart; Ph.D., Statistics, University of Washington.<br>Alternative models for estimating genetic maps from pedigree data |
| 23. Aug. 2006 | Arindam RoyChoudhury; Ph.D., Statistics, University of Washington.<br>Likelihood inference for population structure, using the coalescent |
| 24. June 2009 | Yanming Di; Ph.D., Statistics, University of Washington.<br>Conditional tests for localizing trait genes |
| 25. March 2013 | Ming Su; Ph.D., Electrical Engineering, University of Washington.<br>Probabilistic inference in modern genetic linkage analysis<br>(Co-adviser with Richard Shi (EE)) |
| 26. June 2014 | Christopher Glazner; Ph.D., Statistics, University of Washington.<br>Monte Carlo estimation of identity by descent in populations |
| 27. June 2014 | Serge Sverdlov; Ph.D., Statistics, University of Washington.<br>Functional quantitative genetics and the missing heritability problem |
| 28. March 2017 | Fiona Grimson; Ph.D., Statistics, University of Washinton.<br>Scalable methods of inference of identity by descent |
| 29. August 2019 | Bowen Wang; Ph.D., Statistics, University of Washinton.<br>Realized genome sharing in random effects models for quantitative genetic traits |

**Diploma and M.S. Thesis advisees**

June 1981; Patty Solomon; Dip Stat, Cambridge University
The inheritance of height; An analysis of a Finnish population on the basis of simple genetic models.

June 1982; Alun Thomas; Dip. Stat., Cambridge University
Marriage patterns and gene extinction on Tristan da Cunha.

June 1984; Daniel Goodman; Dip. Stat., Cambridge University
Linkage analysis in a Newfoundland genealogy.

June 1985; Christine Hackett; Dip.Stat., Cambridge University
An analysis of Faroese marriage data; the patterns of migration and the consequent genetic variation.

June 1988; Ellen Walters ; M.S., Biostatistics, University of Washington.
Comparison of linkage analysis designs based on individuals affected with recessive diseases

Aug. 1994; Colin C. Wilson; M.S.; Quantitative Ecology and Resource Management, University of Washington.
Bayesian estimation of genealogical structure in small populations.

Aug. 1997; Beatrix Jones; M.S., Statistics, University of Washington.
Phylogeny inference via conditional independence modelling

June 2001; Solveig Sieberts; M.S., Statistics, University of Washington.
Recessive lethals: a possible explanation for excess sharing in sibs

June 2005 Ting-Yuan Liu; M.S., Statistics, University of Washington.
Analysis of haplotype structure: Application to the DARC gene region

Mar. 2006 Sinjian Grace Gé; Ph.Cand., Biostatistics, University of Washington.
Genetic analysis of longitudinal data on a time-varying quantitative trait.

Aug 2009 Zheng Cai; Visiting student, Statiistics, University of Washington.
Simulaton of descent of chromosome segments in structured populations.
(Project during visit year from University of Utah.)

Aug 2011 Marshall Brown; M.S., Statistics, University of Washington.
The effect of linkage disequilibrium on inferring coancestry in populations.

Aug 2013 Chensheng Kuang; M.S., Statistics, University of Washington.
The size distribution of IBD groups under ESF and the coalescent
(M.S. project for Statistical Genetics special emphasis)

Dec 2016 Aaron Baraff; Ph.Cand., Statistics, University of Washington.
Likelihood-based haplotype frequency modeling using variable-order Markov chains.