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Professional Positions

April 1996–present: Professor, Department of Computer Science, University of California, Irvine

- Chancellor's Professor: 2018 to present
- Full Professor: July 2003 to 2018
- Associate Professor: July 1998 to June 2003
- Assistant Professor: April 1996 to June 1998

October 1988–March 1996: Member of Technical Staff and Technical Group Leader (from 1992), Jet Propulsion Laboratory, California Institute of Technology, Pasadena.

Education

PhD, 1988: California Institute of Technology, Department of Electrical Engineering.

MSEE, 1985: California Institute of Technology, Department of Electrical Engineering.

BE, 1984: National University of Ireland, University College Galway. Bachelor of Engineering (Electronic) with First-Class Honors.

Additional Professional Roles and Affiliations

Joint Faculty Appointments:

- Department of Statistics, UC Irvine, July 2008–present.
- Department of Education, UC Irvine, July 2017–present.

Founding Director, UCI Data Science Initiative, University of California, Irvine, July 2014–June 2018.

Founding Director, Center for Machine Learning and Intelligent Systems, University of California, Irvine, January 2007–June 2014.

Faculty Member, Institute for Genomics and Bioinformatics (IGB), UC Irvine, Member 2001–present.

Faculty Member, Institute for Mathematical Behavioral Sciences (IMBS), UC Irvine, 1999-present.

Faculty Member, Center for Digital Transformation, UC Irvine, 2012–present.

Faculty Member, Program for Mathematical, Computational, and Systems Biology (MCB), UC Irvine, 2007–present.

Faculty Member, Center for Research on Information Technology and Organizations (CRITO), UC Irvine, 2008–2012.

Visiting Principal Researcher, Jet Propulsion Laboratory, California Institute of Technology, Pasadena, 1996–2001.

Member of IEEE (1988–present), American Statistical Association (1997–present), and the Association for Computing Machinery (ACM) (1999–present).

Honors and Awards

Fellow, Association for Computing Machinery (ACM), 2013

Fellow, Association for the Advancement of Artificial Intelligence (AAAI), 2010

ACM SIGKDD Innovation Award, 2009

Best paper awards: ACM SIGKDD Conference (best paper(1997, 2002), runner-up best paper (1998, 2000)), ACM/IEEE Joint Conference on Digital Libraries (JCDL) (shortlist for best paper, 2007), Educational Data Mining Conference (best paper, 2018)

Qualcomm Faculty Award, 2019

Google Faculty Research Awards, 2008 and 2014

IBM Faculty Partnership Award, 2001.

National Science Foundation CAREER award, 1997

ACM Teaching Award, UC Irvine, 1997

NASA Group Achievement award, Jet Propulsion Labaratory, 1997

Lew Allen Award for Excellence in Research, Jet Propulsion Laboratory, 1993

17 NASA Certificates for Technical Innovation (1991–1996)

Publications List

Books and Conference Proceedings

B5 A. Nicholson and P. Smyth (eds.), *Uncertainty in Artificial Intelligence: Proceedings of the 29th Conference*, ISBN 978-0-9749039-9-6, AUAI Press, Corvallis, OR, 2013.

B4 C. Apte, J. Ghosh, P. Smyth (eds.), *Proceedings of the 17th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining*, ISBN 978-1-4503-0813-7, ACM Press, New York, NY, 2011.

B3 *Modeling the Internet and the Web: Probabilistic Methods and Algorithms*, P. Baldi, P. Frasconi, and P. Smyth, John Wiley, June 2003.

B2 *Principles of Data Mining*, D. Hand, H. Mannila, and P. Smyth, Cambridge, MA: MIT Press, 2001.

B1 *Advances in Knowledge Discovery and Data Mining*, U. Fayyad, G. Piatetsky-Shapiro, P. Smyth, and R. Uthurasamy (eds.), Palo Alto, CA: AAAI/MIT Press, 1996.

Journal Papers

J82 A. Mamalakis, J. T. Randerson, J-Y Yu, M. Pritchard, G. Magnusdottir, P. Smyth, P. A. Levine, S. Yu, E. Foufoula-Georgiou, 'Zonally contrasting shifts of the tropical rainbelt in response to climate change,' *Nature Climate Change*, https://doi.org/10.1038/s41558-020-00963-x, 11: 143151, January 2021

J81 Park, J., Jindal, A., Kuo, P., Tanana, M., Elston Lafata, J., Tai-Seale, M., Atkins, D. C., Imel, Z. E., Smyth, P, 'Automated rating of patient and physician emotion in primary care visits,' *Patient Education and Counseling*, https://doi.org/10.1016/j.pec.2021.01.004, in press, 2021.

J80 A, Stevens, R. Willett, A. Mamalakis, E. Foufoula-Georgiou, A. Tejedor, J. Randerson; P. Smyth, S. Wright., 'Graph-guided regularized regression of Pacific Ocean climate variables to increase predictive skill of southwestern US winter precipitation,' *Journal of Climate*, 34(2), 737–754, https://doi.org/10.1175/JCLI-D-20-0079.1, 2021.

J79 Y. Chen, J. T. Randerson, S. R. Coffield, E. Foufoula-Georgiou, P. Smyth, C. A. Graff, D. C. Morton, N. Andela, G. R. van der Werf, L. Giglio, L. E. Ott, 'Forecasting global fire emissions on sub-seasonal to seasonal (S2S) timescales,' *Journal of Advances in Modeling Earth Systems*, 12(9), e2019MS001955, doi:/10.1029/2019MS001955, 2020.

J78 C. Galbraith, P. Smyth, H. S. Stern, 'Statistical methods for the forensic analysis of geolocated event data,' *Forensic Science International*, https://doi.org/10.1016/j.fsidi.2020.301009, 33:1–12, July 2020.

J77 C. Galbraith, P. Smyth, H. Stern, 'Quantifying the association between discrete event time series with applications to digital forensics,' *Journal of the Royal Statistical Society A*, 183(3):1005–1027, 2020.

J76 C. A. Graff, S. R. Coffield, Y. Chen, E. Foufoula-Georgiou, J. T. Randerson, P. Smyth, 'Forecasting daily wildfire activity using Poisson regression,' *IEEE Transactions on Geoscience and Remote Sensing*, 58(7):4837–4851, 2020.

J75 R. Baker, D. Xu, J. Park, R. Yu, Q. Li, B. Cung, C. Fischer, F. Rodriguez, M. Warschauer, P. Smyth, 'The benefits and caveats of clickstream data to understand student self-regulatory behaviors: opening the black box of learning processes,' *International Journal of Educational Technology in Higher Education*, 17(13):1–24, 2020.

J74 D. Ji, P. Putzel, Y. Qian, I. Chang, A. Mandava, R. H. Scheuermann, J. D. Bui, H-Y Wang, P. Smyth, 'Machine learning of discriminative gate locations for clinical diagnosis,' *Cytometry A: Special Issue: Machine Learning for Single Cell Data*, 97(3):296–307, 2020.

J73 C. Fischer, Z. Pardos, R. Baker, J. J. Williams, P. Smyth, R. Yu, S. Slater, R. Baker, M. Warschauer, Mining big data in education: Affordances and challenges, *Review of Research in Education*, 44(1):130-160, 2020.

J72 S. Coffield, C. Graff, Y. Chen, P. Smyth, E. Foufoula-Georgiou, J. Randerson, 'Machine learning to predict final fire size at the time of ignition,' *International Journal of Wildland Fire*, 28(11):861–873, 2019.

J71 J. Park, D. Kotzias, P. Kuo, R. L. Logan, K. Merced, S. Singh, M. Tanana, E. Karra-Taniskidou, J. Elston Lafata, D. C. Atkins, M. Tai-Seale, Z. E. Imel, and P. Smyth, 'Detecting conversation topics in primary care office visits from transcripts of patient-provider interactions,' *Journal of the American Medical Informatics Association (JAMIA)*, 26(12):1493–1504, 2019.

J70 D. Kotzias, M. Lichman, and P. Smyth, 'Predicting consumption patterns with repeated and novel events,' *IEEE Transactions on Knowledge and Data Engineering*, 31(2), 371-384, 2018.

J69 J. R. Hipp, C. Bates, M. Lichman, and P. Smyth, 'Using social media to measure temporal ambient

J68 C. Galbraith and P. Smyth, 'Analyzing user-event data using score-based likelihood ratios with marked point processes,' *Journal of Digital Investigation*, 22, 106-114, 2017.

J67 T. Holsclaw, A. M. Greene, A. W. Robertson, P. Smyth, 'Bayesian non-homogeneous Markov models via Polya-Gamma data augmentation with applications to rainfall modeling', *Annals of Applied Statistics*, 11(1):393–426, 2017.

J66 G. Gaut, M. Steyvers, Z. E. Imel, D. C. Atkins, P. Smyth, 'Content coding of psychotherapy transcripts using labeled topic models,' *IEEE Journal of Biomedical and Health Informatics*, 21(2):476–487, 2017.

J65 C. Haffke, G. Magnusdottir, D. Henke, P. Smyth, Y. Peings, 'Daily states of the March-April east Pacific ITCZ in three decades of high-resolution satellite data,' *Journal of Climate*, doi:10.1175/JCLI-D-15-0224.1, 29(8):2981-2995, 2016.

J64 P. Arnesen, T. Holsclaw, P. Smyth, 'Bayesian detection of changepoints in finite-state Markov chains for multiple sequences,' *Technometrics*, doi:10.1080/00401706.2015.1044118, 58(2), 205-213, 2016.

J63 T. Hoslclaw, A. Greene, A. R. Robertson, P. Smyth, 'A Bayesian hidden Markov model of daily precipitation over South and East Asia,' *Journal of Hydrometeorology*, doi:10.1175/JHM-D-14-0142.1, 17(1):3–25, 2016.

J62 T. Hoslclaw, K. A. Hallgren, M. Steyvers, P. Smyth, D. C. Atkins, 'Measurement error and outcome distributions: Methodological issues in regression analyses of behavioral coding data,' *Psychology of Addictive Behaviors*, doi:10.1037/adb0000091, 29(4):1031-1040, 2015

J61 M. L. Salmans, Z. Yu, K. Watanabe, E. Cam, P. Sun, P. Smyth, X. Dai, B. Andersen, 'The co-factor of LIM domains (CLIM/LDB/NLI) maintains basal mammary epithelial stem cells and promotes breast tumorigenesis,' *PLOS Genetics*, July 2014, doi: 10.1371/journal.pgen.100452.

J60 A. J. Frank, P. Smyth, A. T. Ihler, 'Beyond MAP estimation with the track-oriented multiple hypothesis tracker,' *IEEE Transactions on Signal Processing*, 62(9):2413–2423, 2014.

J59 D. C. Atkins, M. Steyvers, Z. E. Imel, P. Smyth, 'Scaling up the evaluation of psychotherapy: evaluating motivational interviewing fidelity via statistical text classification,' *Implementation Science*, 9:49:1–11, 2014.

J58 C. DuBois, C. T. Butts, D. McFarland, P. Smyth, 'Hierarchical models for relational event sequences,' *Journal of Mathematical Psychology*, 57(6):297–309, 2013.

J57 N. Navaroli, C. DuBois, P. Smyth, 'Modeling individual email patterns over time with latent variable models,' *Machine Learning*, 92(2–3):431-455, May 2013.

J56 M. Geyfman, V. Kumar, Q. Liu, R. Ruiz, W. Gordon, F. Espitia, E. Cam, S. E. Millar, P. Smyth, A. Ihler, J. Takahashi, B. Andersen, 'Bmal1 controls circadian cell proliferation and susceptibility to UVB-induced DNA damage in the epidermis,' *Proceedings of the National Academies of Science*, 109(29):11758-63, doi:10.1073/pnas.1209592109, July 2012.

J55 D. Henke, P. Smyth, C. Haffke, G. Magnusdottir, 'Automated analysis of the temporal behavior of the double Intertropical Convergence Zone over the east Pacific,' *Remote Sensing of Environment*, 123:418–433, August 2012.

J54 T. Rubin, A. Chambers, P. Smyth, and M. Steyvers, 'Statistical topic models for multi-label document classification,' *Machine Learning*, doi: 10.1007/s10994-011-5272-5, 88(1-2):157–208, July 2012.

J53 B. Gretarsson, J. O' Donovan, S. Bostandjiev, T. Hollerer, A. Asuncion, D. Newman, and P. Smyth, 'TopicNets: Visual analysis of large text corpora with topic modeling,' *ACM Transactions on Intelligent Systems and Technology*, 3(2):1–26, February 2012.

J51 A. M. Greene, A. W. Robertson, P. Smyth, and S. Triglia, 'Downscaling projections of Indian monsoon rainfall using a nonhomogeneous hidden Markov model,' *Quarterly Journal of the Royal Meteorological Society*, 137(655):347–359, January 2011.

J50 T. T. Van Leeuwen, A. J. Frank, Y. Jin, P. Smyth, M. L. Goulden, G. R. van der Werf, J. T. Randerson, 'Optimal use of land surface temperature data to detect changes in tropical forest cover,' *Journal of Geophysical Research—Biogeosciences*, 116, G02002, doi:10.1029/2010JG00148, 2011.

J49 A. Asuncion, P. Smyth, and M. Welling, 'Asynchronous distributed estimation of topic models for document analysis,' *Statistical Methodology*, 8(1):3–17, January 2011.

J48 C. Bain, G. Magnusdottir, P. Smyth, H. Stern, 'The diurnal cycle of the intertropical convergence zone in the east Pacific,' *Journal of Geophysical Research*, 115, D23116, doi:10.1029/2010JD014835, 2010.

J47 C. Bain, J. DePaz, J. Kramer, G. Magnusdottir, P. Smyth, H. Stern, C-C. Wang, 'Detecting the ITCZ in instantaneous satellite data using spatial-temporal statistical modeling: ITCZ climatology in the east Pacific,' *Journal of Climate*, 138(6):2132-2148, 2010.

J46 S. Kim, P. Smyth, and H. Stern, 'A Bayesian mixture approach to modeling spatial activation patterns in multi-site fMRI data,' *IEEE Transactions on Medical Imaging*, 29(6):1260–1274, June 2010.

J45 L. Scharenbroich, G. Magnusdottir, P. Smyth, H. Stern and C. Wang, 'A Bayesian framework for storm tracking using a hidden-state representation,' *Monthly Weather Review*, 138(6):2132–2148, June 2010.

J44 Q. Liu, K. K. Lin, B. Andersen, P. Smyth, and A. Ihler, 'Estimating replicate time-shifts using Gaussian process regression,' *Bioinformatics*, 26(6):770–776, 2010.

J43 M. Rosen-Zvi, C. Chemudugunta, T. Griffiths, P. Smyth, and M. Steyvers, 'Learning author-topic models from text corpora,' *ACM Transactions on Information Systems*, 28(1):1–38, 2010.

J42 D. Chudova, A. T. Ihler, K. K. Lin, B. Andersen, P. Smyth, 'Bayesian detection of non-sinusoidal periodic patterns in circadian expression data,' *Bioinformatics*, 25(23):3114–3120, 2009.

J41 D. Newman, A. Asuncion, P. Smyth, and M. Welling, 'Distributed algorithms for topic models,' *Journal of Machine Learning Research*, 10:1801–1828, 2009.

J40 K. K. Lin, V. Kumar, M. Geyfman, D. Chudova, A. T. Ihler, P. Smyth, R. Paus, J. S. Takahashi, B. Andersen, 'Circadian clock genes contribute to the regulation of hair follicle cycling,' *PLOS Genetics*, 5(7): e1000573. doi:10.1371/journal.pgen.1000573, 2009.

J39 A. Ihler, J. Hutchins, and P. Smyth, 'Learning to detect events with Markov-modulated Poisson processes,' *ACM Transactions on Knowledge Discovery from Data*, 1(3):1–23, 2007.

J38 S. J. Gaffney, A. W. Robertson, P. Smyth, S. J. Camargo and M. Ghil, 'Probabilistic clustering of extratropical cyclones using regression mixture models,' *Climate Dynamics*, 29(4):423–440, 2007

J37 S. J. Camargo, A. W. Robertson, S. J. Gaffney, P. Smyth, and M. Ghil, 'Cluster analysis of typhoon tracks. Part I: general properties,' *Journal of Climate*, 20:3635-3653, 2007.

J36 S. J. Camargo, A. W. Robertson, S. J. Gaffney, P. Smyth, and M. Ghil, 'Cluster analysis of typhoon tracks. Part II: large-scale circulation and ENSO,' *Journal of Climate*, 20:3654-3676, 2007.

J35 L. Friedman, Stern, Brown, Mathalon, Turner, Glover, Gollub, Lauriello, Lim, Cannon, Greve, Bockholt, Belger, Mueller, Doty, He, Wells, Smyth, Pieper, Kim, Kubicki, Vangel, and Potkin, Test-retest and between-site reliability in a multicenter fMRI study, *Human Brain Mapping*, 29(8):958–972, 2008.

J34 A. Ihler, S. Kirshner, M. Ghil, A. Robertson, P. Smyth, 'Graphical models for statistical inference and data assimilation,' *Physica D*, 230(1–2):72–87, 2007.

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