






Dr Jed A. Long

Lecturer (Asst. Professor) in GeoInformatics
School of Geography & Geosciences
University of St Andrews
Irvine Building, North Street,
St Andrews, Fife, UK, KY16 9AL

 Nationality: Canadian
 jed.long@st-andrews.ac.uk
 +44 (0)1334 46402
 <http://jedalong.github.io>
 @jedalong

Employment

University of St Andrews, School of Geography & Geosciences <i>Lecturer in GeoInformatics</i>	St Andrews, UK 2013 - present
University of Victoria, Department of Geography <i>Sessional Instructor</i>	Victoria, Canada 2010-2013

Education

University of Victoria <i>PhD, Geography</i>	Victoria, Canada 2013
University of Victoria <i>MSc, Geography</i>	Victoria, Canada 2009
Centre of Geographic Sciences <i>Advanced Diploma, Geographic Information Systems (GIS)</i>	Lawrencetown, Canada 2007
University of Guelph <i>BSc, Physical Science</i>	Guelph, Canada 2006

Publications

Submitted

Long, J.A., Robertson, C., Nelson, T.A. *stampr*: Spatial-temporal analysis of moving polygons in R. *Journal of Statistical Software*. Submitted: 2016-11-21.

Damgaard, C., McCauley, D., **Long, J.A.** Assessing the justice implications of bioenergy development in Nepal. *Energy, Sustainability and Society*. Submitted: 2016-08-22.

Le Roux, M., Redon, M., Archaux, F., **Long, J.**, Vincent, S., Luque, S. Supporting landscape conservation planning of horseshoe bats with spatially explicit models in complex mountain mosaics. *Landscape Ecology*. Submitted: 2016-07-05.

Accepted or In Press

20. Crawford, R.E., **Long, J.A.** Habitat preferences of juvenile Scottish ospreys (*Pandion haliaetus*) at stopover and wintering sites. *Ringing & Migration*. Accepted: 2016-11-01.
19. Marantz, S., **Long, J.**, Webb, S., Gee, K., Little, A., Demarais, S. Impacts of harvest risk on spatial behavior of white-tailed deer. *Canadian Journal of Zoology*. DOI: 10.1139/cjz-2016-0125.

Refereed Journals

18. Konzack, M., McKetterick, T.J., Ophelders, T., Buchin, M., Giuggioli, L., **Long, J.A.**, Nelson, T., Westenberg, M.A., Buchin, K. (2017) Visual analytics of delays and interaction in movement data. *International Journal of Geographical Information Science*. 31(2): 320-345.
17. Jones, E., Rendell, L., Pirodda, E., **Long, J.A.** (2016) Novel application of a quantitative spatial comparison tool to species distribution data. *Ecological Informatics*. 70: 67-76.
16. **Long, J.A.** (2015) Kinematic interpolation of movement data. *International Journal of Geographical Information Science*. 30(5): 854-868.
15. Sila-Nowicka, K., Demšar, U., Oshan, T., Vandrol, J., **Long, J.A.**, Fotheringham, A.S. (2015) Analysis of human mobility from GPS trajectories and contextual information. *International Journal of Geographical Information Science*. 30(5): 891-906.
14. **Long, J.A.**, Webb, S.L., Nelson, T.A., Gee, K. (2015) Mapping areas of spatial-temporal overlap from wildlife telemetry data. *Movement Ecology*. 3:38.
13. **Long, J.A.**, Nelson, T.A. (2015) Home range and habitat analysis using dynamic time geography. *Journal of Wildlife Management*. 79(3): 481-490.
12. Nelson, T.A., **Long, J.A.**, Laberee, K., Stewart, B.P. (2015) A time geographic approach for delineating areas of sustained wildlife use. *Annals of GIS*. 21(1): 81-90.
11. **Long, J.A.**, Nelson, T.A., Webb, S.L., Gee, K.L. (2014) A critical examination of indices of dynamic interaction for wildlife telemetry studies. *Journal of Animal Ecology*. 83(5): 1216-1233.
10. **Long, J.A.**, Nelson, T.A., Nathoo, F.S. (2014) Toward a kinetic-based probabilistic time geography. *International Journal of Geographical Information Science*. 28(5): 855-874.
9. Robertson, C., **Long, J.A.**, Nathoo, F.S., Nelson, T.A., Plouffe, C.C.F. (2014) Assessing quality of spatial models using the structural similarity index and posterior predictive checks. *Geographical Analysis*. 46(1): 53-74.
8. **Long, J.A.**, Nelson, T.A. (2013) A review of quantitative methods for movement data. *International Journal of Geographical Information Science*. 27(2): 292-318.
7. **Long, J.A.**, Nelson, T.A. (2013) Measuring dynamic interaction in movement data. *Transactions in GIS*. 17(1): 62-77.
6. **Long, J.A.**, Robertson, C., Nathoo, F.S., Nelson, T.A. (2012) A Bayesian space-time model for discrete spread processes on a lattice. *Spatial and Spatio-Temporal Epidemiology*. 3: 151-162.
5. **Long, J.A.**, Nelson, T.A. (2012) Time geography and wildlife home range delineation. *Journal of Wildlife Management*. 76(2): 407-413.
4. **Long, J.A.**, Hazlitt, S.L., Nelson, T.A., Laberee, K. (2011) Estimating 30-year change in coastal old-growth habitat for a forest nesting seabird in British Columbia, Canada. *Endangered Species Research*. 14(1): 49-59.
3. **Long, J.**, Nelson, T., Wulder, M. (2010) Regionalization of landscape pattern indices using multivariate cluster analysis. *Environmental Management*. 46(1): 134-142.
2. **Long, J.A.**, Nelson, T.A., Wulder, M.A. (2010) Characterizing forest fragmentation: Distinguishing change in composition from configuration. *Applied Geography*. 30(3):426-435.

1. **Long, J.A.**, Nelson, T.A., Wulder, M.A. (2010) Local indicators for categorical data (LICD): impacts of scaling decisions. *The Canadian Geographer*. 54(1):15-28.

Theses

Long, J.A. (2013) Developing quantitative methods for movement data. Department of Geography, University of Victoria. *PhD Dissertation*, 169p.

Long, J.A. (2009) Quantifying change in the spatial pattern of forests: Assessing impacts of mountain pine beetle infestation and harvest. Department of Geography, University of Victoria. *MSc Thesis*, 78p.

Reports

Nelson, T.A., **Long, J.A.**, Laberee, K. (2009) Change in available marbled murrelet nesting habitat from 1978 to 2008 in British Columbia, Canada. Victoria, BC: *Report for the Ministry of Environment, Species at Risk Coordination Office (SaRCO)*, working document 1. 26p.

Long, J.A., Nelson, T.A., Wulder, M.A. (2009) Preliminary analysis on the regionalization of landscape pattern indices using multivariate cluster analysis - MPBI working paper. Victoria, BC: *Mountain Pine Beetle Program Project #7.32*, working document 1. 31p.

Long, J.A., Nelson, T.A., Wulder, M.A. (2008) Preliminary analysis on the impacts of mountain pine beetle management on the spatial pattern of forests - MPBI working paper. Victoria, BC: *Mountain Pine Beetle Program Project #7.32*, working document 1. 30p.

Funded Research Projects

Reshaping society and space (WORKANDHOME) <i>Co-Investigator</i> PI: D. Reuschke, U. of Southampton	2015-2018 <i>European Research Council</i> €1 430 920
---	---

Research Awards & Scholarships (over \$1000 in parenthesis)

University of Victoria President's Research Scholarship	(\$12 000)	2010-2012
Howard E. Petch Research Scholarship	(\$7 500)	2012
Presentation Award - CAG GIScience Study Group		2012
M.A. & D.E. Breckenridge Graduate Award		2012
Melva J. Hanson Graduate Scholarship		2012
W.R. Derrick Sewell Scholarship		2012
Presentation Award - Spatial Knowledge & Information	(\$1 000)	2011
NSERC PhD Fellowship	(\$63 000)	2009-2012
Pacific Century Scholarship	(\$10 000)	2009
Graphic Office Interiors Scholarship		2009
Pacific Forestry Centre Graduate Award	(\$5 000)	2008,2009
Geomatics Canada Scholarship	(\$1 500)	2007

Invited Talks and Conference Presentations

Invited Talks & Keynotes

2. **Long, J.A.** (2016) Movement Interaction: Who, Why, What, When, Where, and How. *NSF Workshop on Interaction at UT-Austin*. Keynote Lecture. Nov. 10-11; Austin, TX
1. **Long, J.A.**, Ellis, E., Reuschke, D. (2016) Geographically weighted regression of heat demand as a method for studying homeworking neighbourhoods and behaviour. *ESRC Seminar: Technology, Data, and Transformations of Work*. Oct. 10-11, Southampton, UK.

Conference Papers & Presentations

25. Demšar, U., **Long, J.A.** (2016) Time geography in four dimensions: Potential path volumes around 3D trajectories. *GIScience*. Sep. 27-30; Montreal, Canada.
24. **Long, J.A.** (2016) A field-based time geography for wildlife movement analysis. *GIScience*. Sep. 27-30; Montreal, Canada.
23. Brum-Bastos, V.S., **Long, J.A.**, Demšar, U. (2016) Dynamic trajectory annotation for integrating environmental and movement data . *Visually-supported Computational Movement Analysis workshop, AGILE: Geospatial data in a changing world*. Jun. 14-17; Helsinki, Finland.
22. **Long, J.A.** (2016) Space-time analysis of human-wildlife interactions from GPS tracking data. *Annual meeting of the Association of American Geographers (AAG)*. Mar. 29-Apr. 2; San Francisco, CA.
21. Robertson, C., **Long, J.A.** (2016) You say patchy, I say clumpy: Why is comparing maps so hard? *Annual meeting of the Association of American Geographers (AAG)*. Mar. 29-Apr. 2; San Francisco, CA.
20. Saeed, N., Feng, Z., **Long, J.A.** (2015) Geographical variations in morbidity and mortality across Scotland. *ESRI User Conference*. Jul. 20-24, San Diego, CA.
19. Brum-Bastos, V.S., Demšar, U., **Long, J.A.** (2015) . New methodological approaches for cross-scale integration of environmental remotely sensed data with spatio-temporal movement data. *Evolving GIScience: A celebration of the life and work of Peter Fisher*. Jul. 14-15; Leicester, UK.
18. **Long, J.A.** (2015) Quantifying spatial-temporal interactions from wildlife tracking data: Issues of space, time, and statistical significance. *Spatial Statistics*. Jun. 9-13. Avignon, France.
17. **Long, J.A.** (2015) Mapping interactive behaviour in wildlife from GPS tracking data. *GISRUUK2015*. Apr. 15-17. Leeds, UK.
16. **Long, J.A.** (2014) Kinematic path interpolation and extensions to time geography. *GIScience, Workshop on Analysis of Movement Data*. Sep. 23-26. Vienna, Austria.
15. **Long, J.A.**, Robertson, C., Nelson, T.A. (2014) Spatial temporal analysis of polygon movement: Distance and directional relationships. *GIScience*. Sep. 23-26. Vienna, Austria. (Poster)
14. **Long, J.A.**, Nelson, T.A., Webb, S.L., Gee, K.L. (2014) Mapping interactive behaviour in wildlife tracking data: a time geographic approach. *Annual meeting of the Association of American Geographers (AAG)*. Apr. 8-12; Tampa, Fl.

13. **Long, J.A.**, Nelson, T.A., Nathoo, F.S. (2013) A kinetic-based probabilistic space-time prism. *Annual meeting of the Association of American Geographers (AAG)*. Apr. 9-13; Los Angeles, CA.
12. **Long, J.A.**, Nelson, T.A. (2012) Measuring dynamic interaction patterns in in movement data. *Annual meeting of the Canadian Association of Geographers (CAG)*. May 28-Jun. 2; Waterloo, ON.
CAG GIScience Study Group Award for Best Student Presentation.
11. **Long, J.A.**, Nelson, T.A., Nathoo, F.S. (2012) Towards a momentum-based probabilistic time geography. *Annual meeting of the Association of American Geographers (AAG)*. Feb. 24-28; New York, NY.
10. **Long, J.A.**, Robertson, C., Nathoo, F.S., Nelson, T.A. (2011) Application of a Bayesian space-time spread model to the mountain pine beetle outbreak in Western Canada. *GEOMED*. Oct. 20-22; Victoria, BC. (Poster)
9. **Long, J.A.**, Nelson, T.A. (2011) A new interaction statistic for movement data. *GEOIDE Annual Scientific Conference*. May 16-17; Toronto, ON. (Poster)
8. **Long, J.A.**, Nelson, T.A. (2011) Advances in wildlife telemetry data: An opportunity for space-time geography. *Annual meeting of the Association of American Geographers (AAG)*. Apr. 12-17; Seattle, WA.
7. **Long, J.A.**, Nelson, T.A. (2011) Sports, time geography, and mobility data. *Spatial Knowledge and Information (SKI) Canada*. Mar. 4-6; Fernie, BC.
SKI Canada Student Presentation Award.
6. **Long, J.A.**, Robertson, C., Nelson, T.A., Nathoo, F. (2010) Modeling spread of mountain pine beetle in Western Canada. *Geomatics Canada Conference/GEOIDE Annual Scientific Conference*. Jun. 15-18; Calgary, AB.
5. **Long, J.A.**, Nelson, T.A. (2010) Time geography and animal home ranges. *Geomatics Canada Conference/GEOIDE Annual Scientific Conference*. Jun. 15-18; Calgary, AB. (Poster)
4. **Long, J.A.**, Robertson, C., Nathoo, F., Nelson, T.A. (2010) Bayesian forecasting of ecological range expansion: The case of the mountain pine beetle. *NICDS Workshop on Statistical Methods for Geographic and Spatial Data in the Management of Natural Resources*. Mar. 3-5; Montreal, QC.
3. **Long, J.A.**, Nelson, T.A., Wulder, M.A. (2009) Quantifying forest composition and configuration following insect infestation and mitigation. *Annual meeting of the Association of American Geographers (AAG)*. Mar. 22-27; Las Vegas, NV.
2. **Long, J.A.**, Nelson, T.A., Wulder, M.A. (2009) A decision framework for local indicators for categorical data. *Spatial Knowledge and Information (SKI) Canada*. Feb. 19-21; Fernie, BC.
1. **Long, J.A.**, Nelson, T.A., Wulder, M.A. (2008) Living on the edge: Spatial pattern implications of the current mountain pine beetle epidemic. *Spatial Knowledge and Information (SKI) Canada*. Feb. 15-17; Fernie, BC.

Other Research Experience

Space-time modeling of mountain pine beetle range expansion <i>Research Assistant</i> PI: Dr Farouk Nathoo	2009-2010 <i>NSERC Canada</i>
Provincial mapping of marbled murrelet nesting habitat <i>Project GIS Leader</i> PI: Dr Trisalyn Nelson	2009-2010 <i>BC Ministry of Environment</i>

Research Leadership

Post-Doctoral Research Fellows

Starting October 2016 (co-supervised with D. Reuschke) <i>GIS and Quantitative Analysis for WorkAndHome project</i>	Oct. 2016–
--	------------

PhD Students

Valeria Toledo Gallegos (2nd Supervisor, with N. Hanley) <i>GIS based indexes as an alternative for environmental valuation studies of UK estuaries</i>	2015- <i>Present</i>
Noor Saeed (1st Supervisor, with Z. Feng & A. Marshall) <i>Evaluating cancer survival in Scotland in relation to proximity to health services</i>	2014- <i>Present</i>
Vanessa Da Silva Brum Bastos (2nd Supervisor, with U. Demšar) <i>New methodological approaches for cross-scale integration of thermal remote sensing data with spatial-temporal movement data</i>	2014- <i>Present</i>

MSc Students

Sierra Marantz (<i>Top Dissertation Award</i>) <i>Impacts of human predation risk on deer home range and movement: A study of white-tailed deer in Oklahoma during hunting season</i>	2015
--	------

Honours Dissertation Students

2016	Alice Pickthall	A GIS approach to predicting mega-fire occurrence in California
	Emily Ellis	A geographically weighted regression of domestic heat demand in Glasgow (<i>Mathieson Prize for Dissertation on the Geography of Scotland</i>)
	Patrick Monahan	Modern land conservation and the growing influence of the private sector
	Rebecca Anderson	The urban heat island effect: Glasgow, a case study
2015	Ruth Crawford	Spatial ecology of Scottish ospreys (<i>Pandion haliaetus</i>) at stopover and wintering Sites (<i>Edwards Prize for Top Geography Dissertation</i>)
	Caroline Damgaard	An unconventional view of energy justice: A case study of bioenergy in Nepal
	Annabel Hatton	Climate-driven changes in active-layer depth
	Alex Williams	A statistical analysis on the influence of ambient air pollution on the prevalence of C coronary heart disease and respiratory disease in Glasgow

	Rachel Abernathy	A study of the approach to coastal management in Northern Ireland: A case study of the Outer Ards Peninsula
	Hannah Kennedy	Scotlands missing lynx: Habitat suitability analysis for the Eurasian lynx (<i>Lynx lynx</i>) in Scotland
2014	Chelsea Edwards	Beavers in Tayside: How will their extent cause conflict in the future?

Other Research Supervision

2016	Emily Ellis	Geographically weighted regression of Scotland heat demand data (<i>Research Assistant</i>)
2015	Ben Betzen	Visualizing and analyzing sports tracking (<i>Erasmus Visiting Student</i>)
	Simon Geigenberger	Sports analysis development of a database and parsing back-end and a Voronoi algorithm (<i>Erasmus Visiting Student</i>)

Research Software

List of packages I have developed / am currently developing in the statistical software R. For more information see <http://jedalong.github.io/tools>.

- wildlifeDI: Calculate indices of dynamic interaction for wildlife telemetry data (*available on CRAN*)
- wildlifeTG: Time geographic analysis of wildlife telemetry data
- PathInterpolatR: Performing path interpolation in R
- stampr: Spatial temporal analysis of moving polygons in R

Teaching

Geography & Geosciences, University of St Andrews		2013- <i>Present</i>
<i>Lecturer in GeoInformatics</i>		
Introduction to GIScience	(Msc.)	2016- <i>Present</i>
Advanced Topics in GIScience	(Year 4)	2015- <i>Present</i>
Multivariate Data Analysis	(Year 3)	2013- <i>Present</i>
Digital Geography	(Year 1)	2013- <i>Present</i>
Geography, University of Victoria		2010-2013
<i>Sessional Instructor</i>		
Advanced Spatial Analysis & Geostatistics	(Year 4/MSc)	2012-2013
Special Topics in Geography: Geocaching	(Year 3)	2010-2013
Teaching Assistant for various courses in GIScience	(Year 2-4)	2007-2011
<i>Invited Lectures:</i>		
Mountain Pine Beetle in BC (Entomology)	(Year 3)	2010-2012
Spatial Categorical Data Analysis (Advanced Spatial Analysis)	(Year 4)	2009-2011
Spatial Modelling (Advanced Spatial Analysis)	(Year 4)	2010

Teaching Grants

Visualizing Environmental Change 2015-2016
Co-Investigator University of St Andrews Teaching Development Fund
PI: I. Lawson £4 290

Academic Service

Program Organization Workshop on Analysis of Movement Data, AMD2016
Program Committee GIScience 2016
Visually-supported Comp. Movement Analysis, AGILE 2016
Session Map & Spatial Pattern Comparison, AAG 2016
Chair/Organization GIScience, CAG 2012
Health Geography & Spatial Data, GEOMED 2011
Reviewer – Proposals US National Science Foundation (2014)
Reviewer – Journals *Annals of the Association of American Geographers, Applied Geography, Ecography, Ecological Indicators, Ecological Informatics, Environmental & Ecological Statistics, Geographical Analysis, Human Dimensions of Wildlife, International Journal of Geographical Information Science, Journal of Mammalogy, Journal of Spatial Information Science, Landscape Ecology, Landscape Research, Methods in Ecology & Evolution, Movement Ecology, PLOS One, Proceedings of the National Academy of Sciences, Spatial and Spatio-Temporal Epidemiology, The Condor*
Reviewer – Conferences *CartoCon 2015, GIScience2016*
Membership Royal Geographical Society (RGS/IBG)
Canadian Association of Geographers (CAG)
Association of American Geographers (AAG)

University Service

Departmental Roles Honours Geography (MA), Student Advisor (2015-Present)
ESRI University Representative (2015-Present)
Sustainable Development Module Coordinator (2013-2016)
Teaching Committee (2013-2015)

PhD Examination	<i>Internal Examiner:</i> 2016, Katarzyna Sila-Nowicka, Geography 2015, Tommy Burke, Geography 2014, Michael Musgrave, Geography 2014, Wenbai Yang, Geography
Interview Panels	2016, Research Fellow in Quantitative Geography, University of Southampton 2014, Teaching Fellow in Sustainable Development
Event Organization	2016, Workshop on Forest Fragmentation, University of St Andrews 2015-Present, GIS Day, University of St Andrews

Outreach

What can we really learn from GPS tracking? <i>Cafe Scientifique</i>	2015 <i>Dunkeld, Scotland</i>
GPS for elementary students <i>Let's Talk Science</i>	2008 <i>Victoria, Canada</i>