

# THE ANNALS *of* APPLIED STATISTICS

*AN OFFICIAL JOURNAL OF THE*  
INSTITUTE OF MATHEMATICAL STATISTICS

## Articles

- A phylogenetic scan test on a Dirichlet-tree multinomial model for microbiome data  
YUNFAN TANG, LI MA AND DAN L. NICOLAE 1
- Phenomenological forecasting of disease incidence using heteroskedastic Gaussian  
processes: A dengue case study . . . . . LEAH R. JOHNSON, ROBERT B. GRAMACY,  
JEREMY COHEN, ERIN MORDECAI, COURTNEY MURDOCK, JASON ROHR,  
SADIE J. RYAN, ANNA M. STEWART-IBARRA AND DANIEL WEIKEL 27
- Spatial capture–recapture with partial identity: An application to camera traps  
BEN C. AUGUSTINE, J. ANDREW ROYLE, MARCELLA J. KELLY,  
CHRISTOPHER B. SATTER, ROBERT S. ALONSO, ERIN E. BOYDSTON  
AND KEVIN R. CROOKS 67
- Simultaneous modelling of movement, measurement error, and observer dependence in  
mark-recapture distance sampling: An application to Arctic bird surveys  
PAUL B. CONN AND RAY T. ALISAUSKAS 96
- An empirical study of the maximal and total information coefficients and leading  
measures of dependence . . . . . DAVID N. RESHEF, YAKIR A. RESHEF,  
PARDIS C. SABETI AND MICHAEL MITZENMACHER 123
- Covariate balancing propensity score for a continuous treatment: Application to the  
efficacy of political advertisements . . . . . CHRISTIAN FONG,  
CHAD HAZLETT AND KOSUKE IMAI 156
- Integrative exploration of large high-dimensional datasets  
CHRISTOPHER PARDY, SALLY GALBRAITH AND SUSAN R. WILSON 178
- Adjustment of nonconfounding covariates in case-control genetic association studies  
HONG ZHANG, NILANJAN CHATTERJEE, DANIEL RADER AND JINBO CHEN 200
- How Gaussian mixture models might miss detecting factors that impact growth patterns  
BRIANNA C. HEGESETH AND NICHOLAS P. JEWELL 222
- Extreme value modelling of water-related insurance claims . . . . CHRISTIAN ROHRBECK,  
EMMA F. EASTOE, ARNOLDO FRIGESSI AND JONATHAN A. TAWN 246
- Time-varying extreme value dependence with application to leading European stock  
markets . . . . . DANIELA CASTRO-CAMILO, MIGUEL DE CARVALHO  
AND JENNIFER WADSWORTH 283
- Automated threshold selection for extreme value analysis via ordered goodness-of-fit tests  
with adjustment for false discovery rate . . . . . BRIAN BADER, JUN YAN  
AND XUEBIN ZHANG 310
- Design of vaccine trials during outbreaks with and without a delayed vaccination  
comparator . . . . . NATALIE E. DEAN, M. ELIZABETH HALLORAN  
AND IRA M. LONGINI 330
- Two-level structural sparsity regularization for identifying lattices and defects in noisy  
images . . . . . XIN LI, ALEX BELIANINOV, ONDREJ DYCK, STEPHEN JESSE  
AND CHIWOO PARK 348
- A spatio-temporal modeling framework for weather radar image data in tropical Southeast  
Asia . . . . . XIAO LIU, VIKNESWARAN GOPAL AND JAYANT KALAGNANAM 378

*Continued on back cover*

# THE ANNALS *of* APPLIED STATISTICS

*AN OFFICIAL JOURNAL OF THE*  
INSTITUTE OF MATHEMATICAL STATISTICS

*Articles—Continued from front cover*

Multivariate integer-valued time series with flexible autocovariances and their application to major hurricane counts . . . . .	JAMES LIVSEY, ROBERT LUND, STEFANOS KECHAGIAS AND VLADAS PIPIRAS	408
Stochastic simulation of predictive space–time scenarios of wind speed using observations and physical model outputs JULIE BESSAC, EMIL CONSTANTINESCU AND MIHAI ANITESCU		432
A multi-resolution model for non-Gaussian random fields on a sphere with application to ionospheric electrostatic potentials . . . . .	MINJIE FAN, DEBASHIS PAUL, THOMAS C. M. LEE AND TOMOKO MATSUO	459
Reducing storage of global wind ensembles with stochastic generators JAEHONG JEONG, STEFANO CASTRUCCIO, PAOLA CRIPPA AND MARC G. GENTON		490
MSIQ: Joint modeling of multiple RNA-seq samples for accurate isoform quantification WEI VIVIAN LI, ANQI ZHAO, SHIHUA ZHANG AND JINGYI JESSICA LI		510
Kernel-penalized regression for analysis of microbiome data TIMOTHY W. RANDOLPH, SEN ZHAO, WADE COPELAND, MEREDITH HULLAR AND ALI SHOJAIE		540
Powerful test based on conditional effects for genome-wide screening YAOWU LIU AND JUN XIE		567
Fast inference of individual admixture coefficients using geographic data KEVIN CAYE, FLORA JAY, OLIVIER MICHEL AND OLIVIER FRANÇOIS		586
A unified statistical framework for single cell and bulk RNA sequencing data LINGXUE ZHU, JING LEI, BERNIE DEVLIN AND KATHRYN ROEDER		609
Modeling and estimation for self-exciting spatio-temporal models of terrorist activity NICHOLAS J. CLARK AND PHILIP M. DIXON		633
Empirical assessment of programs to promote collaboration: A network model approach KATHERINE R. MCLAUGHLIN AND JOSHUA D. EMBREE		654