Ian Crandell

| CONTACT INFORMATION | Center for Biostatistics and Health Data Sciences
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SUMMARY

Collaborative statistician, with expert level knowledge in modeling, computational statistics, and visualization.

RESEARCH INTERESTS

Visual analytics, machine learning, networks and graphs, biostatistics, matching and weighting, stochastic processes.

EDUCATION

Virginia Tech, Blacksburg, Virginia USA

Ph.D., Statistics, August 2017
- Dissertation Title: "Semi-Supervised Anomaly Detection and Heterogeneous Covariance Estimation for Gaussian Processes"
- Advisor: Dr. Scotland Leman

California State University, East Bay, Hayward, California USA

M.S., Computational Statistics, June 2012

University of California, at San Diego, La Jolla, California USA

B.A., Mathematics, May 2008

CURRENT POSITION **Center for Biostatistics and Health Data Sciences**,
One Riverside Circle, Suite 104, Roanoke VA
Research Scientist   **2019-present**

PUBLICATIONS

Crandell I, Rockwell M, Whitehead P, Carter K & Hanlon A (2021) [Examination of the Moderating Effect of Race on the Relationship between Vitamin D Status and COVID-19 Test Positivity Using Propensity Score Methods], Journal of the American College of Nutrition, DOI: 10.1080/07315724.2021.19489

King R, Entz M, Blair G, Crandell I, Hanlon A, Lin J; The Conduction Velocity-Potassium Relationship in the Heart is Modulated by Sodium and Calcium. *Pflügers Archive - European Journal of Physiology* (Feb 2021)

McKee K, Crandell I, Hanlon A; County-Level Social Distancing and Policy Impact in the United States: Dynamical Systems Model. *JMIR Public Health Surveillance* (Dec 2020)

Crandell, I., Schroeder, A., Higdon, D. and Irwin, M.- dharma (2018) *Record Linkage Reconciliation of Arlington Department of Human Services Administrative Data Using Potts Models*, International Journal of Population Data Science, 3(5). doi: 10.23889/ijpds.v3i5.1061.

Crandell I, Korkmaz G; Link Prediction in the Criminal Network of Albuquerque. *IEEE Conference on Advances in Social Networks Analysis and Mining* (2018)

Pires B, Crandell I, Arnsbarger M, Lancaster V, Schroeder A, Shipp S, Kang W, Robinson P, Keller S; Predicting Postsecondary Trajectories in Virginia High Schools using Publicly Available Data. *Statistical Journal of the International Association for Official Statistics* (2018)

Onyeuwaoma N, Chineke T, Nwofor O, Crandell I, Awe 0, Olasumbo A, Opara A, Pius N, Tochukwu M &Joy N (2018) *Characterization of aerosol loading in urban and suburban locations: Impact on atmospheric extinction*, Cogent Environmental Science, 4:1, DOI: 10.1080/23311843.2018.1480333

Self JZ, Dowling M, Wenskovitch J, Crandell I, House L, Leman S, North C; Observation-Level and Parametric Interaction for High-Dimensional Data Analy-sis. *ACM Trans. Interact. Intell. Syst.* 9, 4, Article 39 (March 2018),

J. Wenskovitch, I. Crandell, N. Ramakrishnan, L. House, S. Leman and C. North; Towards a Systematic Combination of Dimension Reduction and Clustering in Visual Analytics. *IEEE Transactions on Visualization and Computer Graphics* (Jan. 2018)

Vasta R, Crandell I, Millican A, House L, Smith E. *Outlier Detection for Sensor Systems (ODSS): A MATLAB Macro for Evaluating Microphone Sensor Data Quality.* Sensors. 2017; 17(10):2329. https://doi.org/10.3390/s17102329

Crandell I, Millican J, Leman S, Alexander N, Devenport W, Vasta R, Gramacy RB, Binois M; Anomaly Detection in Large-Scale Wind Tunnel Tests Using Gaussian Processes *AIAA Aviation 2017 Conference*

Hoegh A, Crandell I, Klopfer S, Fies M; Model selection with missing covariates for policy considerations in fox enclosures. *Journal of Applied Statistics* (2016), 1-14.

Awe OO, Crandell I, Adepoju AA, and Leman SC; A Time Varying Parameter State-Space Model for Analyzing Money Supply Economic Growth Nexus. *Journal of Statistical and Econometric Methods* (2015), 4(1), pp.73-95.

Hoegh A, Carzolio M, Crandell I, Hu X, Roberts L, Song Y, Leman SC; Nearest-neighbor matchup effects: accounting for team matchups for predicting March Madness. *Journal of Quantitative Analysis in Sports* (2015), 11(1), 29-37.

Snyder, S., Crandell, I., Davis, S.A. et al. Medical Adherence to Acne Therapy: A Systematic Review. *Am J Clin Dermatol 15, 87–94* (2014). https://doi.org/10.1007/s40257-014-0063-y

PUBLICATIONS IN PRESS	Crandell I; Cultural Values, Statistical Displays. *Amstat News Master's Notebook*, May 2015.
CURRICULUM AND COURSE DEVELOPMENT	**Laboratory for Interdisciplinary Analysis and Collaboration (LISAC)** *Cofounder and Curriculum Developer* LISAC was founded in 2015 at Obafemi Awolowo University (OAU) in Ife, Nigeria by Ian Crandell and Olawale Awe. It is the first statistical collaboration lab in the LISA 2020 network. - Hiring and training of over 20 Nigerian statistics students - Teaching of collaborative, statistical, and software skills - Weeklong intensive R seminar - Campus outreach
RECENT PRESENTATIONS	**Title**: *Trees of Knowledge: Learning from the Fruits of the Random Forest*, **Location**: Zoom **Venue**: October 29th iTHRIV Seminar Series **Title**: *Achieving Balance: Matching and Weighting in Observational Data*, **Location**: Zoom **Venue**: April 9th iTHRIV Seminar Series **Title**: *Stumbling Across the Urban-Rural Divide*,

Location: Blacksburg, VA
Venue: Disrupting the Urban-Rural Divide: Higher Education's Response, April 2019.

Title: *Potts Models for Record Linkage in Arlington Human Services Data*,
Location: Vancouver, BC
Venue: Joint Statistical Meetings, Aug. 2018.

Title: *LISA 2020: Developing Statistical Collaboration Capacity in Nigeria*,
Location: Seattle, WA,
Venue: Joint Statistical Meetings, Aug. 2015.

PREVIOUS PROFESSIONAL POSITIONS	**Social and Decision Analytics Laboratory**, Arlington, VA

Postdoctoral Statistician   **August 2017 - November 2018**
Lab was focused on combining all forms of data , particularly administrative, to learn about problems for primarily government clients.

Delta Dental, San Francisco, CA
Underwriter & Actuary   **May 2011 - May 2012**
Analyzed policy renewal contracts, developed workflow software, performed reserving.

PREVIOUS TEACHING EXPERIENCE

Laney College, Oakland, CA
Instructor   **January, 2011 - May, 2011**
Taught an introduction to statistics course covering basic inference through t-tests and ANOVA modeling.
- Class size of 30 students.
- Utilized a mixture of theory, application, and software (R).

High Bluff Academy, San Diego, CA
Instructor   **August, 2008 - May, 2009**
Taught small classes (5 or so students) covering algebra and geometry

Private Tutor, southern CA region   **2008 - 2011**
Primarily tutored in middle and high school level math and science, including algebra, geometry, calculus, probability, statistics, chemistry, and physics. Also tutored english, writing, reading comprehension, and SAT prep.

HONOR SOCIETIES AND ACADEMIC AWARDS
- StatCom President, Virginia Tech chapter, 2015
- Mu Sigma Rho National Honor Society, Vice President, Virginia Tech chapter, 2014
- Mu Sigma Rho National Honor Society, inductee, 2013

PROFESSIONAL AFFILIATIONS
- The American Statistical Association (ASA).

AWARDS AND ACCOLADES
- The Laboratory for Statistical Analysis (LISA) Outstanding Collaborator of the Year Award, 2014
- The John Bartko Aware for outstanding collaboration, communication, and consulting by a graduate student, 2015

GRANTS RECIEVED
- Mitre Corporation, 2017-2018, Local Data Sources to Build a Comprehensive Community- Based Understanding of Complex National Health Problems, $93,938, PI - David Higdon, Postdoctoral Researcher, Project to continue in 2018-2019, PI - Sallie Keller
- U.S. Department of Agriculture (USDA), Economic Research, 2016-2021, Impacts of Infrastructure Development on Rural Property Values, $400,000 (approved for funding), PI- Sallie Keller, Postdoctoral Researcher

- Army Research Institute (ARI), 2018-2019, Towards an Integrated Data Framework for Understanding the Context of Military Environments - 1 Year Extension, $286,826 (approved for funding), PI - Sallie Keller, Postdoctoral Researcher
- U.S. Army Research Institute (ARI), 2017-2022, The Social Component of The Human Dimension: Leveraging Existing DoD Data Towards Optimized Individual And Team Performance in the Army, $3,027,401, PI - Sallie Keller, Postdoctoral Researcher

Technical Skills
- Software: R, Matlab, SAS, JMP, SPSS, Stata, Office, Git
- Languages: R, SQL, C++, Unix shell scripts, Excel macro language, SAS.
- Technical Skills: Probability and statistics, machine learning, markup
- Operating Systems: Mac OS, Ubuntu, Windows.