Shawn@Garbett.org
615.397.8737

Objective

Applying my management, statistics, and computational skills towards data science.

Education

M.S. Statistics *December 2014*
The University of Penn State, University Park, PA

B.S. Electrical & Computer Engineering *August 1990*
Tulane University, New Orleans, LA

Career History

Assistant Faculty, *VUMC Biostatistics* *Dec 2019 - present*
Supervision of app dev and data science team of 13. Researching health policy implications of genomic information. Three years in a row awarded one of top 10 papers in genomics. Statistical consulting on big data involving health records and genomic information.

Senior Application Developer, *VUMC Biostatistics* *Mar 2016 - Nov 2019*
Leading reproducible research efforts in biostatistics department. Math modeling (time-delay differentials, discrete event simulations, Markov models) for evaluation of Health Policy in the presence of genomic information. Data curator for All Of Us project.

Director of Application Development, *Change Healthcare* *Jan 2014 - Feb 2016*
Responsible for technical direction of a team of 17 developers for cost prediction of medical services. Significantly reduced emergency fixes, and managed bug count from 400 tickets to keeping it less than 30. Scaled application from 750k users to 9M.

Health System Engineer, *Vanderbilt Medical Center* *Jan 2009 - Jan 2014*
Formulated statistical estimators for estimating rates of cellular division, death and quiescence from microscopy data. Package on CRAN in R, `fracprolif` and `emg`.
Optimized likelihood computation for strategic sampling with high exposure.

Development Manager, *Centerstone* *Feb 2007 - Dec 2008*
Manager of 5 developers for an electronic medical record system. Researched and developed analytical data warehouse for informing evidence based treatment using Oracle.

Vice President of Development, *Greatlodge* *Feb 2006 - Feb 2007*
Directed 15 developers for state fishing and hunting license sales. System had 50TPS peaks running Perl and Ruby on Rails with Oracle. Responsible for ACH bank transfers.

Software Architect, *Centerstone* *Jan 2004 - Jan 2006*
Researched and developed static code analysis tool in Haskell to manage 400,000 lines of undocumented PL/SQL. Responsible for maintenance and upgrade of a 24/7 web based mental health database with 1000+ users and 140,000 clients.

Senior Consultant, *Wisdom Software* *Aug 2001 - Jan 2004*
Developed for Walter Reed Army Institute of Research an infusion pump for battlefield medical aid. Delivered zero defect embedded software in C for the medical feedback device and performed risk analysis leading to first closed-loop medical device approval by the FDA. First unit installed in the oval office, next units sold to Air Force One.

Developed automated theorem proof engine for NSA security analysis in Haskell.

Senior Consultant, *Nexware Corporation* *Aug 1999 - Aug 2001*
Designed and developed 2-ton gantry control system for PET/SPECT imaging with active radiation using statebox theory. Completed risks and hazard analysis for FDA product acceptance.

Programmer Analyst, *Computational Systems Inc.* *Sep 1996 - Aug 1999*
Researched and developed embedded computer to record engine vibration and electrical profiles (FFT / timeseries) for predictive preventative maintenance.

Staff Consultant, *Oracle* *Dec 1995 - Sep 1996*
Researched and developed multidimensional indexing of spatial data for CON/ED in Brooklyn to track modifications to power transmission grid using Oracle and ARC/Info.

Programmer Analyst, *Machine View Inc* *Dec 1994 - Sep 1995*
Researched and developed a multi-threaded, multi-processor embedded system in C to control a 1.1 megawatt diesel gen-set powered by a 16 cylinder Perkins engine with load grid synchronization for the Army.

Engineer, *Tennessee Valley Authority* *Jan 1990 - Dec 1994*
Developer first real time heat rate monitoring system for linear optimization coal burning efficiency. System currently saves TVA tens of millions of dollars a year in coal expenses. Worked on linear program model of the Tennessee Valley reservoir system.

Skills

Programming: R, C, C++, FORTRAN, PL/SQL, HTML/CSS, SQL, Java (J2EE/Swing), Ruby/Rails, Javascript, XML/XSL, Perl, Bash, Haskell, Python, LaTeX, Erlang, EDI X12

Operating Systems: Windows, Mac OSX, Linux, UNIX

Mathematics: Statebox theory, Markov chains, Ordinary, Partial, and Stochastic Differential Equations, Random Walks, Probability and Statistics, Likelihood, Matrix, λ, and π-Calculus, Graph Theory, Tropical Algebra

Statistics Regression preditive and explanatory with splines and non-linearities, bootstrapping, likelihood methods, time series (ARIMA), PCA, lasso, machine learning, neural nets

Leadership Activities

Instructor, *Introduction to SQL*, Biostatistics Summer Institute *July 2024*

Instructor, *What They Didn't Teach You About Decision Making*, SMDM 18th Biennial European Conference, Short Course, Berlin *May 2023*

Lecturer, *R and RStudio Workshop*, RMS Short Course, Vanderbilt *May 2019*

Oral Presentation, *Cost Effectiveness Markov Model Bias and Correction* Annual Meeting of the Society for Medical Decision Making, Montreal *October 2018*

Invited Speaker, *Building R Packages for Reproducible Research*, Statistical Practice in Cancer Conference, Moffitt *March 2017*

Guest Lecturer, *Mathematics of Growth and Motility Processes.* *2011 - 2013*
Cancer Systems Biology CAN347, Professor Lourdes Estrada, Vanderbilt University.

Student Mentor, Sarah Fletcher, Sam Hooke, Oscar Ortega, Bailu Yan

References and publications available upon request