Matthew D. Beckman

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PROFESSIONAL EXPERIENCE

Senior Biostatistician
Nonin Medical, Inc
Plymouth, Minnesota
November 2013—Present

- Provide statistical leadership in all areas of the company
- Involved in project design, planning, and execution
- Drive clinical study design, planning
- Evaluate measurement systems including equating/calibrating disparate platforms and conducted optimization study to recommend how many concurrent systems to use during clinical studies
- Conduct and communicate statistical analysis of quality, development, engineering, and clinical data
- Develop SAS macros and scripts for repeatable data management and analysis tasks
- Contribute to publishable research though physician partnerships

Senior Statistician
Medtronic Neuromodulation
Minneapolis, Minnesota
July 2008—November 2013

- Provide eclectic analyses of post-market quality, reliability, medical safety, and pre-clinical, manufacturing, microbiology, research & development data
- Support manufacturing process assurance activity (e.g. characterization & qualifications studies)
- Develop system for monitoring key performance indicators of manufacturing processes for all Neuromodulation products with visibility from individual production step to global product yield
- Managed implementation of SPACE Monitor application which allows production staff to have visibility to the data they produce and an opportunity to comment when an aberration is detected
- Created semi-automated system for regular monitoring of microbiology metrics deployed to 5 Minneapolis area clean rooms (i.e., controlled environment areas)
- Frequent collaboration with Lean & Six Sigma Master Black Belts, and Black Belts to provide statistical support, critical thinking expertise, and training
- Contribute to development and execution of procedures for statistical trending of production data and post-market (PM) quality data sources across Neuromodulation
- Maintained regular analyses of PM quality data using statistical trending
- Inform and collaborate with other Medtronic businesses on statistical methods for PM surveillance
- Inform Neuromodulation business in decisions regarding issue escalation to Corrective & Preventative Action (CAPA), Field Corrective Action, Customer Communication, and Recalls
- Support Medtronic during interface with regulatory bodies such as FDA, TUV, as well as international authorities representing Greece and Japan.
- Experience presenting, discussing, and explaining statistical methods and other technical concepts with FDA investigators, internal/external auditors, executive management, external legal counsel representing as well as opposing Medtronic
- Developed business case and assessment of two major IT projects towards automation of statistical trending for post-market complaint data
- Taught and developed training materials for multiple-day professional development workshops in basic statistics, advanced experimental design, and preclinical study design for classes of 15 – 25 Medtronic employees including managers, engineers, scientists, etc.

Statistics Internship
Ecolab Research, Development, and Engineering
Eagan, Minnesota
June 2007—July 2008

- Provided statistical consulting and collaboration on 25 projects from beginning to completion
- Eclectic statistical support of Ecolab associates nation-wide includes data mining, designing experiments, data analysis, and sample size estimation. My work helped develop new products, streamline processes, and influence management decisions.
- Taught and developed training materials for full-day professional development workshops in basic statistics, data analysis, experimental design, measurement systems analysis, statistical process control, and robust design and specification analysis to classes of 16 employees at a time.
- Lean & Six Sigma statistical support including Black Belt project work

Teaching Specialist (Adjunct Faculty)
The University of Minnesota
Minneapolis, Minnesota
Fall 2008 & Spring 2009

- Instructed 30 graduate students in non-quantitative fields about introductory statistical methods and applications using SPSS statistical software package
- Planned and executed original lessons and carried out assessments
- Bolstered skills and confidence necessary for students to think critically about statistical methods in professional, academic, and casual environments

Graduate Teaching Assistant
The University of Minnesota
Minneapolis, Minnesota
Fall 2006 – Spring 2008

- Taught introductory statistical analysis to 4 classes of 30-50 university students pursuing a wide variety of technical and non-technical degrees with varied mathematical literacy
- Offered private tutoring, development of quantitative reasoning skills, and motivation to students

EDUCATION

Graduate Coursework & Software Experience

- Relevant Coursework: statistical consulting, design of experiments, multivariate statistics, nonparametric methods, categorical data analysis, bootstrap methodology, regression analysis, survival analysis, survey design & implementation, qualitative research methods, advanced research methods, principles and methods of program evaluation, principles of psychological measurement, advanced item response theory, and statistics theory
- Software Experience: R, Splus, SAS, Minitab, Spotfire, JMP, Design Expert, BOXI, SPSS, NVivo, SQL, C++, Arc, MacAnova, and Weka

Bachelor of Science in Mathematics
The Pennsylvania State University
University Park, Pennsylvania

- Awarded “High Distinction” for achieving class rank in top 4% of graduates
- Cumulative grade point average 3.93 / 4.0

Master of Science in Statistics
The University of Minnesota – Twin Cities
Minneapolis, Minnesota

- Master's Project pertaining to optimization of quality control experimentation, especially in scenarios for equivalence testing, through staggered nested designs in order to allocate time, funds, and resources more appropriately and efficiently than traditional nested factorial designs

Doctor of Philosophy in Statistics Education (in Progress)
The University of Minnesota – Twin Cities
Minneapolis, Minnesota
Fall 2009 – Present

- Research interests include assessment of cognitive transfer following introductory statistics especially as relating to curricula that emphasize simulation-based methods
- All coursework complete
- Completed Written Preliminary Examination Paper (Summer 2013) and Preliminary Oral Examination (Spring 2014) on topic of "Cognitive Transfer Outcomes for Students in a Simulation-Based Introductory Statistics Curriculum"
- Expected graduation: Fall 2015

Mathematics Teaching Certification
Pennsylvania Department of Education (2006)

ACCOMPLISHMENTS & INTERESTS

Conference Presentations
Center for Business Intelligence Complaint Handling Conference (Invited Presenter)
Washington, D.C. (June 2008)

- Delivered a seminar on the topic of complaint trending as a Post-Market Surveillance strategy
- Presenter of statistical trend analysis for Corrective & Preventative Action (CAPA) effectiveness

Medtronic Neuromodulation Innovation Week Poster
Minneapolis, Minnesota (2011)

- When monitoring known product or therapy issues for potential safety signals, monthly counts adjusted for appropriate denominator may fail to accurately characterize the process.
- Implement opportunities between event methodology for monitoring rare events using Spotfire Statistics Services to execute S+ scripts to perform custom statistical analysis and deliver user-friendly results to stakeholders.

Medtronic Statistics Conference (Invited Presenter)
Minneapolis, Minnesota (2012; 2013)

- Delivered a seminar on the design and analysis of experiments for pre-clinical research (2012)
- Co-presented a seminar entitled "Review of the Johnson Transformation to Normality" (2013)

Medtronic Science & Technology Conference Presenter
Minneapolis, Minnesota (2012)

- Presented a dynamic dashboard environment developed for Operations management with statistical alerts and real-time drill-down functionality were created using TIBCO Spotfire® and integrated macros written in the S-Plus or R programming language.
- Implementation of statistical methods to discover unusual process variation and provides the ability to diagnose and prioritize immediate and long term improvement needs as well as resource allocation across the business.
- The system includes a micro view utilized by manufacturing resources supporting each production line as well as a macro view consumed daily by senior management.
- Presentation was accepted to Medtronic European S&T Conference in Maastrict, Netherlands

Personal Interests and Accomplishments

American Statistical Association member (January 2007 – Present)
Leadership Council Member of Medtronic Christian Employee Resource Group (2013)
Competitive men's soccer (2010 – 2013)
Twin Cities Marathon finisher (2012)
Varsity track & field at Penn State University (2005 – 2006)
Alpine ski team at Penn State University (2004)
Penn State S&B Senior/Alumni Honor Society Inductee (February 2006)
Eagle Scout Award Recipient