**NEIL DEY**

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Raleigh, NC 27606

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**EDUCATION**

**North Carolina State University GPA: 4.0**

PhD Candidate in Statistics *Expected Graduation: Summer 2025*

* Dissertation: *Valid Inference in Risk Minimization Problems*

**North Carolina State University** **GPA: 4.0** B.S. in Computer Science & Mathematics (with Honors) *2017—2020*

**PUBLICATIONS**

**Machine Learning Theory**

* **Neil Dey**, Ryan Martin, and Jonathan P. Williams. Anytime-Valid Generalized Universal Inference on Risk Minimizers. *In Revisions: Journal of the Royal Statistical Society: Series B*, 2024+.
* **Neil Dey** and Jonathan P. Williams. Valid Inference for Machine Learning Model Parameters. *In Review: Electronic Journal of Statistics*, 2024+.
* **Neil Dey**, Ryan Martin, and Jonathan P. Williams. Neil Dey, Ryan Martin, and Jonathan P Williams’ contribution to the Discussion of “Safe Testing” by Grünwald, de Heide, and Koolen. *Journal of the Royal Statistical Society: Series B,* June 2024.

**Natural Language Processing**

* **Neil Dey**, Matthew D. Singer, Srijan Sengupta, and Jonathan P. Williams. Word Embeddings as Statistical Estimators. *Shankya B*, May 2024.
* **Neil Dey**, Jing Ding, Jack Ferrell, Carolina Kapper, Maxwell Lovig, Emiliano Planchon, and Jonathan P. Williams. Conformal Prediction for Text Infilling and Part-of-Speech Prediction. *New England Journal of Statistics in Data Science*, October 2022.

**Applications of Stochastic Processes**

* **Neil Dey**, Madeline Mariano, Adam Ousherovitch, Fiona Romanoschi, Natalia Vélez-Ríos, and Jonathan P. Williams. Modeling Fatality Data Predictions using Integer Valued Time Series. *In Preparations*, 2024+.
* Jason A. Osborne, Melody Wen, and **Neil Dey**. MLBDecideR: A Shiny App for Baseball. *Notices of the American Mathematical Society*, October 2020.

**INDUSTRY EXPERIENCE**

**Amazon (Personalization) | Applied Science (Machine Learning) Internship** *Irvine, CA June 2021 – August 2021*

* Designed and implemented a hierarchical Bayesian model to predict media selection behavior of individual Amazon customers
  + Final model performed over 30% more accurately than existing method for behavior prediction
  + Gathered and analyzed training data using SQL; implemented model in TensorFlow 2 for Python 3.

**Boeing | Data Science Internship** *Seattle, WA June 2020 – August 2020*

* Implemented a computer vision model to track assembly line progress in Boeing factories
  + Created a Faster R-CNN in Python 3 using the Object Detection API of TensorFlow 1 to track airplane parts (e.g. AFT staircases) in factories and determine when key stages in 737 midsection assembly are completed
  + Received training in convolutional neural network construction in TensorFlow 2

**Amazon (AWS) | Software Engineering Internship** *Seattle, WA June 2019 – August 2019*

* Architected and implemented a service to manage AWS accounts used for integration testing
  + Created APIs for engineers to add and remove accounts from a DynamoDB datastore used to track accounts
  + Created APIs for integration tests to borrow and return accounts, preventing conflicts between different teams’ tests
  + Implemented automatic cleanup using AWS Lambda and Cloudwatch; implemented metrics to be logged in Cloudwatch
  + Microservice written fully in Java, using the AWS SDK and Amazon’s SOA framework

**Cengage (WebAssign) | Software Engineering Internship** *Raleigh, NC June 2018 – August 2018*

* Worked as a full-stack web developer, creating a single page web application tracking metrics regarding the WebAssign platform
  + Views included a heatmap showing current users on the platform, a risk assessment tool determining when it is safe to

deploy, and a visualization of current HTTP errors and response times

* + Technology Stack: React, Node, LESS; Java, Spring-Boot, JDBC (MySQL), Dynatrace; Jenkins, JUnit, and Enzyme

**COMPUTING EXPERIENCE**

Java, Python, C, JavaScript, C++, R, Julia, Matlab, Mathematica, Scala, SAS, x86 assembly, NetLogo