Colby Ford

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EDUCATION

UNIVERSITY OF NORTH CAROLINA AT CHARLOTTE

DOCTOR OF PHILOSOPHY
Computing & Information Systems -
Bioinformatics &
Computational Biology
Wayland H. Cato Doctoral Fellow

MASTER OF SCIENCE
Data Science & Business Analytics
First Graduate of the Program

BACHELOR OF ARTS
Applied Mathematics
Minor: Psychology
Coffey Foundation Scholar
C.L. Robbins Scholar

CALDWELL COMMUNITY COLLEGE & TECHNICAL INSTITUTE
ASSOCIATE IN SCIENCE
ASSOCIATE IN ARTS

LINKS

Github:// colbyford
LinkedIn:// colbyford
Research Gate:// colby_ford
Google Scholar:// Colby T. Ford

SKILLS

PROGRAMMING
Object-Oriented:
Visual Basic • Python • Java
Functional/Statistical:
R • Perl • SAS
Markup/Design:
HTML5 • CSS3 • LaTeX

MUSIC
Instruments & Vocal:
Piano • Organ • Percussion
Tenor/Baritone Voice • Composition •
Recording

OCCUPATIONAL EXPERIENCE

BLUEGRANITE | DATA SCIENTIST
January 2017 - Present | Charlotte, NC
- Develop machine learning models using Python, R, Microsoft ML Server, and Microsoft Azure Machine Learning.
- Utilize Microsoft ML technologies for massive parallel processing on HDInsight (Hadoop) and Databricks (Spark).
- Host client training workshops and demonstrations of Microsoft advanced analytics technologies.

LASH GROUP | SR. DATA SCIENCE LEAD
February 2016 - February 2017 | Fort Mill, SC
- Develop machine learning experiments and data analysis workflows to aid in client analytics.
- Discover, understand, and present insights into patient drug adherence.
- Consult in company data architecture including master data management and governance for future business strategy to grow value for client accounts.

MARINER | DATA SCIENTIST
October 2014 – February 2016 | Charlotte, NC
- Consult in the development of machine learning experiments, including parametric and non-parametric models, statistical predictions, and data mining.
- Build cloud-based solutions for data collection, processing, and storage.
  - Microsoft Azure Technologies:
    * Virtual Machine Management with SQL Server
    * Machine Learning Studio, AzureSQL Database, & Blob Storage
- Design and create interactive visualizations for both dashboarding and reporting.
  - Technologies:
    * Microsoft PowerBI, Tableau Desktop & Tableau Server

NORTH CAROLINA NEW SCHOOLS | TECHNOLOGY FACILITATOR & MATHEMATICS INSTRUCTIONAL ASSISTANT
April 2014 – October 2014 | Hudson, NC
- Responsible for entire technology inventory: ordering, maintenance, management, etc.
- Design and maintenance of school website.
- Liaison between college & high school technology departments.
- Taught NCVPS mathematics courses as well as tutoring sessions.
- Hosted SAT & ACT preparatory sessions for students.

STAPLES | STORE OPERATIONS SUPERVISOR & TECH SALES SUPERVISOR
April 2011 – June 2014 | Lenoir, NC
- Managed store planogram setup & inventory as well as employee hiring & labor scheduling.
- Supervised store P&L for EasyTech department for technology, warranty, & repair service sales.

CALDWELL HOSPICE & PALLIATIVE CARE
ELECTRONIC MEDICAL RECORDS DATABASE ADMIN
August 2008 – December 2011 | Hudson, NC
- Pioneered the transition from hand-written, paper medical forms to electronic data input and record keeping.
- Worked closely with HIPAA and Medicare/Medicaid guidelines for compliance.
- Served as administrator for the Suncoast database system.

COURSEWORK

DOCTORAL
Bioinformatics Programming - Perl
Molecular Sequence Analysis
Bioinformatics Programming - Python
Energy and Interaction
Research Rotation I
Research Rotation II
Drugs: Molecular & Cell Mechanics
Computational Structural Biology
Statistics for Bioinformatics

MASTERS
Database Systems
Visual Analytics
Big Data Analytics
Business Intelligence
Database Design & Management
Consumer Marketing Analytics
Innovation Analytics
Advanced Business Analytics
Machine Learning
Data Warehousing

UNDERGRADUATE
Mathematical Dataset Modeling
Mathematical Thought
Applied Regression
Financial Mathematics
Regression Analysis
Industrial & Organizational Psychology
Deductive Logic
Deterministic Modeling
Cognitive Science - Perception
Business Programming - Visual Basic

RESEARCH

PAPERS

- Ford C., Wen J., Janies D., Shi X., (2018) (*Coming Soon*) parEBEN: A Parallelized Strategy for Improving Epistasis Analysis Based on Empirical Bayesian Elastic Net Models

- Wen J., Ford, C., Janies D., Shi X., (2018) (*ACM Conference on Bioinformatics, Computational Biology, and Health Informatics*) New strategies toward scaling up epistasis analysis on large-scale genomic datasets

- Ford, C. T. (2018). An integrated phylogeographic analysis of the Bantu migration. (Order No. 10748780, The University of North Carolina at Charlotte). *ProQuest Dissertations and Theses*, 120.

- Janies, D.A., Ford, C., Damodaran, L., Witter, Z., (2016) (*Online Journal of Public Health Informatics*) Spread of Middle East Respiratory Coronavirus: Genetic versus Epidemiological Data

- Ford, C., Xue, M., Whiteley, P.M., Wheeler, W., Janies, D.A., Shi, X. (2016) (*Society for Anthropological Sciences*) Visualizing Linguistic Disparity of Uto-Aztecan Languages and Bantu Languages

- Ford, C., Nodzak, C.M., Uppal, A., Zhao, L., (2016) (*Critical Assessment of Genome Interpretation*) Prediction of the effect of naturally occurring missense mutations on cellular n-acetyl-glucosaminidase enzymatic activity.

- Ford, C., Griggs, L., Tillinger, T., & Wood, K. (2015). QVC product airtime analysis.

- Amick, J., Ford, C., Krauss, T., & Wood, K. (2015). Toyota: preparing for the next generation Camry.

- Ford, C. (2015). CongloMed: conglomerate medical data warehousing for analysis, mining, and classification.

- Ford, C. (2015). Creating an integrated, analytical system for the modern, digital business. Masters Practicum.

- Bulusu, M., Ford, C., Ramesh, A., & Patil, P. (2014). VisUFO: organization and representation of UFO sighting data.

OTHER WORK

- Ford, C. & Lathrop, A. (2017). (*Presentation - Analytics for Social Good, University of Cincinnati.*) Predictive modeling of vegetation density using R and a cloud data platform.

- Ford, C. (2015). Demand forecasting using machine learning to reduce working capital. *Mariner White Paper.*

- Ford, C. (2015). The allure of machine learning, now within reach in Microsoft Azure. *Mariner White Paper.*

- Ford, C., & Snyder, W. (2015). Revenue protection using machine learning for utilities management. *Mariner White Paper.*

- Ford, C., (2016). Assessment of retail out-of-stock conditions using statistical inference. *Mariner White Paper.*

BOOKS

- Ford, C. (2010). *Caesura, late-intermediate piano technique book.* Hudson, NC: Author.
ISBN: 978-0-557-36832-7

TEACHING

Advanced Functions & Modeling
Discrete Mathematics
Precalculus
Machine Learning
SAT/ACT Prep

RESEARCH

JANIES LAB | Disease Transmission Research
August 2015 – Present | Charlotte, NC
Working with **Dr. Dan Janies** to understand the potential disparity between the phylogenetic tree of the Middle Eastern Respiratory Syndrome coronavirus and the geographic spread of the pathogen reported in confirmed cases by the World Health Organization.

DARPA | Bantu Migration - Genomics and Language Research
November 2015 – Present | Charlotte, NC
Working with researchers from DARPA, The American Museum of Natural History (**Drs. Ward Wheeler** and **Peter Whitley**), and The University of North Carolina at Charlotte (**Drs. Dan Janies** and **Xinghua (Mindy) Shi**) to understand the genetic, geographic, and linguistic relationship between languages in both Bantoid and Uto-Aztecan groups.

PROFESSIONAL MEMBERSHIPS

2013	The Society for Industrial and Applied Mathematics
2014	The American Statistical Association
2015	UNCC Data Science Initiative Advisory Board
2016	Northeastern University LEVEL Board Member and Lecturer
2016	The Society for Anthropological Sciences

CONFERENCE ATTENDANCES

Nov. 2014	Microsoft Roadmap Event (*Speaker*)	Charlotte, NC
Sep. 2015	Microsoft Cortana Analytics Conference	Seattle, WA
Sep. 2016	Advanced Pharma Analytics	Newark, NJ
Feb. 2017	Analytics for Social Good - U. Cincinnati (*Speaker*)	Cincinatti, OH
Mar. 2017	Society for Applied Anthropology (*Speaker*)	Santa Fe, NM
Nov. 2017	Nissan Analytics Expo (*Speaker*)	Nashville, TN
Jan. 2018	rstudio::conf 2018	San Diego, CA
Jun. 2018	Spark+AI Summit 2018	San Francisco, CA

CERTIFICATIONS

May 2018	Databricks Certified Developer - Apache Spark 2.x for Python