

Johnathan Napier: Data Scientist, Mathematician, and Researcher

Ypsilanti, MI 48197 734-383-9064 johnathan.napier@icloud.com linkedin.com/in/johnathannapier/

Professional Summary:

Experienced Data Scientist with advanced degrees in biology and mathematics, specializing in predictive modeling, spatial statistics, and machine learning. I apply data science across bioinformatics, medicine, ecology, and theoretical mathematics to uncover patterns and solve complex problems. Proficient in R (Tidyverse, Caret) and TensorFlow/Keras, with a portfolio spanning disease risk modeling, medical AI, genetics, group theory, and movement ecology. Committed to publishing peer-reviewed research and translating statistical insights into meaningful scientific and societal outcomes.

Professional, Research, and Teaching Experience:

Part-Time Lecturer

Eastern Michigan University, Biology Department – Ypsilanti, MI | August 2025 – Present

- Delivering undergraduate/graduate-level lectures in Plant Evolution & Classification

Senior Data Scientist (Imaging)

Arkana Laboratories, Multiplex Imaging Center – Little Rock, AR | April 2022 – July 2025

- Developed and trained convolutional neural networks (CNNs) using TensorFlow, Keras and Halo AI for tissue segmentation of renal biopsy images
- Applied spatial statistics and unsupervised clustering to analyze leukocyte phenotypes using R and Halo
- Conducted statistical analysis and developed predictive models for disease risks, leveraging R packages such as caret, e1071, survival, and aorsf
- Analyzed RNA expression profiles to find early indicators of disease using Bioconductor and nSolver; identifying genes-of-interest for qPCR assays and targeted drug therapies
- Created frontend apps for tissue adequacy and kidney allocation risk assessments using Shiny and Android Studio

Private Data Science Tutor

Wyzant – Remote | April 2020 – Present

- Delivered 420 hours of tutoring in R programming and mathematics, focusing on statistics, matrix calculus, and machine learning techniques
- Debugged and guided R code programming for undergraduate projects, graduate thesis research, and professional industry research

Contract Data Scientist

Upwork & Independent Contracts – Remote/Hybrid | July 2019 – Present

- Built and optimized predictive models for stock market analysis and sports projections using R and machine learning algorithms
- Analyzed and cleaned datasets using the Tidyverse, VBA macros, and Excel for various projects, including nanosensor data analysis and engineering optimization
- Developed statistical reports and visualizations using ggplot2, plotly, and Power BI to present insights to clients

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Graduate Researcher & Graduate Teaching Associate

Eastern Michigan University, Mathematics Department – Ypsilanti, MI | Sept 2018 – April 2021

- Conducted thesis research on the mathematics of Rubik's Cubes using R, TensorFlow, and Keras for solving combinatorial puzzles through neural networks
- Used Markovian analysis, group theory, and cloud-based neural networks to analyze the lattice structure of permutation groups and efficiency in solutions
- Tutored 1200+ hours of undergraduate mathematics courses with emphasis on calculus, statistics, linear algebra, and proofs

Graduate Researcher & Graduate Teaching Associate

University of Central Florida, Biology Department – Orlando, FL | Aug 2015 – April 2018

- Conducted thesis research on the spatial statistics and behavioral ecology of Gopher Tortoises (*Gopherus polyphemus*) using ArcGIS and R for geospatial analysis
- Leveraged cloud computing and SSH protocols for simulation of 9.6 million movement patterns and theoretical spatial statistical analysis of homing behavior
- Drew blood and used histopathologic staining to phenotype white blood cells and characterize immune response in Gopher Tortoises
- Taught two semesters of Evolutionary Biology laboratory and assisted in single semesters of Genetics and Vertebrate Evolution & Ecology

Undergraduate Researcher

Eastern Michigan University, Chemistry Department – Ypsilanti, MI | Apr 2013 – Dec 2014

- Investigated proviral integration rates of the Feline Leukemia Virus (FeLV) using qPCR and biochemical assays
- Conducted DNA extraction, gel electrophoresis, restrictive digestion, and PCR as part of molecular biology lab protocols
- Designed primer & probe sequences using BLAST for PCR and restriction digestion

Airborne Cryptologic Linguist (Non-Commissioned Officer)

U.S. Air Force, Offutt AFB & Al Udeid AB – Omaha, NE & Doha, Qatar | Sept 2005 – Aug 2011

- Flew 97 intelligence-gathering missions, providing tactical translations and analysis of Arabic communications and applying decryption algorithms to electronic communications
- Utilized VBA macros and geospatial software to acquire and locate targets of interest
- Served as a non-commissioned officer, supervising and training over 30 airmen in language translation and intelligence reporting
- Regularly conducted intelligence gathering simulations, serving as a subject matter expert and certifying agent in tactical Arabic & Quick Reaction Capabilities
- Collaborated with analysts and commanders to develop actionable intelligence briefs based on geospatial data and linguistic interpretations

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Academic Education:

Master of Science in Data Science (Expected)

Graduate Certificate in Data Science (Expected)

Graduate Certificate in Machine Learning (Expected)

University of Colorado Boulder – Boulder, CO | December 2026

- **Relevant Coursework:** Probability Theory, Statistical Inference for Estimation, Statistical Inference and Hypothesis Testing

Master of Science in Mathematics

Eastern Michigan University – Ypsilanti, MI | April 2021

- **Thesis:** Connectivity of combination puzzles: Using machine learning on groups
- **Relevant Coursework:** Abstract Algebra, Linear Algebra, Fourier Analysis, Real Analysis, Group Theory, Field Theory, Number Theory, Cryptology, Machine Learning, Stochastic Modeling, Optimization Theory, Quantum Mechanics

Master of Science in Biology

University of Central Florida – Orlando, FL | August 2018

- **Thesis:** Behavioral and Disease Ecology of Gopher Tortoises (*Gopherus polyphemus*) Post Exclusion and Relocation with a Novel Approach to Homing Determination
- **Relevant Coursework:** Biogeography, Herpetology, Disease Ecology, Methods in Experimental Ecology, Laboratory Methods in Molecular Biology, Practice of Biomedical Sciences, Applied Analytic Chemistry

Bachelor of Science in Biology, Professional Biochemistry, & Mathematics

Eastern Michigan University – Ypsilanti, MI | December 2014

- **Undergraduate Research:** Rates of proviral integration in Feline Leukemia Virus
- **Relevant Mathematics Coursework:** Proofs, Calculus I & II, Multivariate Calculus, Mathematical Modeling, Mathematical Problem Solving, Elementary Linear Algebra, Abstract Algebra, Elementary Statistics, Statistical Methods, Biostatistics, College Geometry
- **Relevant Chemistry Coursework:** Chemistry I & II, Biochemistry I & II, Organic Chemistry I & II, Inorganic Chemistry, Bioinorganic Chemistry, Toxicology, Quantitative Analysis, Spectroscopic Organic Structure Determination, Thermodynamics & Kinetics, Quantum & Statistical Mechanics, Physical Chemistry
- **Relevant Biology Coursework:** Biology I & II, Genetics, Evolution, Cell & Molecular Biology, Biology of Cancer, Microbiology, Human Physiology, Ecology, Herpetology, Arachnology, Plant Evolution & Classification, Aquatic Plants, Plants & People, Ecuador & the Galápagos Islands

Associate of Arts in Arabic

Defense Language Institute – Monterey, CA | July 2009

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Professional Education, Certifications, and Training:

Professional Certifications in Computer Science, Data Science, & Machine Learning

Coursera, DataCamp, edX | 2019 – 2025

- **Quantum 101: Quantum Computing & Quantum Internet** – *TU Delft (edX)*
- **Applied Data Analytics** – *Microsoft (edX)*
- **Data Analysis: Absolute Beginners** – *Microsoft (edX)*
- **Data Analysis: Essential Skills** – *Microsoft (edX)*
- **Introduction to Computer Science** – *Microsoft (edX)*
- **Microsoft Excel Fundamentals** – *Microsoft (edX)*
- **Microsoft Excel for the Data Analyst** – *Microsoft (edX)*
- **Deep Learning** – *Deeplearning.ai (Coursera)*
- **TensorFlow: Data and Deployment** – *Deeplearning.ai (Coursera)*
- **TensorFlow in Practice** – *Deeplearning.ai (Coursera)*
- **AI Engineering** – *IBM (Coursera)*
- **AI Foundations for Everyone** – *IBM (Coursera)*
- **Mathematics for Machine Learning** – *Imperial College London (Coursera)*
- **Statistical Analysis with R for Public Health** – *Imperial College London (Coursera)*
- **Biostatistics in Public Health** – *Johns Hopkins University (Coursera)*
- **Genomic Data Science** – *Johns Hopkins University (Coursera)*
- **Data Science Foundations: Statistical Inference** – *CU Boulder (Coursera)*
- **Machine learning** – *University of Washington (Coursera)*
- **Importing & Cleaning Data with R Track** – *DataCamp*
- **Understanding Data Topics Track** – *DataCamp*
- **Unsupervised Machine Learning in R Track** – *DataCamp*

Individual Certificates in Computer Science, Data Science, & Machine Learning

Coursera, DataCamp, edX, LinkedIn Learning | 2019 – 2025

- Completed a total of 59 courses through Coursera [\[link to certificates\]](#)
- Completed a total of 16 courses through DataCamp [\[link to certificates\]](#)
- Completed a total of 21 courses through edX [\[link to certificates\]](#)
- Completed a total of 38 courses through LinkedIn Learning [\[link to certificates\]](#)

Academic & Military Professional Training Programs

- **Graduate Teaching Associate Training** – *University of Central Florida | 2018*
- **Graduate Professional Development** – *University of Central Florida | 2015 – 2016*
- **Mobile Training Team Arabic Refresher** – *United States Air Force | 2010*
- **Airman Leadership School** – *United States Air Force | 2009*
- **SERE Combat Survival Training** – *United States Air Force | 2007*
- **Cryptologic Intelligence Training** – *United States Air Force | 2007 – 2009*
- **Arabic Language School** – *United States Air Force, DLI | 2006 – 2007*
- **Aircrew Qualification Training** – *United States Air Force | 2006 – 2009*
- **Basic Military Training** – *United States Air Force | 2005*

Research Publications:

- Eigbire-Molen, O. J., Cassol, C. A., Kenan, D. J., Napier, J. O. H., Burdine, L. J., Coley, S. M., & Sharma, S. G. (2024) *Smartphone-based machine learning model for real-time assessment of medical kidney biopsy*. Journal of Pathology Informatics, 100385.
- Zhang, H., Haun, R. S., Collin, F., Cassol, C., Napier, J. O. H., Wilson, J., ... & Coley, S. M. (2023). *Development and Validation of a Multi-Class Model Defining Molecular Archetypes of Kidney Transplant Rejection: A Large Cohort Study of the Banff Human Organ Transplant Gene Expression Panel*. Laboratory Investigation, 100304.
- Napier, J. O. H. (2021). *Connectivity of combination puzzles: Using machine learning on groups*. (Order No. 28412993) [Master's thesis, Eastern Michigan University]. ProQuest Dissertations & Theses Global.
- Napier, J. O. H. (2018). *Behavioral and Disease Ecology of Gopher Tortoises (Gopherus polyphemus) Post Exclusion and Relocation with a Novel Approach to Homing Determination*. (Publication No. 6381) [Master's Thesis, University of Central Florida] STARS Electronic Theses and Dissertations.

Research Presentations & Posters:

- Napier, J. O. H., Stephens, O. W., Cassol, C., Daly, R., Hamilton, G. DiFranza, L., Mohan, S., & Coley, S. M. (2024). *What Do You Call Treatment Resistant T-cell Mediated Rejection?* [Poster Presentation, Banff-PITOR Joint Meeting 2024].
- Napier, J. O. H., Caza, T. N., Campbell, D. L., & Coley, S. M. (2024). *Prediction of Delayed Graft Function Risk Using Donor and Recipient Characteristics*. [Rapid Fire Oral Presentation, American Transplant Congress 2024].
- Stephens, O. W., Napier, J. O. H., Burdine, M. S., & Coley, S. M. (2024) *Potential Role for T-Cell Intrinsic DNA Repair in Human Kidney Transplant Rejection*. [Poster Presentation, American Transplant Congress 2024].
- Coley, S. M., Stephens, O. W., & Napier, J. O. H. (2024) *Impact of Autoimmune History on the Transcriptional Profile of Kidney Allograft Rejection*. [Rapid Fire Oral Presentation, American Transplant Congress 2024].
- Stephens O. W., Napier, J. O. H., Coley, S. M. (2023) *Transcriptional Heterogeneity of T-Cell Mediated Rejection in Human Kidney Transplantation*. [Rapid Fire Oral Presentation, American Transplant Congress 2023].
- Eigbire-Molen, O. J., Cassol, C. A., Coley, S. M., Kenan, D. J., Napier, J. O. H., & Sharma, S. G. (2023) *Machine Learning Classification of Kidney Biopsy Smartphone Images for Adequacy Assessment*. [Poster Presentation, American Society of Nephrology 2023].
- Eigbire-Molen, O. J., Napier, J. O. H., Coley, S. M., & Caza, T. N. (2023) *Post-transplant Outcomes of Patients with End-Stage Renal Disease Caused by Lupus Nephritis*. [Poster Presentation, United States and Canadian Academy of Pathology 2023].

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Professional Memberships:

- **Alpha Chi Sigma Professional Chemistry Fraternity (AXΣ)** / 2015 – Present
- **American Chemical Society (ACS)** / 2012 – Present
- **American Society for Cell Biology (ASCB)** / 2015 – Present
- **American Society for Microbiology (ASM)** / 2013 – Present
- **American Society for Transplantation (AST)** / 2023 – 2024
- **American Statistical Association (ASA)** / 2023 – Present
- **TriBeta National Biology Honor Society (βββ)** / 2014 – Present
- **Michigan Society of Herpetologists (MSH)** / 2013 – Present
- **Mathematical Association of America (MAA)** / 2013 – Present
- **Starfleet International Fan Association (SFI)** / 2015 – Present

Top Data Science Skills:

R, RStudio, and RShiny	Differential Equations	Autoencoders & Hopfield
RMarkdown and LaTeX	Genetic Analysis	Convolutional Neural Nets
MICE Imputation	Data Wrangling	Decision Trees / Forests
Bioconductor	Data Visualization	Dense Neural Networks
The Tidyverse	Generalized Linear Models	Dimensionality Reduction
TensorFlow & Keras	Linear Algebra	Ensemble Learning
Caret modeling	Markov Chain Monte Carlo	Evolutionary Algorithms
GGplot2 and Plotly	Matrix Calculus	Hyperparameter Selection
Microsoft Excel & Power BI	Multivariate Calculus	NLP & Sentiment Analysis
Indica Labs HALO AI	Statistical Analysis	Recurrent Neural Networks
ArcGIS / QGIS	Time-Series Analysis	Unsupervised Clustering

Programming, Query, and Markup Languages:

R (Expert / Fluent)	MATLAB (Intermediate)	JavaScript & Scala (Basic)
Bash (Advanced)	Python (Intermediate)	SageMath (Basic)
LaTeX (Advanced)	HTML (Intermediate)	Wolfram (Basic)
Dplyr / SQL (Advanced)	VBA (Intermediate)	BASIC (Basic)
DAX (Advanced)	C++ (Basic)	PowerShell (Basic)

Human Languages:

English (Native)	German (Intermediate)	Dutch (Beginner)
Arabic (Fluent)	Norwegian (Beginner)	Swedish (Beginner)