

**Damani A. Driver, MSc.**  
*Research Scientist | Software Engineer*  
Nashville, Tennessee  
Website: [damani-14.github.io/blog](https://damani-14.github.io/blog)

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## **EDUCATION**

University of North Carolina Wilmington, Wilmington, North Carolina, 2015 – 2018  
Master of Science, 2018

**Major:** Geoscience

**Specialty:** Geophysics

University of Tennessee, Knoxville, Tennessee, 2013 – 2015

Bachelor of Science, 2015

**Major:** Geology

Nashville State Community College, Nashville, Tennessee, 2010 – 2013

Associate of Science, 2013

**Major:** Biology

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## **FUNCTIONAL SKILLS**

### Scripting Languages & Frameworks

Bash – *Brian Fox*

Java – *Sun Microsystems*

JavaScript – *Netscape Communications Corporation, Mozilla Foundation, Ecma International*

MATLAB – *Simulink MathWorks*

Python – *Python Software Foundation*

R – *R Development Core Team*

### Relational Database Management Systems

GraphQL – *Meta*

Neo4j – *Neo4j*

PostgreSQL – *PostgreSQL Global Development Group*

### Software

ArcGIS – *Environmental Systems Research Institute*

Docker – *Docker Inc.*

ENVI – *Harris Geospatial*

Helm – *Deis Labs, Microsoft*

Jupyter Notebook – *Fernando Perez, Brian Granger*

Kubernetes – *Cloud Native Computing Foundation*

NiFi – *The Apache Software Foundation*

QGIS – *QGIS Development Team*

Scikit-learn – *David Cournapeau*

## PROFESSIONAL & RESEARCH EXPERIENCE

Research Scientist/Blockchain Developer – Digital Asset Platform Development, July 2022 – December 2022

### *Coinroll*

- Research Scientist-Mid/Blockchain Developer
  - Conducted research and development for blockchain analysis
  - Utilized data science principles and machine learning software to elucidate relationships in large amounts of blockchain transaction data
  - Developed machine learning pipelines for decoding transaction information and generating analytic products
  - Delivered reports of model performance

Software Developer, Geoscience SME, TS/SCI – GEOINT Application Development, July 2019 – March 2022

### *Maxar Technologies*

Department of Homeland Security, National Reconnaissance Office, United States Air Force

- Full Stack Developer
  - Team focused effort to apply leading technologies to the processing and analysis of high volume spatiotemporal datasets for track analysis
  - Developed new features for CRUD API using Python and Django
  - Designed new capabilities for JavaScript/Angular user interface
  - Integrated new Java/Spark models for analytic API
- Integration Manager
  - Provided consultation to development teams for integrating Big Data AI engine into existing systems
  - Developed custom modules for integration with new systems
- Release Manager
  - Routinely utilized Git for release package management for mission critical systems

Software Developer, Geoscience SME, TS – GEOINT Application Development, March 2019 – July 2019

### *The Buffalo Group*

National Geospatial-Intelligence Agency

- Full Stack Developer
  - Customer focused full stack developer for terrain analysis products
  - Led development effort for backend integration with third-party application exposing product to more than 5,000 potential new users
  - Consolidated technical dependencies of backend tech stack
  - Migrated existing analytic API from Golang to Python 3
  - RESTful development using Python and Flask
  - Synthesized CUDA/C++ algorithm suite into disseminable summaries and presentations for technical and non-technical audiences
  - Identified and verified viability of new high-resolution data sources for raster analyses
  - Provided product overview and demonstration to new prospective customers
  - Led team during bi-monthly customer meetings, routinely updated customer regarding backend development progress during bi-weekly tech meetings, and regularly documented team meetings

Field Technician – Commercial & Residential Land Development, August 2018 – February 2019

*Crawford & Cummings Surveyors, PC.*

Supervisor: J. Alan Cummings, Licensed Surveyor

- Topographic surveyor of commercial and residential development properties in the greater Nashville Metropolitan Area
- Conventional and autonomous Topcon Total Station, Hi-Per Lite Plus GPS, and Base Rover operator
- AutoCAD and Carlson Survey apprenticeship

Graduate Student Researcher – Seismology, August 2015 – May 2018

*University of North Carolina Wilmington*

Supervisor: Scott Nooner, Ph.D., Associate Professor

**Dissertation:** <https://tinyurl.com/y7dxeplr>

- Independently designed and executed a large scale scientific investigation through acquisition and synthesis of existing geophysical and geospatial data, construction of bespoke field equipment for the deployment of scientific instruments, acquisition of large amounts of unique geophysical data, and subsequent generation of robust spectral analyses through the development of algorithms in MATLAB
- Object oriented programming in MATLAB (<https://tinyurl.com/ya5kcaxz>)
- Algorithm development for batch processing, data transformation, and visualization
- Quantitative study of daily teleseismic signal central tendency
- Data transformation and subsequent signal to noise optimization
- Elucidation of the dominant signal frequencies in the region of interest
- Development of unique media for scientific communications including project and budget proposals, informational posters for technical sessions, and cartographic products

Graduate Teaching Assistant – Earth & Ocean Sciences, January 2016 – May 2017

*University of North Carolina Wilmington*

Supervisor: Roger Shew, Ph.D., Lecturer

- Regularly assisted departmental faculty in the education and assessment of collegiate students from diverse backgrounds through weekly lectures and laboratory exercises in fundamental geologic and geographic principles
- Encouraged students to apply critical thinking skills to geologic studies and express their knowledge in writing
- Fostered a collaborative environment among students through demonstrations and group exercises
- Effectively communicated the principles of geology to students from various academic principles

Intern - Research Hydrologist, Hydrologic Technician, July 2013 – August 2014

*United States Geological Survey Tennessee Water Science Center*

Supervisor: William Wolfe, Ph.D., Deputy Director

- Assisted federal scientists in investigations of evapotranspiration and hydrologic geomorphology through the validation of hydrologic models, data acquisition and cleansing, geospatial analysis, and the production of cartographic products using GPS and bathymetric data acquired during field expeditions

- Regular field surveying and data capture of streams and rivers in middle and northeastern Tennessee
- Populated databases with precipitation records, soil survey data, and drainage basin outflow locations, leading to the computation of volumetric water studies using a Penman-Monteith geophysical model
- Supported the large scale investigation of annual water use by thermoelectric power plants across the United States
- Utilized USGS, and USDA data services for the retrieval of geographic datasets for use in geospatial modeling in ArcGIS

Undergraduate Researcher – Microbial Ecology, October 2013 – May 2015

*Hazen Lab - University of Tennessee, Department of Earth and Planetary Sciences*

Supervisor: Terry Hazen, Ph.D., Governor's Chair in Microbiology & Civil Engineering

Abstract: <https://tinyurl.com/ydx9upux>

- Independently designed and executed an experiment implementing numerous techniques in microbiology, organic chemistry, geochemistry, and statistical analysis, culminating in the development of several predictive ecological models
- Intensive training in the use of scientific laboratory equipment, investigative biological methods, and laboratory safety protocols
- Initiated the collaboration between professional scientists from diverse disciplines in multiple departments
- Acquired a large unique set of time series data comprising measurements of soil microbial respiration in response to simulated moisture regimes
- Delegation of tasks and monitoring of experiment progress while working remotely over multiple months

Undergraduate Researcher – Quaternary Paleoclimatology, January 2014 – May 2014

*University of Tennessee Knoxville, Department of Geography*

Supervisor: Sally Horn, Ph.D., Chancellor's Chair in Geography

- Assisted graduate researchers and principal investigators in laboratory tasks contributing to the application of organic geochemical techniques to investigations in stable isotope paleoclimatologic studies of human migratory patterns in the conterminous United States and Costa Rica
- Retrieved and prepared soil cores retrieved from lacustrine basins for interval sampling
- Prepared soil samples for loss on ignition testing and subsequent gas chromatography and mass spectrometry tests to elucidate a range of ratios of organic and inorganic isotopes

## **VOLUNTEER EXPERIENCE**

Technology & Innovation Policy Council Member, December 2021 – March 2022

*Intelligence and National Security Alliance*

- Working Groups
  - Malign Influence
  - Artificial Intelligence
  - Open-Source Tools, Technologies, and Platforms

Young Alumni Advisory Team, October 2021 – Present

*University of Tennessee, Knoxville*

- Providing the Washington DC Chapter with assistance and resources in support of University of Tennessee academic outreach efforts and recruitment activities in the DC Metropolitan Area

Advisory Board Member, June 2020 – Present

*Earth & Planetary Sciences Alumni Advisory Board, University of Tennessee*

- Career Path Coach, Mentorship & Outreach Committee

## **PROFESSIONAL WORKSHOPS**

Incorporated Research Institutions for Seismology (IRIS) Data Processing Short Course

*Northwestern University, Chicago, Illinois, August 1 – 5, 2016*

- Intensive introduction to contemporary methodologies for processing and analyzing large sets of real world time series data
- Diligent application of programming and logistical skills for the development of batch processing techniques and the selection of appropriate analyses using Python, MATLAB, Seismic Analysis Code, UNIX shell scripting, and FORTRAN during individual and collaborative exercises using geophysical data

Ball State University Geological Field Course

*Northern Rocky Mountains, Multiple Locations, May – June 2015*

- Daily application of classical and modern methods in geology and geography to field and laboratory based exercises in structural geology, sedimentology, cartography, and geospatial analysis
- Developed numerous scientific and thematic cartographic products in conjunction with verbal and written technical deliverables for deadlines on a highly varying schedule
- Maintained steady workflows through frequently changing work environments for the duration of the exercise

## **SPECIAL AWARDS AND HONORS**

Gordon Award for Professional Promise, April 2015

*University of Tennessee, Department of Earth and Planetary Sciences*

- Student awarded recognition and support of one student who has demonstrated aptitude for geologic knowledge and for their anticipated success as a future professional in the geologic sciences

William McNutt Johnson Award, April 2015

*Knoxville Gem and Mineral Society*

- Donor awarded recognition and support of promising students in the geological sciences

Bill Ross Award, April 2015

*University of Tennessee, Department of Earth and Planetary Sciences*

- Faculty and alumni awarded recognition and support of students pursuing a Bachelor of Science in Geology and completing a six-week, field-based geoscience exercise

## **INTERNATIONAL EXPERIENCE**

Gap Semester, January 2018 – June 2018

*England, United Kingdom*

- Six months of travel in northwestern England visiting Preston, Liverpool, Manchester, Blackpool, Lancaster, London, Birmingham, and the Lake District

- Activities included independent studies in software and algorithm development, statistical analysis, machine learning, and web development
- Demonstrated self-reliance and independence through independent navigation, diligent budgeting and planning, and adaptation to unforeseen circumstances

#### PROFESSIONAL SOCIETIES AND JOURNALS

- The United States Geospatial Intelligence Foundation, 2018 – Present
- The American Geophysical Union, 2014 – Present
- The Geological Society of America, 2013 – Present
- The American Association of Petroleum Geologists, 2013 – Present

#### FOREIGN LANGUAGES

- French, Intermediate, University of Tennessee, Lipscomb Academy, 2 Years
- Portuguese, Elementary, University of Tennessee, < 1 Year
- Spanish, Elementary, University of Tennessee, < 1 Year

#### DISSERTATIONS

1. **Damani A. Driver**, Advisor - Scott L. Nooner (2017). "Teleseismic Data Acquisition in the Coastal Plain of North Carolina." *A Final Project Report submitted to the University of North Carolina Wilmington in Partial Fulfillment of the Requirements for the Degree of Master of Science in Geology, Fall 2017*. University of North Carolina Wilmington, Department of Earth and Ocean Sciences, Wilmington, North Carolina

#### RESEARCH ARTICLES

1. Paradis, C.J., Mahmoudi, N., Jagadamma, S., **Driver, D.A.**, O'Dell, K.B., Schaeffer, S.M., Hazen, T.C. (2017) *Soil respiration and microbial community structure in response to simulated heavy precipitation and drought: implications for rapidly changing soil moisture regimes in humid sub-tropical climate zones*. Applied Soil Ecology, forthcoming

#### PRESENTATIONS

1. **Driver, Damani A.** (2016). "Teleseismic Data Acquisition in the Coastal Plain of North Carolina." *Annual Meeting of the Geological Society of America (GSA), September 25—28, 2016*. Denver, Colorado
2. **Damani A. Driver**, Kaela O'Dell, Charles J. Paradis, Nagissa Mahmoudi, Julian L. Fortney, Sean M. Schaeffer, and Terry C. Hazen (2014). "Severe Weather Events and Terrestrial Ecosystem Response: Soil Microbial Respiration and Biomass Changes as a Function of Soil Moisture Content in a Lexington Silt Loam from West Tennessee." *Annual Meeting of the Geological Society of America (GSA), October 19–22, 2014*. Vancouver, BC Canada
3. **Driver, Damani A.** (2014). "Changes in Soil Microbial Activity and Cell Density in Response to Drought and Heavy Precipitation Events." *Exhibition of Undergraduate Research and Creative Achievement (EURECA)*. University of Tennessee, Knoxville, Tennessee