

# Ben Norton

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## EDUCATION

Master of Science in Geology, 2008

University of Tennessee, Knoxville, TN

Bachelor of Science in Geosciences, 2005

University of Arizona, Tucson, AZ

## WORK EXPERIENCE

Head, Technology & Collections Manager, Meteorites, 2015 - *Current*

*North Carolina Museum of Natural Sciences*

Tasks: Develop technical strategies, solutions, and tools that support institutional priorities and address the operational needs of museum staff; Technical point-of-contact for cross section collaborations and technical initiatives; Responsible for the planning, development, management, and design of custom-built web applications and websites; Administrator for all technical assets and resources; Collections management; Develop educational material; Continue Collections Data Curator tasks (*see below*).

Accomplishments: Designed and developed new website for museum; Developed and designed an array of custom web applications and websites; Lead developer, designer, and project manager for more than a dozen technical initiatives and development projects; Set policies and guidelines for the usage of web-based assets; Built a new collection management system; Overhauled the collections management protocol and data management plan for all collections.

Freelance Developer, 2009 – 2010, 2017 - *Current*

*Multiple Clients*

Tasks: Webmaster, Designer, and Programmer

Accomplishments: Successfully managed a part-time freelance venture with a personal marketing strategy, contracts, questionnaires, and invoices; Ability to self-manage the development and administration of multiple projects while consistently satisfying client expectations; Deliverables include technical solutions, custom websites and resources, and database applications; Clients include Ecosystem Planning & Restoration, Museum of Life and Science, and Hope Research Institute.

Collections Data Curator, 2013 – 2015

*Research and Collections, North Carolina Museum of Natural Sciences*

Tasks: Data manager and curator; GIS application developer and map designer; Database administrator; Webmaster

Accomplishments: Published 8 collection data sets to global biological data repositories; Developed the NCSM Species Mapper (<https://collections.naturalsciences.org/speciesMapper.aspx>) GIS web application; Designed and developed the Online Collections website (<https://collections.naturalsciences.org>) with 11 searchable biological, paleontological, and geological collections; Developed the collections data workflow, a multi-tier system that is the backbone for collections data capture, processing, and publishing; Co-PI on multiple collections grant proposals; Secretary of GIS working group; Created and implemented QA/QC techniques for collections data processing and analysis; Set data standards for collections data publishing.

Programmer/Analyst II, 2010 - 2012

*Global Climate Change and Environmental Sciences Unit, RTI International*

Tasks: Developed and maintained software, systems, and websites for environmental research projects; Investigated new software and technologies for research; Collaborated on technical documentation and support proposal processes.

Accomplishments: Created the user interface and data access layers of a web-based GIS watershed modeling tool and decision-support system, waterFALL (<https://www.waterfall.rti.org>); Built and

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maintained websites for environmental projects using multiple architectures, DotNetNuke, ColdFusion/MSSQL, and XHTML/CSS; Created and maintained SharePoint workflows; Tested and debugged web and desktop applications; Created website markup from PSD design files; Created QA/QC techniques for data processing and analysis; Contributed to user guides, technical reports, and literature reviews; Applied science background in contributions to technical reports and literature reviews; Applied interdisciplinary background to support a diverse set of environment research projects including monitoring of water and ground pollution, environmental impact assessments, urban waste management, and hydrologic modeling of watersheds.

### Ecological Data and Metadata Scientist, 2008 - 2010

*Environmental Sciences Division, Oak Ridge National Laboratory*

Tasks: Database Developer and Designer, ColdFusion Web Developer, Scientific Data Curator

Accomplishments: Balanced a diverse set of responsibilities, data curation, web development, and QA/QC technique development, between coincident projects, the Fluxnet (<https://www.fluxnet.ornl.gov>) and AmeriFlux (<https://public.ornl.gov/ameriflux>) Networks, metadata and measurement data archives for a regional and global network of towers that collect both micrometeorological and ecological observations; Completed website restoration by converting table-based HTML layouts to CSS-based layouts, improved UI interaction and increased website usability, accessibility compliance, and search engine optimization; Revised and improved the front-end UI of multiple websites; Redesigned, upgraded, and normalized existing databases; Developed a custom xml schema for data archival; Through quality assessment and controls, published ecological and micrometeorological data sets submitted by project affiliates to the public via a web-based data access system.

### Environmental Scientist, 2007

*Terraine, Inc. Environmental Services*

Tasks: Environmental Field Surveys/Assessments, Mobile Application/Web Developer

Accomplishments: Conducted environmental surveys involving groundwater sampling, well inspection, field data collection, and analytical testing; Successful field surveys resulting in repeated contract renewal; Lead programmer in the development of an application that replaced paper-based data collection with computer-based records in the form of programs optimized for hand-held PCs.

### Graduate Teaching Assistant, 2005 - 2008

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

Tasks: Thesis, Laboratory Teaching Assistant

Accomplishments: Established new image processing technique that led to substantial improvements in accuracy and precision with reductions in required time for experiment and research expenses; Presented preliminary results at the Lunar and Planetary Science Conference in Houston, TX (March 2007); Received Outstanding Teaching Assistant Award in 2006, Guest lecturer for Environmental Geology.

### Senior Undergraduate Research Assistant, 2004 - 2005

*Rruff Project (<https://rruff.info>) Departments of Geosciences and Chemistry, University of Arizona*

Tasks: Co-Coordinator of the Raman Spectroscopic Database of all naturally occurring crystalline compounds, Electron microprobe data processor, Led electron microprobe project team.

Accomplishments: Successfully balanced efforts between team leader and research assistant; Developed semi-automated data processing technique; Wrote technical documentation for instrumentation usage and data processing; Collaborated with the Arizona Mineral Museum (<https://www.uamineralmuseum.org/>) to acquire samples for analysis.

### Project Manager/Lead Investigator, 2004

*Department of Chemistry, University of Arizona*

Tasks: Project manager and curator of a Raman Spectroscopic database of over 200 crystalline solids

Accomplishments: Successful project management, leading a team of five, goals achieved and objectives met; Trained students for work with project-specific programs, instrumentation usage, and documentation procedures.

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Research Assistant, 2002 - 2004

*Department of Geosciences, University of Arizona*

Tasks: QA/QC published datasets for entry into the American Mineralogist Crystal Structure Database (<https://rruff.geo.arizona.edu/AMS/amcsd.php>); Conducted analytical experiments to identify phases using X-Ray Powder Diffraction and Raman Spectroscopic methods.

## TECHNICAL

- Web Development: Laravel Framework, Vue.js, PHP, C# ASP.NET, ASP MVC, Web Services (SOAP, REST), Web GIS (ArcGIS API/Services, Leaflet, Google Maps, OGC Services), jQuery, JavaScript, Bootstrap, ColdFusion, d3.js, 508 Accessibility and W3C Standards
- Coding: PHP, JavaScript, T-SQL, ActionScript, C#, Bash, HTML, CSS
- Content Management Systems: WordPress, Drupal, SharePoint, DotNetNuke
- Server Environments: Windows Server/IIS, CentOS 6/7, Apache HTTP
- Databases: Microsoft SQL Server, Microsoft Access, MySQL, SQLite, Filemaker Pro
- Data: Darwin Core, RESTful/SOAP, JSON/GeoJSON, XML/XSD, Vector/Raster GIS
- Graphics: Photoshop, Illustrator, Visio
- GIS: ArcGIS/ArcMap, ENVI, PostGIS

## AWARDS AND NOMINATIONS

- Excellence in Research for an M.S. Degree 2007
- Outstanding Graduate Teaching Assistant 2006
- Outstanding Senior Research Award Nomination 2005

## VOLUNTEER EXPERIENCE

- Kindergarten, Briarcliff Elementary 2017 – 2018
- Second Grade Enrichment, Briarcliff Elementary 2016 – 2018
- First Grade Enrichment, Briarcliff Elementary 2015 – 2016
- Kindergarten Enrichment, Briarcliff Elementary 2014 – 2015
- Visual World iLab, NC Museum of Natural Sciences 2011 – 2012

## INSTRUCTIONAL EXPERIENCE

Guest Lecturer, North Carolina Museum of Natural Sciences, Raleigh, NC

- Astronomy: 2015 (Appalachian State University)

Guest Lecturer, University of Tennessee, Knoxville, TN

- Environmental Geology: 2005 - 2007

Graduate Teaching Assistant, University of Tennessee, Knoxville, TN

- Environmental Geology: Fall 2005, Spring 2006, Spring 2007
- Mineralogy: Fall 2006
- Introductory to Geology: Summer 2006

Undergraduate Teaching Assistant, University of Arizona, Tucson, AZ

- Mineralogy: Spring 2004, Spring 2005
- Structural Geology: Fall 2004

## SELECT PROJECTS

Wildlife Insights, 3/2018 – Current

<https://wildlifeinsights.org/>

Roles: Project Management and Technical Liaison

Organization: North Carolina Museum of Natural Sciences

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Ecosystem Planning & Restoration, 3/2017 – *Current*

<https://www.eprusa.net/>

Roles: Freelance Developer, Designer

Architecture: WordPress

Organization: Ecosystem Planning & Restoration

NC Candid Critters, 3/2017 – *Current*

<https://www.nccandidcritters.org/>

Roles: Developer, Administrator

Architecture: WordPress, Leaflet

Organization: North Carolina Museum of Natural Sciences

SparrowSwap: A Citizen Science Project, 02/2017 – *Current*

<https://sparrowswap.org>

Roles: Designer, Developer

Architecture: WordPress, jQuery

Organization: North Carolina Museum of Natural Sciences

NCMNS Collections Asset Management System, 10/2016 – *Current*

<https://cams.naturalsciences.org>

Roles: Project Manager, Designer, Developer, Administrator

Architecture: Laravel, jQuery, MySQL, AWS Cloud Storage

Organization: North Carolina Museum of Natural Sciences

Type: Web Application

NCMNS Volunteer Management System, 09/2016 – *Current*

<https://volunteers.naturalsciences.org>

Roles: Designer, Developer, Administrator

Architecture: Laravel, jQuery, MySQL, AWS Cloud Storage

Organization: North Carolina Museum of Natural Sciences

NCMNS Facilities Ticket and Work Order System, 07/2016 – *Current*

<https://facilities.naturalsciences.org>

Roles: Designer, Developer, Administrator

Architecture: Laravel, jQuery, MySQL, AWS Cloud Storage

Organization: North Carolina Museum of Natural Sciences

SparrowSwap Data Management System, 06/2016 – *Current*

<https://sparrowswap.naturalsciences.org/>

Roles: Designer, Developer, Administrator

Architecture: Laravel, jQuery, MySQL, AWS Cloud Storage

Organization: North Carolina Museum of Natural Sciences

NC Science Museum Grant Program, 05/2016 – *Current*

<https://ncmuseumgrant.naturalsciences.org/>

Roles: Designer, Developer, Administrator

Architecture: Laravel, jQuery, MySQL

Organization: North Carolina Museum of Natural Sciences

CitSciScribe, 03/2016 – *Current*

<https://citsciscribe.org/>

Roles: Designer, Developer, Administrator

Architecture: ASP.NET MVC, jQuery, MSSQL

Organization: North Carolina Museum of Natural Sciences

North Carolina Museum of Natural Sciences, 11/2014 – *Current*

<https://naturalsciences.org>

Roles: Designer, Developer, Administrator

Architecture: PHP, WordPress, jQuery, MySQL

Organization: North Carolina Museum of Natural Sciences

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NCSM Species Mapper, 05/2014 – Current

<https://collections.naturalsciences.org/speciesMapper.aspx>

Roles: Designer, Developer, Administrator

Architecture: C# ASP.NET, jQuery, Leaflet, ArcGIS, MSSQL

Organization: North Carolina Museum of Natural Sciences

NCSM Online Collections, 06/2013 - Current

<https://collections.naturalsciences.org/>

Designer, Developer, Administrator

Architecture: C# ASP.NET, jQuery, MSSQL

Organization: North Carolina Museum of Natural Sciences

National Institute of Environmental Health Sciences, 04/2013 – 06/2013

<https://www.niehs.nih.gov/>

Developer

Architecture: ColdFusion

Organization: SRA International

waterFALL, 08/2011 - 04/2012

<https://waterfall.rti.org/>

Designer, Developer

Architecture: Apache Flex/Flash, ArcGIS, ASP.NET

Organization: RTI International

Hope Research Institute, 07/2009 - 02/2010

<https://www.hriaz.com> (no longer active)

Designer, Developer, Administrator, Content Manager

Architecture: PHP, MySQL

Organization: Freelance

AmeriFlux, 04/2008 - 03/2010

<https://public.ornl.gov/ameriflux> (no longer active)

Designer, Developer, Administrator

Architecture: ColdFusion, MSSQL

Organization: Oak Ridge National Laboratory

Fluxnet, 04/2008 - 02/2010

<https://fluxnet.ornl.gov/fluxnet/> (no longer active)

Developer, Content Manager

Architecture: ColdFusion, MSSQL

Organization: Oak Ridge National Laboratory