SHAN YE

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EDUCATION

University of Wisconsin-Madison   Aug. 2018 – May 2022 (exp)
    Ph.D. in Geoscience
    Advisors: Shaun Marcott & Shanan Peters
    Focus: The EarthCube Project and Paleoclimate

University of Tulsa   Aug. 2016 – May 2018
    M.S. in Geosciences
    Advisor: Bryan Tapp
    Focus: Geomechanics and numerical simulation

University of Michigan, Ann Arbor   Aug. 2013 – Aug. 2015
    B.S. in Earth and Environmental Sciences
    Advisor: Kyger Lohmann
    Focus: General geoscience

The Pennsylvania State University   Aug. 2011 – May 2013
    Geography
    Advisor: Cynthia Brewer
    Focus: GIS/Cartography

SKILLS

Specialties
    GIS, Cartography, Spatial Analysis, Paleoclimate, Oceanography, Climate Modelling, Geomechanics, Structural Geology, Tectonics, Data Science, Numerical Modelling, Finite Element Method

Programming
    C++, Java, Python, R, HTML, CSS, JavaScript

Software
    ArcGIS, QGIS, GeoDa, Illustrator, CorelDraw, Photoshop, MS Office, MATLAB, Mathematica, ABAQUS, COMSOL, Petra, Petrel

Others
    Outreach Writing and Talking, Field Mapping, Field Work, Geospatial Data Visualization, Interactive Web Mapping (Mapbox/Leaflet/jQuery/D3), Web Design, Numerical Algorithm, Historical Geography, Human Geography, Petroleum Geology, Glaciology, Geochronology, Video and Audio Editing

University of Wisconsin-Madison
Madison, WI, USA
Research Assistant, The EarthCube Project (Aug. 2018 – Present)
Supervisors: Shaun Marcott, Shanan Peters, Steve Meyers, Brad Singer and Jack Williams

- The GeoDeepDive and Ice-Rafted Debris project: Used natural language process methods to construct R scripts to extract spatio-temporal information regarding ice-rafted debris from journal literature and ocean drilling records, and analyzed writing styles of related journal articles to locate common areas where authors would report the coordinate, depths and age information. Prepared information for further machine learning in order to pair up coordinates and ages (on-going).
- The Macrostrat project: Conducted the validating of age models (mainly the late Cretaceous) of the Macrostrat database, a geospatial database containing stratigraphic data in North America. Prepared the How-o file regarding the Macrostrat API for potential users in the department.
- The Cosmogenic Lab database: Constructed the isotope database (MySQL) for the Cosmogenic Lab, and developed a web interface to upload data for internal use.
- Paleoclimate data: Retrieved global temperature anomaly data in the past 22,000 years from more than 140 sites across the world. Assigned them to spatial grids and conducted zonal statistics. Conducted spatial analysis and prepared the analytical result for further analysis and comparison to some numerical modelling results (on-going). Built an interactive web map (Leaflet) to showcase the data and spatial analysis results.

Institute of Geology and Geophysics, Chinese Academy of Sciences
Beijing, China
Summer Research Internship (May 2014 – August 2014)
Research Internship (Sept. 2015 – May 2016)
Supervisor: Fu Li-Yun

- Collected and reviewed literatures regarding shale gas reservoir modelling and evaluation
- Tested software for shale gas reservoir analysis developed by the institute
- Reported on seismic data analysis and visualization methods that could be applied to shale gas reservoir research and modelling

University of Michigan, Ann Arbor
Ann Arbor, MI, USA
GIS Analyst and Cartographer (Oct. 2013 – May 2014)
Supervisor: Kyger Lohmann

- Retrieved sedimentology and stratigraphic data from well logs in Michigan and located depths of the target formation at different places.
- Conducted spatial interpolation and generated a 3D model of the target formation within Michigan Basin (with R, ArcMap and ArcScene).
- Based on the 3D model and the DEM data of Lake Michigan, located the intersection between the formation and the bottom of Lake Michigan, which is a potential source of water pollution.
- Prepared maps to illustrate the potential water pollution scenario in Lake Michigan.

Collaborative Group Facilitator (Aug. 2014 – May 2015)
Supervisor: Global Scholars Program at University of Michigan
- Worked as a group leader and an instructor for a social science research group with 15 students with various academic backgrounds and social identities
- Led weekly discussion sessions on global social justice issues, mainly on MDGs
- Gave instructions (mainly on spatial thinking on social issues, map design for visualizing those issues, and ArcGIS software) to the group and led the group in a research project on human trafficking issues in developing countries of Southeast Asia
- Promoted the community engagement by assisting the group to hold workshops, exhibitions, music events and talks open to the university and general public

Photographer, Web Developer and Cartographer (Sept. – Oct. 2014)
- Took photos during a mineralogy field trip to the Upper Peninsula of Michigan
- Developed a website to showcase mineral photos, geological information, and photos of students during the field work
- Created static maps with ArcGIS and Illustrator to demonstrate our routes, sites, local geology, and mineral distributions
- Created an interactive version of those maps with Mapbox that allowed others to navigate

Yimin Open-Pit Coal Mine
Inner Mongolia, China
Field GIS Technician and Cartographer Internship (Aug. 2012)
Supervisor: Huaneng Hulun Buir Company
- Conducted basic operations on the GIS system built for the coal mine
- Basic real-time mapping and monitoring of heavy vehicles in the open coal cave to improve the traffic conditions and safety of drivers and miners

OTHER SELECTED PROJECTS

Volcano-glacier interactions in Southern Andes, Chile
University of Wisconsin-Madison (on-going)
- Archived and processed volcanic eruption dating data and temperature data at Andes, New Zealand, Kamchatka and Antarctica from various sources
- Conducted statistics on whether the Andes volcanoes are sensitive to the retreating of ice sheets since the last glacial maximum
- Reported initial results, and further analysis with deeper spatial perspective is planned

Finite Element Method simulation on the final geometry of buckling folds embedded by heterogeneous matrices
University of Tulsa (Dec. 2016 – March 2018)
Master's thesis
- Built numerical models (FEM) with ABAQUS and conducted simulation runs with different combinations of initial condition and boundary conditions
- Found out that the Biot-Ramberg equation, which was restricted to buckling layers embedded by homogeneous matrices, could also be used for approximately describing the final geometry of buckling layers within heterogeneous matrices by using the averaged competence ratio at upper and lower contacts of the buckling layer

Induced earthquakes in north-central Oklahoma

University of Tulsa (Nov. 2016 – May 2018)

- Archived seismic data from OGS and OU databases and conducting spatial analysis to locate hot spots of earthquakes in Oklahoma since 2008
- Based on well log data provided by oil companies, conducted zonal analysis and hot spot analysis and located hot spots of porosity, pressure zones and faults in target formations
- Identified potential unmapped faults based on spatial analysis and providing reports on the over-saturation of target formations for wastewater injection

Oil prospects in Taranaki Basin, New Zealand

University of Tulsa (Jan. – March 2017)

Imperial Barrel Award Competition, Mid-Continent Division

- Analyzed geochemical data to locate potential source rocks
- Assisted the geophysicist team member to analyze seismic images in Petrel to identify potential structural traps for oil prospects
- Correlated well log data in Petra and did intensive literature reviews to reconstruct the geological history of the basin, and drew figures in CorelDraw and Illustrator to represent the paleo-temperature model and tectonic cross-section
- Conducted spatial analysis in R to locate hot spots on key signals based on well log data
- Located 3 potential oil prospects within the area of interests
- Prepared maps in Petrel and ArcGIS for the final report

Paleoenvironment of Green River Basin, Wyoming

University of Michigan (Aug. 2015)

- Reconstructed a general history of Cenozoic paleoenvironment of Green River Basin from a spatial perspective, based on intensive field works including fossil collection, rock formation identification, and field mapping.
- Created a detailed map and stratigraphic unit (in ArcGIS, CorelDraw and Illustrator) to illustrate changes of precipitation and routes of Hoback River in Cenozoic

Auto-generator of travel logs

University of Michigan (Jan. – April 2015)

- Developed Python scripts to train the computer with travel logs on Twitter
- Developed an auto-generator that can write travel logs based on provided key words or geographic locations
- Constructed an interactive map with Leaflet that could display generated travel logs
- Developed a web page to showcase the auto-generator on a project exhibition

Economic and environmental impacts of Mackinac Bridge, Michigan

University of Michigan (Jan. – April 2015)

- Collected data from historical account and published journals regarding the economic, population, transportation, manufacture and mining activities in Upper Peninsula, Michigan, as well as in the Midwest states in general, both before and after the construction of Mackinac Bridge
- Georeferenced and digitized old maps before and after the construction of Mackinac Bridge in ArcMap
- Analyzed how this bridge reshaped the industrial manufacturing of Michigan and Midwest in a combined perspective of economic and spatial
- Collected current and historical land cover images of Upper Peninsula, especially areas with copper and iron mines, and processed them in ArcGIS and Envi, and analyzed how the bridge potentially had influenced the logging activities in that region

Identities of Chinese empires when nomadic culture was at the gate of Sinosphere
University of Michigan (Nov. – Dec. 2014)
- Helped in archiving data from official historical accounts of China during late Southern and Northern Dynasties period, regarding when an emperor or highly ranked chancellor referred his empire as China.
- Helped in comparing these data spatially and temporally between three regimes: Northern Zhou (ruled by sinicized Xianbei people), Northern Qi (ruled by Xianbei-lized Han people) and Chen (ruled by purely Han people).
- Noticed the pattern of how identities of ruling class in these three rivalling empires changed through time and space, and generated a series of maps to demonstrate it

Primary and secondary education in Detroit area, Michigan
University of Michigan (Sept. 2013 – May 2014)
Global Scholars Program
- Retrieved data regarding enrollment, graduating rate, teacher-student ratio, tuition and community household income data of primary and secondary schools in Detroit area.
- Retrieved key words from Twitter regarding positive and negative comments on schools and education in Detroit area, as well as crime rates of each school districts
- Applied spatial analysis to learn challenges that Detroit schools were facing, and presented visualized results to program supervisors and representatives from Detroit

TEACHING

University of Tulsa
Temporary instructor
GEOG 4083: GIS for Geologists (Spring 2018)
Taught in lectures when the professor was not available

University of Michigan, Ann Arbor
Course assistant and grader
UC 270: Social Justice (Winter 2015)

The Pennsylvania State University
Teaching intern
GEOG 363: GIScience (Fall 2012)

GRANTS AND AWARDS

- University Honors, University of Michigan, 2 Times (Winter 2014, Fall 2014)
- Recognition of Global Excellence, University of Michigan (2013 – 2014, top 1 student in each research group)
- Dean's List, The Pennsylvania State University, 3 Times (Spring 2012, Fall 2012, Spring 2013)
- Erickson Fund in Geography, The Pennsylvania State University (Spring 2013)
- Academic Award, Nanjing University (Summer School 2012, top 6 students)

PROFESSIONAL ORGANIZATIONS

- American Association of Geographers (AAG)
    Poster presentation on GIS application to open-pit coal mines at 2013 annual meeting

- Association of American Petroleum Geologists (AAPG)
  University of Tulsa Chapter President (2017 – 2018): *Organized field trips, community service activities, outreach talks, and school-industry connection events; secured the L. Austin Weeks Fund for the chapter for the next academic year.*
  AAPG Young Professional (2018 – 2019)
- Society for Sedimentary Geology (SEPM)
- Tulsa Geological Society (TGS)