Jordan Clay Bratcher

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Education

B.S. Electrical Engineering, University of Oklahoma **May 2026 (Expected)**

- Major GPA 4.00 / 4.00

M.S. Geology, University of Wyoming **May 2017**

- Focus: Geochemistry (GPA 3.95 / 4.00)

B.A. Earth and Environmental Science, University of Kentucky **May 2014**

- Major: Geological Sciences, Minor: Chemistry (GPA 3.25 / 4.00)

Graduate Research

M.S. Research, University of Wyoming, Advisor: Dr. John Kaszuba **June 2014 - May 2017**

- Investigated water-rock interactions between synthetic hydraulic fracturing fluids and the Frontier Fm. of the Powder River Basin, Wyoming.
- Experiments addressed the effect of ionic strength (salinity) and pH (acidity) on geochemical responses related to the reuse of wastewaters generated during hydraulic fracturing.
- Results show that subtle changes in solution salinity or acidity have significant impacts on the carbonate matrix and feldspar minerals of the Frontier Fm. reservoir.

Professional Experience

Staff Scientist, Chesapeake Energy, Special Core Analysis **September 2017 - Present**

- Incorporated LabVIEW and Python programming, electronics, and manufacturing experience (including 3D printing/laser cutting) to build versatile data acquisition systems and laboratory software for regular use in the SCAL laboratory.
- Individual responsibilities included designing and operating high pressure laboratory experiments such as: mercury injection capillary pressure, relative permeability, fluid sensitivity, electrical properties, low pressure gas adsorption, total gas content, and fracture conductivity.
- Completed LabVIEW programs included software for CO_2-Toluene Cleaner, SCAL Systems, Stress Dependent Acoustics, and Biot's Measurements.
- Significant research contributions included developing a reliable method of determining porosity using cuttings.

Electronic Artist (Instagram: *@the.rad.scientist*) **January 2019 - Present**

- Utilized programming, 3D design, additive manufacturing, and electronics experience to create science fiction themed escape room puzzles for regular use at Clue Quest of Edmond, OK.
- Collaborated with Factory Obscura artists (Oklahoma City, OK) to design and install robust lighting projects, interactive art pieces, and a variety of puzzles that create the immersive art experience known as Mix-Tape.

Trivia Host, Challenge Entertainment **April 2017 - December 2017**

- Completed over 150 hours of public speaking while organizing and hosting trivia nights at various bars/restaurants.
- Responsibilities included setting up equipment, handling money, addressing customer's requests, and maintaining a fun, hospitable environment.

Lab Technician II, Chesapeake Energy, Rock Mechanics **November 2016 - September 2017**

- Coordinated with geologists and engineers to provide mechanical rock properties to Chesapeake Energy using a variety of testing methods.
- Responsibilities included collecting and preparing core samples for ultrasonic and rebound hardness analyses.
- Other significant contributions included assisting coworkers with unconfined compressive strength testing, confined triaxial strength testing, and data processing.

Research Assistant, University of Wyoming **August 2015 - November 2016**

- Organized lab materials, improved and repaired lab equipment, and ensured smooth operations within the Hydrothermal laboratory.
- Developed a standard operating procedure for experimental design, setup, operation, and fluid sample analysis.
- Assisted undergraduate and graduate students with laboratory equipment operation and data analysis.

AAPG Imperial Barrel Award, University of Wyoming **January 2015 - March 2015**

- Collaborated with fellow graduate students to present geologic interpretations about hydrocarbon generation, migration, accumulation, and production to a panel of experienced exploration geologists.
- Individual contributions included source rock evaluation, regional paleogeography, and petrophysical log interpretation/correlation in the Taranaki Basin, New Zealand.

Lab Technician, SGS Minerals **June 2010 - December 2014**

- Provided daily coal quality reports to mine foremen and laboratory supervisors. Received Experienced Surficial Miner's License and hazard training.
- Responsibilities included collecting and preparing samples for analysis, compiling and distributing chemical reports, and operating/servicing laboratory equipment such as calorimeters, sulfur analyzers, and ash/moisture ovens.

Research Assistant, Kentucky Geologic Survey **February 2013 - December 2013**

- Utilized Microsoft Access to manage coal quality data for the entire state of Kentucky with the goal of making a complete mining record and coal quality database for public use.
- Used gamma ray and resistivity logs from various statewide sources to identify stratigraphic correlations and improve the geologic understanding of coal beds in Kentucky.

Laboratory Equipment and Software Experience

Operational proficiency with:

- Equotip 3 Hardness Tester
- Leco SC-144DR Sulphur/Carbon analyzer
- Parr 6100 Calorimeter
- Katanax K1 Prime Electric Fluxer
- Optima 8300 ICP-OES Spectrometer
- QIDI Tech 3D Printer
- NextEngine 3D Scanner
- Micromeritics Autopore IV
- Helium Pycnometer
- Ultrasonic Wave Velocity Analyzer
- Dionex ICS-5000 Ion Chromatograph
- UIC CM5015 Coulometer
- Steady-State Permeameter
- Quanta FEG 450 Scanning Electron Microscope
- Microelectronics (Arduino, RaspberryPi)
- Micromeritics TriStar II Plus
- AutoLab 1500 Triaxial System
- InfiniiVision 4000x Oscilloscope
- Glowforge Laser Cutter

Operational experience with:

- SCINTAG XDS 2000 XRD (copper tube)
- Gemini 2375 Surface Area Analyzer
- Quikchem 8500 Series 2 Flow Injection Analyzer
- HP 8452A Diode Array Spectrophotometer
- ECS 4010 Elemental Analyzer
- PinAAcle 900F Atomic Absorption Spectrometer

Software/Programming Languages: AutoCAD, Geochemist's Workbench, Simplify 3D, TinkerCAD, Inkscape, LabVIEW, MATLAB, Python, C/C++

Publications

- Author: "Ionic Strength and pH Effects on Water-Rock Interactions in an Unconventional Reservoir: On the Use of Formation Water in Hydraulic Fracturing", *Energy & Fuels*. 2021; 35: 18414–18429.