# Jeffrey Van Rees

## Work History

### Center for Environmental Management of Military Lands

*Data Technician (2016-Present)*

With this multifaceted role on the Wildland Fire team, I contributed to the development of fire risk assessments on military bases around the country.

- For installation visits I prepared maps for use during meetings with stakeholders.
- Organized pre-trip meetings covering installation ignition probability and concerns. Created handouts, charts, and maps for the meetings.
- Created unique 3d visualizations showing the ignition probability on military ranges.
- Utilizing all available data sources calculate spatial ignition probability on ranges and create layers for use in fire simulations.
- Bug testing and development of wildfire web mapping application on AGILE team. Participated in SCRUM sprints.

### Safeway

*Produce Clerk (2012-2016)*

My job during my undergraduate studies. I learned a lot staying focused in a hectic, fast-paced environment.

- Focused heavily on the importance of presentation of the product. Cleanliness, detailed organization, and utilizing the natural colors of the product to make the product look more appealing.
- Developed the ability to stay organized in a fast-paced environment while maintaining high standards.

## Education

### University of Wisconsin – Madison, WI

*Master of Science Cartography/ GIS - GIS Development option (Graduated December 2017)*

I was amongst the first three graduates of the nation's top cartography school's new GIS and Web Map Programming master's degree. This unique program focuses on Cartography, Data Visualization, Development, and GIS. Courses included Graphic Design-Cartography, Interactive Cartography & Visualization, Geocomputing, Geospatial Web and Mobile Programming, Geospatial Database Design, and GIS and Spatial Analysis.

### Colorado State University - Fort Collins, CO

*Bachelor of Arts in Anthropology; minor in Geography (Graduated Spring 2016)*

## Skills

*Cartography*
- > Visual Form
- > Visual Hierarchy
- > Visual Variables

*Web Mapping*
- > Leaflet
- > Mapbox-GL

*GIS Development*
- > Python
- > ArcPy
- > GDAL + NumPy
- > Turf.js

*Desktop GIS*
- > QGIS
- > ArcGIS
- > GDAL/ OGR

*Database*
- > PostgreSQL
- > PostGIS
- > SQL
- > Database Design
- > Optimization
- > Web Apps

*Graphic Design*
- > Illustrator
- > Photoshop
- > Inkscape

*Front End Web*
- > JavaScript
- > HTML
- > CSS
- > Pug/Jade
- > jQuery
- > Bootstrap

*Back End Web*
- > Node.js
- > Express.js

*Mobile*
- > Android Studio
- > React Native

## Projects

### Rocky Mountain Arsenal History Mobile Application

*Mapbox Studio, Mapbox-GL React Native, React Native, JavaScript, JSX, Java*

The Rocky Mountain Arsenal National Wildlife Refuge owes its existence to the fact that it was once the home of a chemical weapons manufacturing facility. Remediation efforts scraped the production facilities from the landscape leaving an open area for wildlife to thrive near Denver International Airport. This application is meant to educate the user on the history of the landscape. The core of the application are maps that show what the area is like now and what once was there.

- Basemaps were built in Mapbox Studio. Colors chosen were mild pastel colors and color differences between areas intentionally kept subtle to not distract the user from the layers on the map as the Icons and buildings were highest on the visual hierarchy.
- Zoom dependent rendering. To avoid icon overlapping and collision only the most important icons displayed at lower zoom levels.
- Used Mapbox's Tippecanoe to organize my layers into a single MBTiles database for uploading to Mapbox Studio. Used custom settings to simplify geometries at lower zoom levels to maximize performance while maintaining shape.
- Exported Mapbox style sheet to JSON for custom editing. Used Mapbox's SpriteZero cli to create custom sprite sheets from SVG icons. Sprites and style sheet hosted on AWS S3.
- Data sources for the map existed only in scanned documents. Old hand drawn maps were digitized and joined with information from multiple scanned documents and hundreds of pictures for each building.

## Rocky Mountain Arsenal Visitors Web Application

*Mapbox-GL, Bootstrap, jQuery, Node.js, Express.js, PostgreSQL/PostGIS, Heroku, JavaScript, HTML/CSS*

The progenitor of the above application, I developed a full-stack web application from the ground up. It allowed visitors to see what is there and allowed them to upload new features to the websites database.

- Created Custom Mapbox stylesheet by hand in order to better learn the Mapbox Style Specification.
- Designed the back end and front end from the ground up including database design, REST API creation, and form creation.
- Zoom dependent rendering implemented.

## D3 Coordinated Visualization

*D3, Mapshaper, JavaScript, HTML/CSS*

Focused on the disparity between the rise of housing costs and the stagnation in wages by state. Here in Colorado that is quite the concern.

- Colors here were used to make the map pop. As the United states is the focus, other countries are outlined but match the background of the map. Bold colors were chosen to highlight the areas with the most disparity.
- The map and corresponding chart are synchronized so that the user can see exactly where a state fits in the analysis.

## Qing Dynasty Slippy Map

*Carto CSS, Mapbox Studio Classic, Photoshop/Illustrator*

Inspired by a beautiful Qing Dynasty era map, this slippy map focuses on Cartography as an artform. The mountains, water and borders were recreated in digital form.

- The greatest challenge of this map was to get the mountains to appear natural at multiple zoom levels and at an appropriate size for the zoom level and ensuring smooth transitions between the zoom levels. This is one aspect that Carto CSS excels at as Mapbox GL can sometimes have jarring transitions between zoom levels.
- The deep green blue of the waters makes the land pop out from the map.
- Color selection mimics the water colors used on the map itself.

## Multivariate Patio-Temporal Mapping

*Leaflet, jQuery, JavaScript, HTML/CSS*

Web maps allow for more complex visual communication. Here visual variables are used to communicate change over space and time.

- The visual variables size, shape, transparency, and location are used here to quickly convey the maps message.
- An interactive slider allows the user to change the year of the data.
- Interactivity is intentionally limited in the map as it is meant to be a national comparison. Limited zoom levels and bounds are permitted.