

# Patrick Nichols

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## KEY SKILLS

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Data Analytics • Data Cleaning • Machine Learning • Web Scraping • Probability • Statistics

## TECHNICAL SKILLS

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SQL • Tableau • Excel • Python • Pandas • scikit-learn • Beautiful Soup • numpy • XGBoost • TensorFlow • Gensim • NLTK • Flask

## EDUCATION

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UNIVERSITY OF MICHIGAN LAW SCHOOL  
*Juris Doctor*

Ann Arbor, MI  
May 2020

Carnegie Mellon University  
*Bachelor of Science in Physics*

Pittsburgh, PA  
May 2017

## PROJECTS

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### MONTGOMERY COUNTY ALCOHOL VIOLATION ANALYSIS

[LINK TO REPOSITORY](#) | [LINK TO DASHBOARD](#)

- Extracted useful features from arbitrarily constructed string descriptions of alcohol license violations using regular expressions and string methods in Python.
- Created a dashboard in Tableau to visualize where license violations were most likely to occur, which types of violations were most common, and which types of violations received the largest fines on average.
- Determined that while alcohol sales to minors are the most common alcohol license violations in Montgomery county, they do not, on average, receive the highest fines.

### BATTLEFIELD PLAYER DATA SCRAPING AND STORAGE

[LINK TO REPOSITORY](#)

- Scraped player data by making requests to a hidden API used to load player data to a webpage.
- Stored the scraped data in a relational database for use in further analysis.
- Wrote and saved SQL queries to easily retrieve useful information about the data.

### SPOTIFY ANALYSIS AND CLASSIFICATION

[LINK TO REPOSITORY](#)

- Retrieved my “Liked Songs” playlist and the audio features for each song using the Spotify API.
- Segmented the song into classes using k-means classification and evaluated the clusters.
- Wrote a classification pipeline to retrieve new songs from the Spotify API and either classify them using a support vector machine or flag them as potential outliers using distances from cluster centers.

## WORK EXPERIENCE

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### VINSON AND ELKINS LLP

*Associate*

Houston, TX

January - August, 2021

- Advised a client’s general counsel on which commercial contracts were disclosable under its respective confidentiality provision.
- Coordinated with specialist teams to guide and consolidate their timely review of complex documents.

- Reviewed and revised commercial documents related to mergers, acquisitions, debt offerings, and equity offerings.

**VINSON AND ELKINS LLP**

Houston, TX

*Summer Associate*

June - August, 2019

- Researched case law and wrote memoranda discussing an unresolved issue related to arbitration forums.
- Analyzed prior art and performed patent infringement analysis related to a patent describing a computer vision system.
- Advised a pro bono client on updates to Texas schools' vision screening requirements.

**FIRST COURT OF APPEALS OF TEXAS**

Houston, TX

*Summer Intern*

May - July, 2018

- Wrote memoranda to be used as initial drafts of judicial opinions.
- Reviewed draft opinions and proposed rules for substantive and stylistic citation errors.
- Implemented staff attorney's edits after receiving edited versions of written documents.

**CARNEGIE MELLON UNIVERSITY**

Houston, TX

*Student Research Assistant in Philosophy*

January - May, 2017

- Researched the American legislative process to demonstrate that the principles of deliberative democracy could be used to supplement it.
- Advocated for the modification of govtrack.us so the website could be used to connect deliberative events with the currently existing legislative process.
- Wrote a paper and oral presentation summarizing my work.
- Presented work as a poster presentation to a potential donor and received funding for future research.

**CARNEGIE MELLON UNIVERSITY**

Houston, TX

*Student Research Assistant in Physics*

May - September, 2016

- Determined that dim galaxies tended to be close to galactic filaments rather than randomly distributed.
- Analyzed histograms of galaxies' brightnesses to select a brightness below which a galaxy is considered dim.
- Applied a ridge finding algorithm to find filaments using the brighter galaxies.
- Compared the distance of dim galaxies to the filaments to the distance of random points to the filaments.