

# WINE-O.AI: Computer Vision Assisted Wine Recommendations

---

Michelle L. Gill, Ph.D.

September 15, 2016

# Ending Wine Ruts with Computer Vision

---



**Goal: Wine-label based database and recommendation system**

# Data Retrieval & Processing Pipeline

---

1

Scraped 50K Wine Labels & Reviews



2

Detection of Features with SIFT



3

Feature Clustering & Inverted Index



4

Image Alignment with RANSAC



5

Recommendation System & Application



# Teaching Computers to See



Scale Invariant Feature  
Transformation (SIFT)



Random Sample  
Consensus (RANSAC)

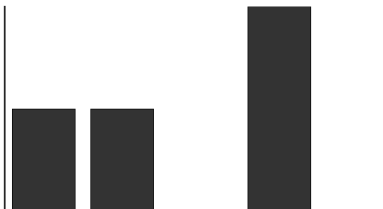
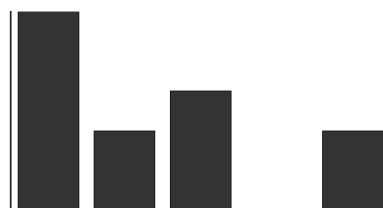


# Fingerprinting for Fast Retrieval

---

Wine

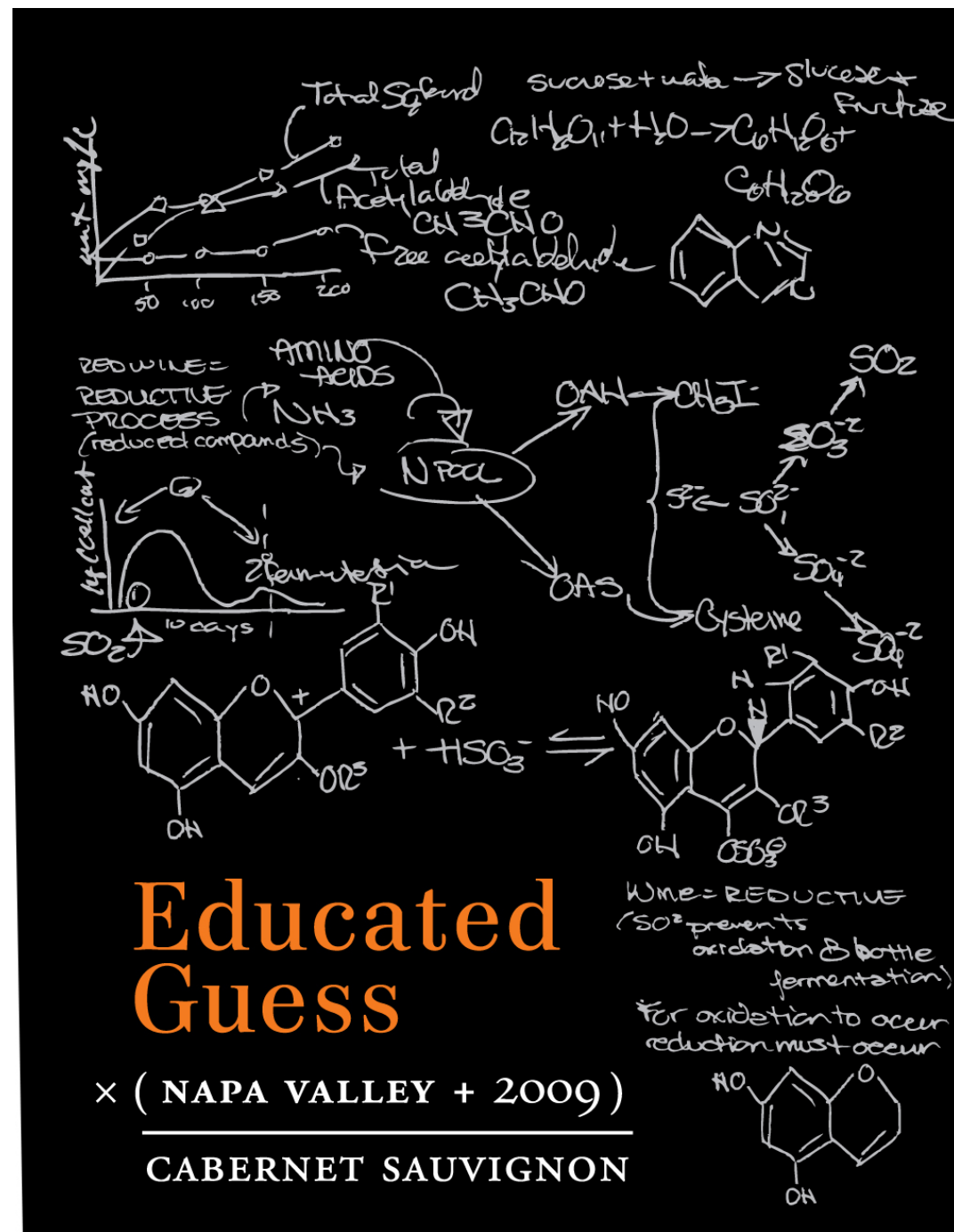
Clusters



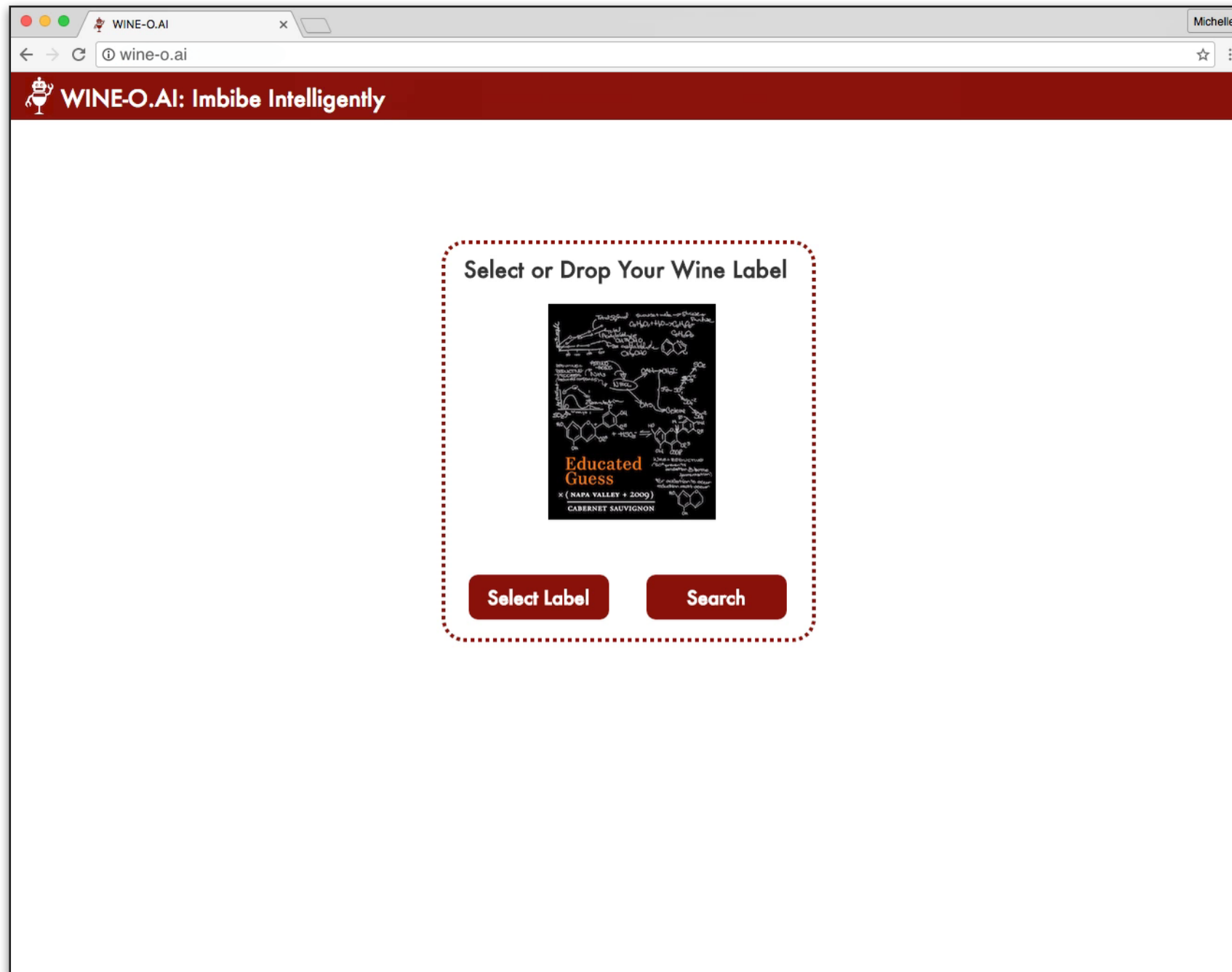
# Fingerprinting for Fast Retrieval



# WINE-O.AI Demo



# WINE-O.AI Demo





# WINE-O.AI Demo

The screenshot displays the WINE-O.AI web application interface. The browser tab is labeled "WINE-O.AI" and the address bar shows "wine-o.ai". The page has a dark red header with the logo "WINE-O.AI: Imbibe Intelligently" and a "Search" button. The main content area is divided into several sections:

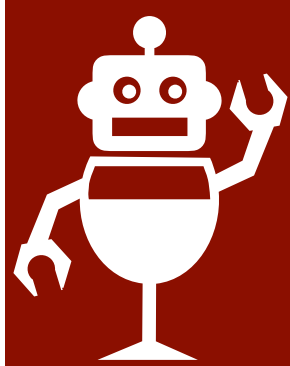
- Wine Information:** Features an "Educated Guess" for "Cabernet Sauvignon 2009" from "Roots Run Deep Winery, Napa Valley, CA". It includes a "Rating" of "90% Wine Advocate".
- Wine Label:** Shows a wine label with the text "Educated Guess" and "CABERNET SAUVIGNON".
- Winery Location:** Displays a map of California with a red dot indicating the location in Napa Valley.
- Review:** Contains a text review: "This Napa Cab will certainly delight a bargain hunter, especially knowing a good portion of the fruit is sourced from a Beckstoffer vineyard. Surprising complexity for a bottle that runs \$25 or less—the hallmarks of high end Napa fruit are here. Boysenberry envelopes the palate with just a hint of oak. Dark hues, young tannins and well balanced."
- Wines You May Love:** Lists three recommendations: "Sweetwater Ranch, 2009 Cabernet Sauvignon, Levendi Winery, Napa Valley, CA", "Gaba do Xil, 2011 Mencia, Telmo Rodriguez, Spain", and "Smith & Hook, 2013 Cabernet Sauvignon, Hahn Family Wines, Soledad, CA".
- Purchase Nearby:** Features a logo for "COLUMBUS AVENUE Wines & Spirits" and the address "730 Columbus Avenue, New York, NY 10025".

The footer of the application states "by Michelle L. Gill".

# Conclusions

---

- Accurate fingerprinting of wine labels achieved using computer vision and machine learning
- Search and recommendation engines implemented in web application
- Foundation of mobile application and wine cataloging system



**WINE-O.AI: Imbibe Intelligently**

# Thank you!

---

Contacting Michelle Gill:

✉ [michelle@michellelynngill.com](mailto:michelle@michellelynngill.com)

**in** [michellelynngill](#)

 [mlgill](#)