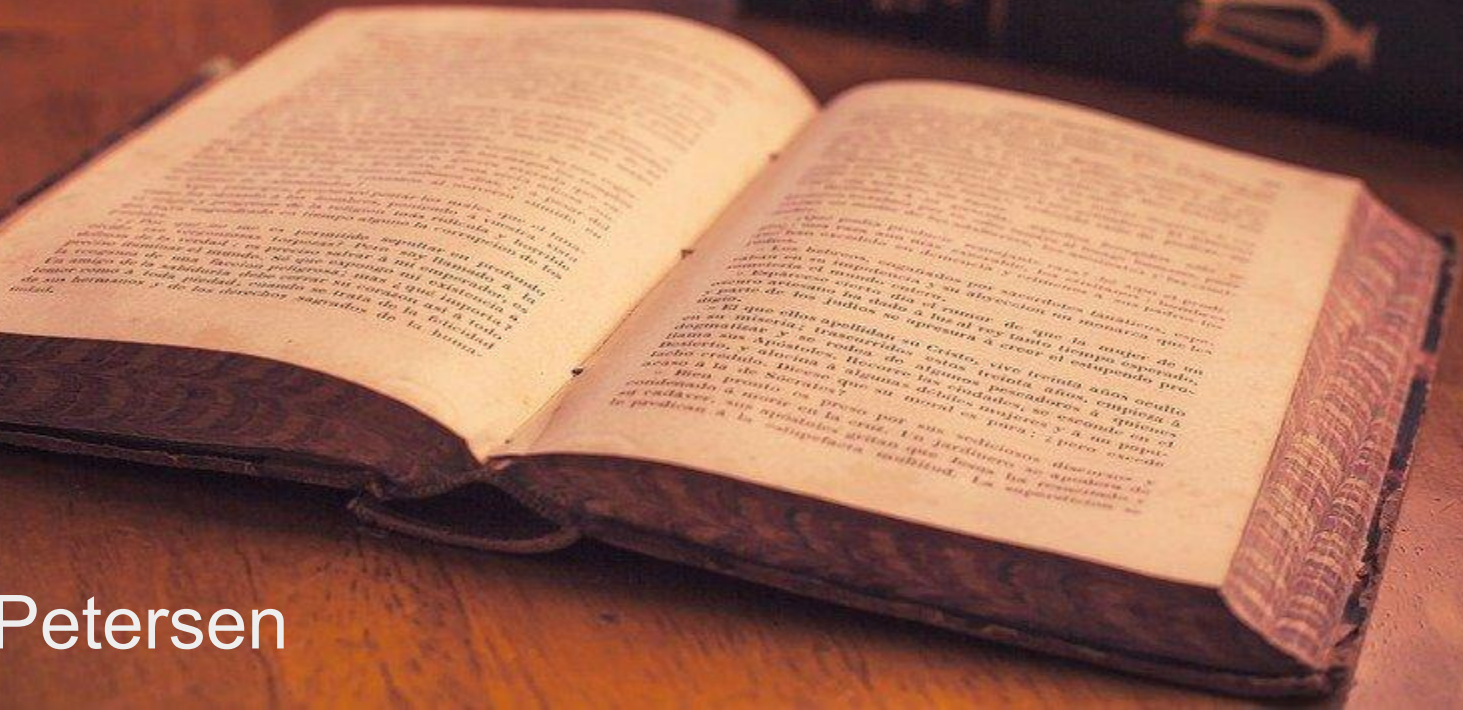


# Book Cover Classification



Jackie Petersen

# Problem Statement

- Can we classify a book genre based on the book cover image?
- Can we classify the decade the book was published based on the book cover image?



# The Data

- Acquired from github repo, included book covers, authors, genres
  - From Amazon
  - Balanced data
- Used isbnntools to get metadata with year
  - Some issues with library resulted in imbalanced data



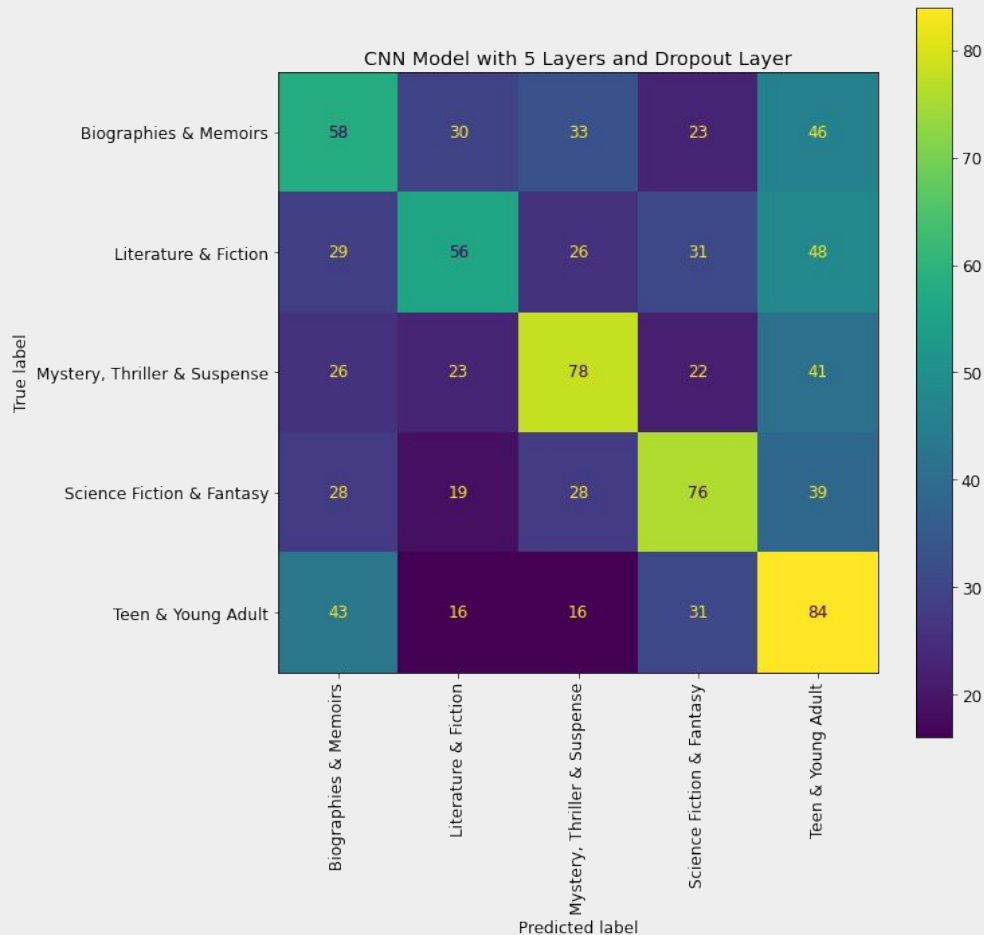
# Modeling

- Decade Published
  - 5 decades: 1980, 1990, 2000, 2010, 2020
  - Binarizing: pre-2010 & 2010+
- Genres
  - 30 genres, 7 genres, 5 genres
- CNN, EfficientNetB0, Data Augmentation



# Modeling Cont.

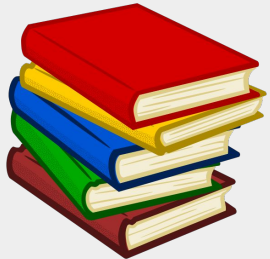
- Each model had many misclassifications
- Accuracy barely above baseline



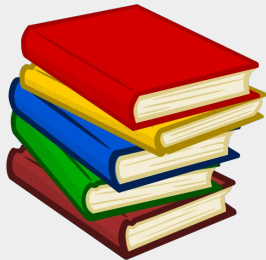
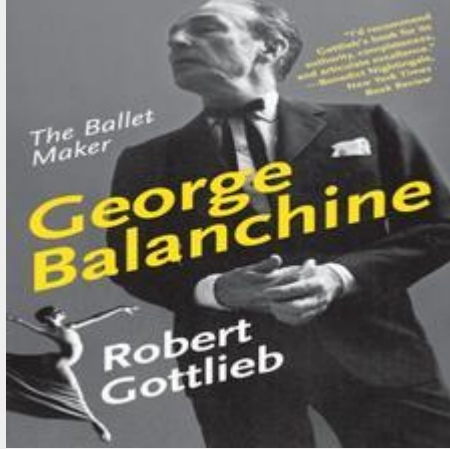
# Misclassifications



Predicted	Actual: Mystery, Thriller & Suspense
Teen & Young Adult	0.269223
Literature & Fiction	0.257459
Mystery, Thriller & Suspense	0.231997
Science Fiction & Fantasy	0.169022
Biographies & Memoirs	0.072299



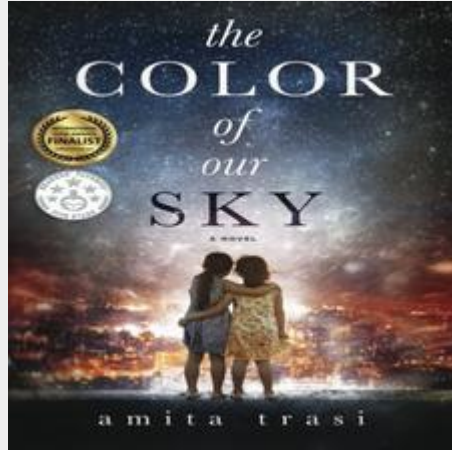
# Misclassifications



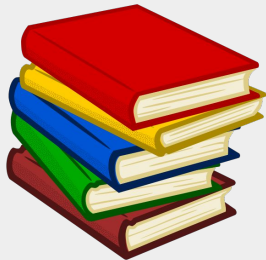
Predicted	Actual: Biographies & Memoirs
Mystery, Thriller & Suspense	0.299126
Literature & Fiction	0.288080
Biographies & Memoirs	0.161482
Science Fiction & Fantasy	0.134385
Teen & Young Adult	0.116927



# Misclassifications



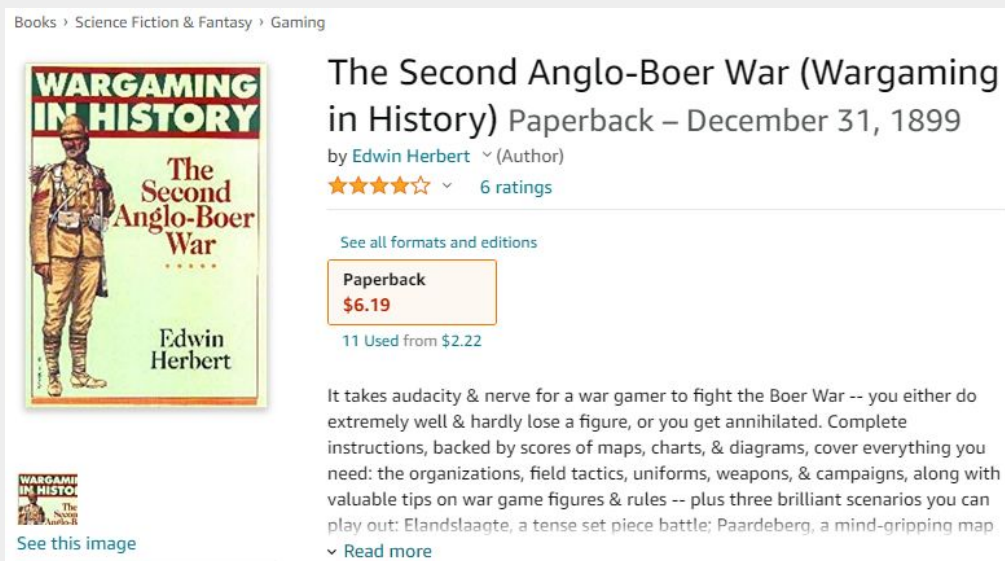
Predicted	Actual: Literature & Fiction
Science Fiction & Fantasy	0.327584
Mystery, Thriller & Suspense	0.309796
Teen & Young Adult	0.132985
Literature & Fiction	0.128346
Biographies & Memoirs	0.101288





# Problems with Data

- Amazon has genres and subgenres



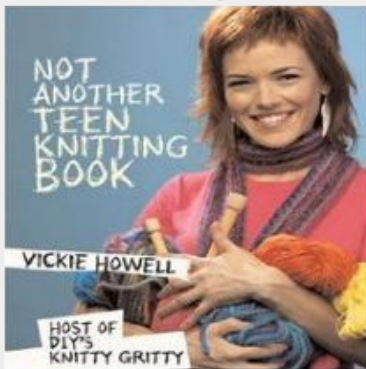
Source:

[https://www.amazon.com/Second-Anglo-Boer-War-Wargaming-History/dp/0806973277/ref=sr\\_1\\_1?crid=3PBAKWDC3RER6&keywords=the+second+anglo+boer+war&qid=1655083324&s=books&prefix=the+second+anglo+boer+war%2Cstripbooks%2C148&sr=1-1](https://www.amazon.com/Second-Anglo-Boer-War-Wargaming-History/dp/0806973277/ref=sr_1_1?crid=3PBAKWDC3RER6&keywords=the+second+anglo+boer+war&qid=1655083324&s=books&prefix=the+second+anglo+boer+war%2Cstripbooks%2C148&sr=1-1)

# Problems with Data

- Mislabeling

Teen & Young Adult



Books › Crafts, Hobbies & Home › Crafts & Hobbies



## Not Another Teen Knitting Book

Paperback – Bargain Price, June 28, 2006

by Vickie Howell (Author)

★★★★☆ 4 ratings

See all formats and editions

**Paperback**

**\$14.99**

7 Used from \$14.98

3 New from \$14.98

Vickie Howell—host of the DIY Network's popular *Knitty Gritty*, cohost of *Styleicious*, and author of *New Knits on the Block*—shows teens of all types just how cool knitting can be!

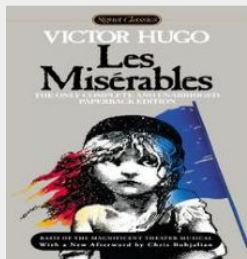
Source:

[https://www.amazon.com/Not-Another-Teen-Knitting-Book/dp/B0046LURZC/ref=sr\\_1\\_1?crid=3UX5N2BUYQWX8&keywords=not+an+other+teen+knitting+book&qid=1655084573&s=books&sprefix=not+another+teen+knitting+book%2Cstripbooks%2C119&sr=1-1](https://www.amazon.com/Not-Another-Teen-Knitting-Book/dp/B0046LURZC/ref=sr_1_1?crid=3UX5N2BUYQWX8&keywords=not+an+other+teen+knitting+book&qid=1655084573&s=books&sprefix=not+another+teen+knitting+book%2Cstripbooks%2C119&sr=1-1)

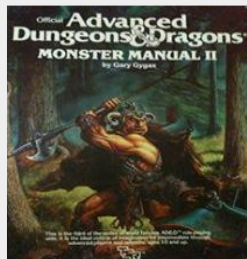


# Problems with Data

2010



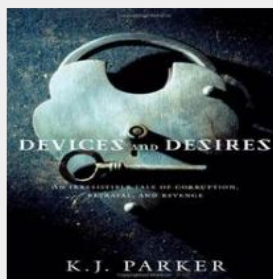
1980



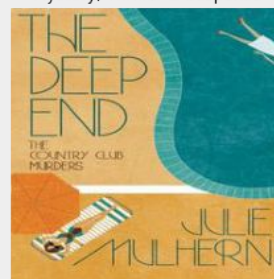
1990



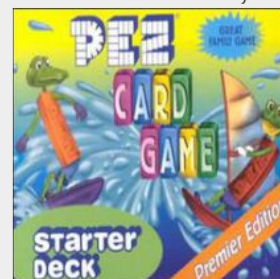
Literature & Fiction



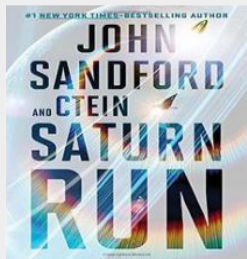
Mystery, Thriller & Suspense



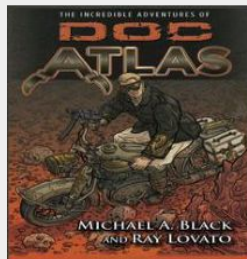
Science Fiction & Fantasy



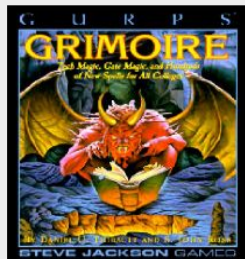
2010



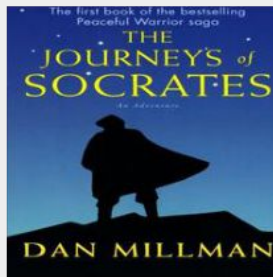
2010



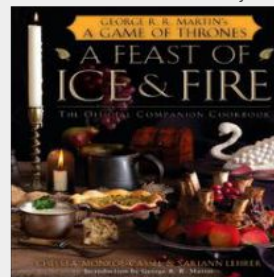
1990



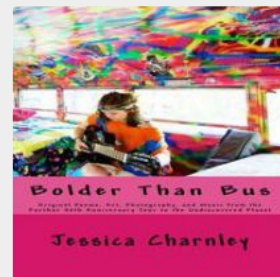
Literature & Fiction



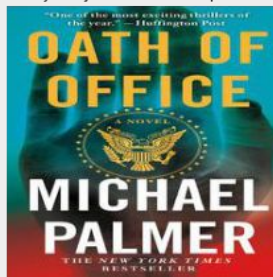
Science Fiction & Fantasy



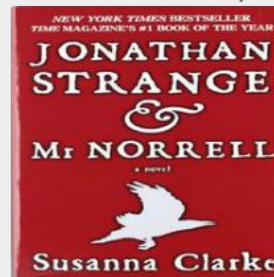
Literature & Fiction



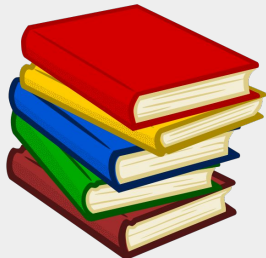
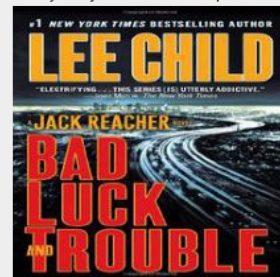
Mystery, Thriller & Suspense



Science Fiction & Fantasy



Mystery, Thriller & Suspense



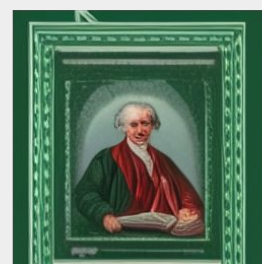
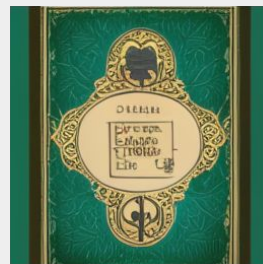
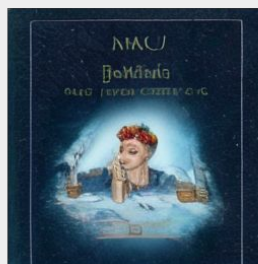
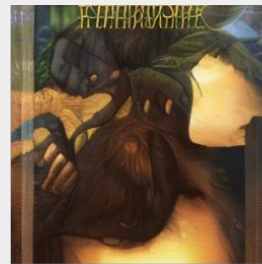
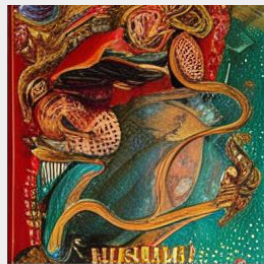
# Conclusions and Next Steps

- Harder than I initially thought
- Some covers are more ambiguous
- Problems with the data
- Try to gather data myself
- Feature detection
- Other transfer learning models





# Ru-Dalle: Looking Glass AI



# Thank you!

## Any Questions?

