Capstone Project
Nike AI - Kratos

Adam Kowalski, Jordan Le, Zack Salah, Ray Emory, Yu Li, Yikus Han, Scot Lambert

The Product

- What does it do in one or two sentences?

    It will scan input images of people and identify attributes of the clothing they are wearing. For example material types and colors.

- Why is it needed?

    To help make production decisions to support the sales supply chain. In near real time examine fashion choices of various demographics, and respond with new products that they would be interested in buying.

- Who will use it? What are they like?

    Sale executives, non technical users. This project is specifically for NIke but this would be applicable to many other "sales pipeline"

Assumptions and Constraints

• What did you assume about the environment

What you are wearing right now is a strong predictor for the types of clothing you would be interested in buying in the near term.

The model can generalize to new datasets/sources beyond the original used for training.

• Were there any artificial conditions you were required to meet

We need appropriate data to be able to train our ML model.

Use Case / User Sign Off

Hi Justin,
The PSU Capstone team working on the Nike AI project realizes that Nike would like a system that would be able to recommend one of several shoe options to feature in a magazine cover photo shoot or be able to recommend a new product(s) that would have a very high consumer appeal after specific events occur (a particular athlete wins a medal at the Tokyo Olympics).

After significant and careful design consideration it was determined that the time constraints imposed by the Capstone class duration would prevent the team from being able to complete these use cases.

Use Case / User Sign Off

The PSU Capstone proposes the following as our minimum viable product (MVP):

We will create an AI system named Kratos that will use images from the DeepFashion as training material. After being trained, the system will be capable of identifying the category of clothing and various attributes of the article of clothing.

This capability will be needed to support many of the more robust use cases.

Hi Team, I like it. Yes, go for it. Focus on how you'd train Nike folks to leverage "training" Kratos over time as part of the culture shift/growth. Looking forward to connecting soon. Call/text anytime in the duration.
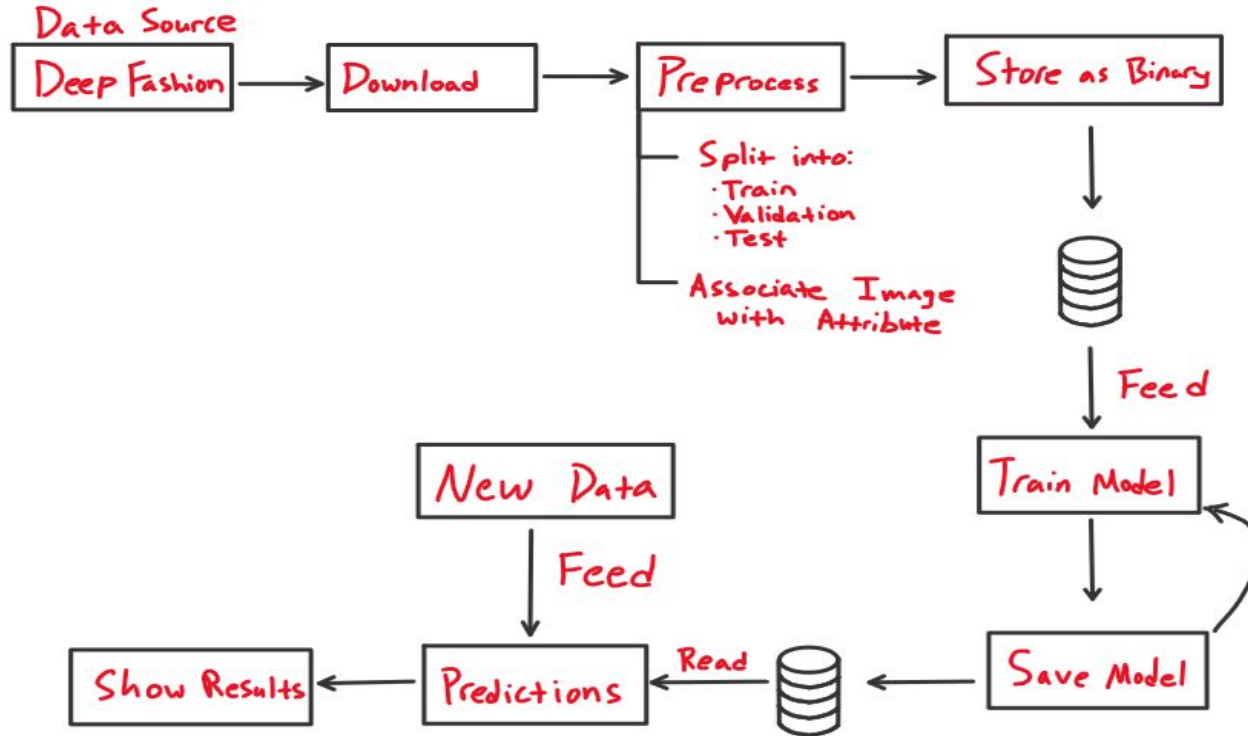
Cheers. JL

Features

Planned	Actual
Given an image identify its material.	
Given an image identify its color.	
Given an image identify its category.	

Deliverables

1. Source Code
2. Documentation
3. KRATOS

Architecture

Process and Schedule

Planned	Actual Process	Planned Schedule	Actual Schedule
Gather Requirements	Gather Requirements	Week 0 - 8	Week 0 - 8
Define Use Case(s)	Define Use Case(s)	Week 7 - 8	Week 7 - 9
Review Use Case(s) with Sponsor	Review Use Case(s) with Sponsor	Week 9 -10	
Define Architecture	Define Architecture	Week 9 - 10	
Build Prototypes		Week 10 - 11	
Build Final Deliverables		Week 12 - 16	
Acceptance Testing		Week 17	
Rework/Fine Tuning		Week 18	
Contingency		Week 19	
Final Presentation		Week 20	

Team Roles

Role	Planned Team Member	Actual Team Member
Data Collection	Scot, Zack, Adam, Ray	All
Analyst	Adam, Ray, Scot	All
Requirements	Ray	All
AI Lead	Jordan, Adam, Yikun	
Prototyping	Jordan, Zack, Yu	
QA	Jordan, Yikun, Scot	
Git	Zack	Zack
Architect	Scot	Adam and Scot

Problems and Contingencies

Event	Mitigation
Primary sponsor disappears	Back up sponsor has been named
Spend too much time defining primary use case	Hard deadline
Team member drops out/leaves	If 1 team member leaves, the rest of the team will need to carry a larger load, should still be able to deliver the product. If more than 1 member were to leave would probably have to scale deliverable back.
Sponsor changes their mind about what they want late in the project.	Requirements will be accepted/signed off by week 10 and will drive the deliverable
Our model is not capable/accurate enough to make reliable predictions	There are techniques to take the inverse of predictions from poor models

Winter Term

- Build Prototypes

- Build Final Deliverables

- Acceptance Testing

- Rework/Fine Tuning

- Contingency

- Final Presentation

References

Deep Fashion: Large Scale Fashion Database
  The Chinese University of Hong Kong
@inproceedings{ liu2016deepfashion,
 author = {Ziwei Liu, Ping Luo, Shi Qiu, Xiaogang Wang, and Xiaoou Tang},
 title = {DeepFashion: Powering Robust Clothes Recognition and Retrieval with Rich Annotations},
 booktitle = {Proceedings of IEEE Conference on Computer Vision and Pattern Recognition (CVPR)},
 month = June,
 year = {2016}
}