인공지능과 비즈니스

2020. 8. 22

윤 종 영

학기일정 (안)

W1 (7/4)	강좌소개 및 개요
W2 (7/11)	비즈니스 아이디어 구상과 발굴을 위한 문제 정리 및 분석
W3 (7/18)	사업 아이디어 타당성 검토 및 구체적 실행방안과 계획 수립
W4 (7/25)	데이터 전략 및 Prototyping 계획 수립
W5 (8/1)	시제품 제작

W6 (8/5)	중간발표
W7 (8/8)	UX 및 서비스 디자인 개선
W8 (8/22)	시제품 제작
W9 (8/25)	시제품 제작 완료
W10 (8/29)	프로젝트 최종발표

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2주일동안 어떻게 지내셨나요

Practical Artificial Intelligence

An Enterprise Playbook

Alan Pelz-Sharpe & Kashyap Kompella

Deep Publishing

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6. AI Technology Selection

AI Washing

- There is a very crowded marketplace for AI solution.
- There are a lot of firms over-promising and under-delivering.
- There are a lot of products n the market that claim to be AI products that are no such thing.

The AI Technology Stack

- Interactive Tools / IDEs
    - Jupyter, R studio, Apache Zeppelin
    - SeaHorse, OpenRefine
- Programming Languages
    - Python: Most popular for machine learning. NLP, sentiment analysis, web data mining…
    - C/C++: games, physical robot control, cybersecurity…
    - Java: cybersecurity, fraud detection, customer support…
    - R: bioinformatics, bioengineering…

- Machine Learning Frameworks

    - Tensorflow (Google)
    - Caffe, Caffe2 (extended and used by Facebook)
    - CNTK (Microsoft)
    - Scikit-learn
    - Keras (user-friendly interface to Tensorflow and CNTK)
    - MXNet (Amazon)
    - Gluon (API developed by Microsoft and Amazon. Part of MXNet)
    - Theano (Python library to compute matrix operations)
    - Pytorch (Facebook)
    - Paddle (Deep learning framework developed by Baidu)
    - Apache Flink (tool for real-time data processing)
    - SparkML (ML library from Apache)

- <u>COTS (Commercial off-the shelf) / ML APIs</u>

    - Packaged products for machine learning application development (data preparation, model deployment, model management…)

        - Algorithmia (search and categorization options, libraries of pre-built algorithms)
        - H2O.ai
        - Dataiku
        - Rapid Miner (predictive analytics models)
        - KNIME (intuitive and easy-to-use)

- Runtime / Infrastructure

    - Amazon (AI runtime architecture as a service)
    - H2O.ai
    - Domino
    - Databricks

    - Trade-off between cost and performance

- Clouds

    - Amazon
    - Google
    - IBM
    - Microsoft

    - Can start out cheap and end up being very expensive
    - Where do you want your AI to sit? (It may needs to be integrated in an existing application.)

Build vs. Buy

- NLP project
  - Leverage Cloud Platforms (Amazon AWS Lex or Microsoft Luis)
  - Buy from Specialist vendors (Kore.AI, BotCore)
  - Build on top of open source (SpaCY, Stanford NLP)

- OCR (Optical Character Recognition) Project
  - Cloud (AWS Rekognition)
  - COTS (ABBYY)
  - Open Source (Tesseract)

Making the Right Technology Selection

- AI Systems have to work together with your existing technology and software.
- Look for pre-trained models that are available for your use case.
- Cloud APIs are getting more extensive.
- Even the most sophisticated technology needs to be paired with industry/domain knowledge.

Technology Due Diligence

- Look at Data Management related aspects.
- Evaluate the breadth of database connectivity.
- Consider the machine learning modeling related functionality.
- How easy to setup and use the development environment?
- Evaluate model management and post-deployment capabilities.
- Usability features, scalability aspects, collaboration features, integration functionality.
- Auditability.

Key Points from this chapter:

1. The marketplace for AI is crowded. It is not just about Google, Amazon, IBM, and Microsoft; there are many more options.
2. Beware of AI Washing. Not everything labelled as AI really is.
3. The AI technology stack consists of Cloud Platforms, Specialist COTS, Developer Tools, Machine Learning Frameworks, and Infrastructure.
4. You can build or buy AI–the lines between each are blurred.
5. You need to consider your options carefully. The wrong selection can doom your project.
6. Do proper due diligence on any product you select.
7. Carefully evaluate the data preparation capabilities of any product you consider.
8. Be aware that your team will spend most of its time on data preparation.
9. Consider getting outside (independent) help in the early stages of your AI project.
10. Consider usability carefully–the smartest system is of little use if it is hard or impossible to use.

Project Activity

공지사항

- 프로젝트 완성 D-1주!
- AI양재허브 방문: 8/25 (Tue), 6:30pm
- 8/29: 최종발표
- 11월 AICon 발표?