

# MS in Applied Data Science program

**“To fulfill my goal of becoming  
a global solution provider”**

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**Dec, 2022**

Prepared for  
**University of Southern California**



## **My approach & Understanding**

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## To be CLEAR... Self Introduction (Personal)

- ✓ **Understand how to collaborate and share things with each other than staying in individual happiness**  
**Experience the level of creativity allowed in Canada, I had a dream of going abroad, on a bigger stage.**



- ✓ Have been grateful and satisfied with all the things given to me - a stable family, faith and love, and financial leisure that does not overflow. If I hadn't practiced sharing, such as IT Volunteer work in Ecuador and supporting students in Zimbabwe, I might have lived a very personal life. However, through such a precious experience, I hoped for a shared future rather than staying in individual happiness.
- ✓ When I was in Canada, I saw firsthand the degree of diversity accepted and appreciated in Canada and the level of creativity allowed. I was moved by the possibilities that an open society can bring to its members. Since then, I had a dream of going abroad, on a bigger stage. To this end, I made endless efforts, such as a Master degree program and studying English, and came to Oracle, which would become a stepping stone to my future dream. At Oracle, I had a lot of experience, such as carrying out overseas projects with global experts.
- ✓ Now is the time to take the next step toward my dream. My next destination is USC, and I want to work at a global tech company for 3 years, understand the flow of the US and global markets, and start my own business in 5 years.



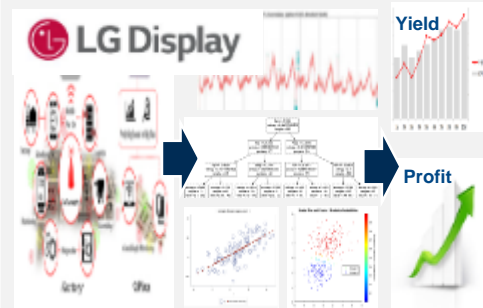
## To be CLEAR... Self Introduction (Professional)

- ✓ Ready to share my experiences in the field of data science, and be confident to create synergy in research activities and collaborate with colleagues at the University of Southern California

### My expertise in Data Science field and my enthusiasm for learning

- Data Scientist (LG Display) ('13.01~'19.05)

“ Provide business value by analyzing data and developing models so as to excavate insights for the front-line employees ”



- Implement multiple ML/data analysis projects

→ Develop an anomaly detection model and monitoring system with ANN algorithm, enabling early error detection of pixel deposition facilities. (Reduced annual defect rate by 0.2%)

► Python, SAS(JMP), Spotfire, Matlab,

- KAIST Master of Science in Information Management ('16.09~'19.01)

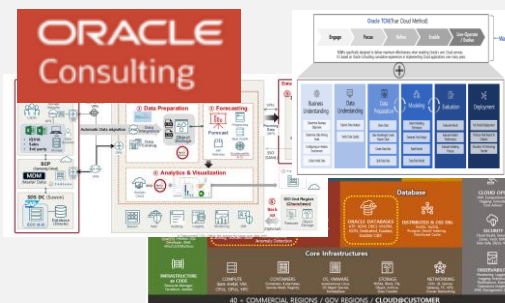
“ An interdisciplinary program that combines data analysis, strategy, and management (Lectures: Business Analytics, Big data Analysis, App development, IT system Design, IT business Management) ”



- Research: Expected Values on the Continuous Intention to Use IoT Products from the Perspective of Expectation-Confirmation Theory (user, survey data)
  - Data analysis & ML Projects with startup companies (Recommendation system, churn & conversion rate, target marketing, and log data analysis)
- Python, SPSS, Smart PLS, Mysql, OracleDB

- AI/ML & Data platform Consultant (Oracle) ('19.05~present)

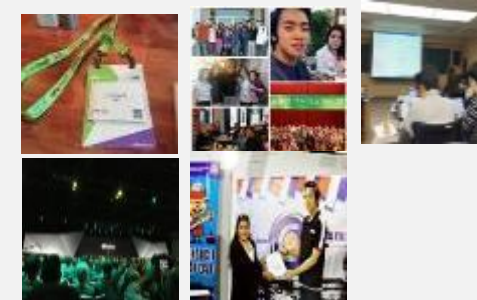
“ Provide consulting services to design data architecture and develop AI/ML & Data platform to build data-driven enterprise ”



- Implemented multiple AI/ML & data platform projects (Industry: pharmaceutical, distribution, manufacturing, insurance, banking)
  - Engage in proof-of-concept work or product demonstration for clients to deliver data strategy and insight based on clients' requirements.
- Python, Oracle solution (OML, OAC, Data Science, AI Service)

- Enthusiasm for learning (~Continuous)

“ Externally activities to improve my technical knowledge in Data Science and academic subjects “

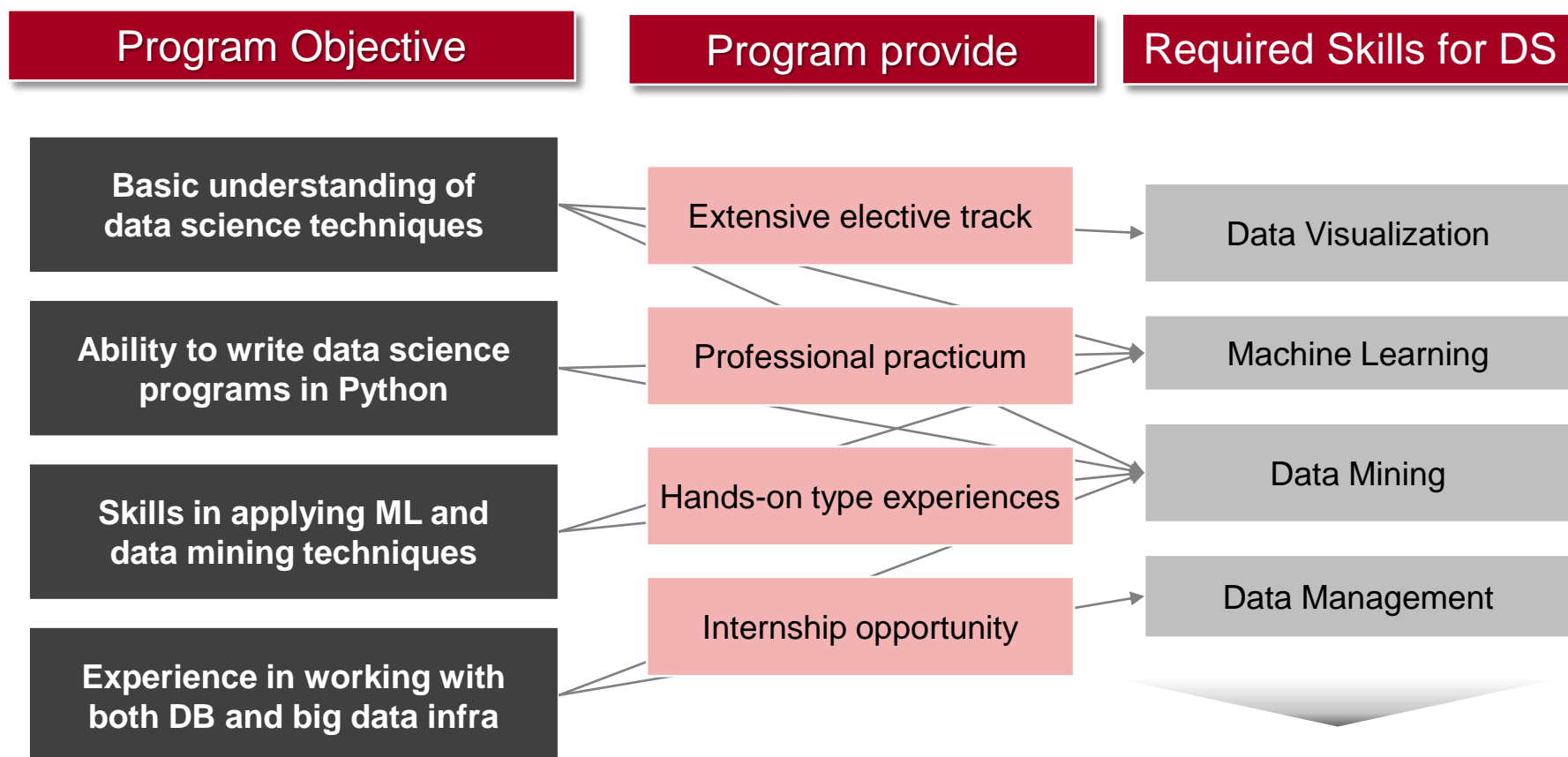


- External efforts:
- Oracle professional training (Analytics, Database, Cloud Infrastructure, Architecture)
- Courses (Linear Algebra, Multivariate Calculus, Statistical Inference, Randomized Algorithms, Data Structure)
- Conference & Volunteer work (KORMS conference, NVIDIA GTC 2018, IT Education volunteer(Ecuador))

## To be CLEAR... My understanding of MS in Applied Data Science program at USC

- ✓ USC MS in Applied Data Science program offers extensive elective track, professional practicum, hands-on experience, and internship opportunity to train skilled Data Scientists with these goals

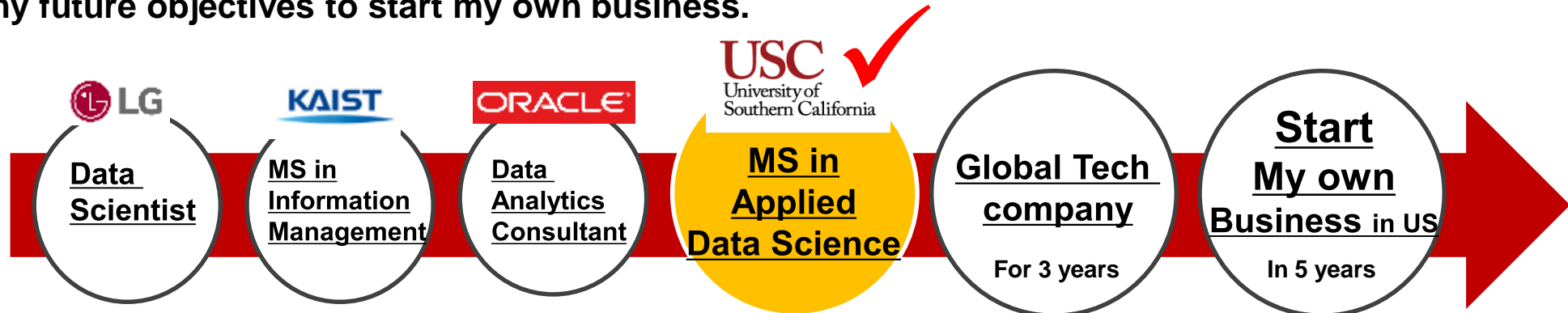
### USC's MS in Applied Data Science Program overview



**Goal:** “ Boost knowledge of how to apply these skills to real-world problems “

## To be CLEAR... Why USC MS in Applied Data Science program ? (My progress)

- ✓ Having master's degree in USC which is the best Data Science program across the globe is prerequisite for my future objectives to start my own business.



- ✓ In 2019, I decided to pursue my journey at Oracle in order to aid in preliminary work for companies in a variety of industries seeking to start data transformation. Oracle allows me to develop into a better-equipped analyst and entrepreneur. I'm able to understand different market demands by facing unmet needs by serving consulting services to multiple clients in a diversity of industries. I plan to develop my own solution for the existing numerous Small and Midsize Businesses (SMB) each with its unique set of needs. With the lessons from my career and degree program, I aspire to develop the AI/ML-based solution package that will help SMBs in their operations across the world.
- ✓ Having a master's degree from USC which is the best Data Science program across the globe is a prerequisite for my future objective to start my own business. I will make my partners and, expand my technical and theoretical knowledge. Also, I will have time to quench my thirst by reading and understanding various research papers and finding things that can be applied. Moreover, I will publish a research paper within my interest to deepen my knowledge. I'm certain that I will be able to accomplish my goals and create meaningful results by partaking in the MS in Applied Data Science program at USC.

To be CLEAR... My course schedule in USC

- ✓ Quench my thirst through Advanced coursework (In particular★) and thesis to fulfill my future objective  
Plan to take 4 semesters (36 credits): Core (12), Electives (20), and select thesis option (4)

	Year 1			Year 2		Curriculum	
Calendar	Fall (Sep- Dec)	Spring ( Feb - May )	Summer ( Jun - Aug )	Fall (Sep - Dec)	Spring (Feb - May )	Choice (Thesis / Research / Internship)	Thesis Option: (Faculty: Aleksandra Korolova, Yan Liu)
Credit	8 credits	8 credits	-	10 credits	10 credits		
1	DSCI 550:★ Data Science at Scale	DSCI 552: Machine Learning for Data Science		CSCI 570:★ Analysis of Algorithms	CSCI 544:★ Applied Natural Language Processing		↑
2	DSCI 551: Foundations of Data Management	DSCI 553: Foundations and Applications of Data Mining		DSCI 510:★ Principles of Programming for Data Science	DSCI 560:★ Data Science Professional Practicum	Electives	Advanced Courses 5 courses
3				CSCI 594a: Thesis	CSCI 594b: Thesis	Core Courses	Core Courses 3 courses
						Total	36 credits

★ Important courses for me to enhance my knowledge are needed

※ Total of 32units is required for graduation with thesis.

## To be CLEAR... My research and area of interest

- ✓ Would like to work on developing methods to promote the use of machine learning, especially with regard to the recommender system, customer personalization, and forecasting.

### My interest in Data Science

- ✓ **Recommendation model**
- ✓ Time-series analysis
- ✓ Sales & demand forecasting
- ✓ Customer segmentation
- ✓ Anomaly detection
- ✓ **Customer satisfaction prediction**
- ✓ **Social media analysis**



### Deepen my knowledge at USC

- ✓ Explainable recommendation
- ✓ Graph-based recommendation
- ✓ Sentiment-based recommendation
- ✓ Media (cartoon, music, book) recommendation
- ✓ Fake review detection
- ✓ High-dimensional Time-series analysis
- ✓ Forecasting for new launching products (Without historical data)
- ✓ Development of driver factors (Find out factors affecting the model's performance)
- ✓ Customer Personalization Services



## To be CLEAR... Why USC MS in Applied Data Science program ? (My direction of research)

- ✓ Deeply impressed by Aleksandra Korolova and Yan Liu's research, I would like to study and solve the issues related to the recommendation system and user personalization that occur in real life with them.

### Based On Experiences

**LG Display**  
Data Scientist

#### “ Sharpened my skillset in Data Science filed ”

- Validate factors by using statistical methods
- Development of prediction model and monitoring system
- Opportunity to analyze big data

**KAIST**

MS in Information  
Management

#### “ Broaden my standpoints in Data Science filed ”

- Work with various industry startup companies
- Experience multiple types of data, recommendation system
- Publish research paper (Statistical methodology)
- Understand Data-driven strategy

**Oracle**

AI/ML Data platform  
consultant

#### “Apply to real cases & Experience end-to-end service”

- Provide data management strategy for clients
- Implement AI/ML, data platform consulting projects (Market Basket Analysis & etc.)
- Understand architecture with Oracle's strong data product lineup

**External  
efforts**  
course, training

#### “ Enhance academic & technical knowledge ”

- Attend several mathematical and data coursework
- Take professional training courses and earn certificates
- Attend academic & Global AI conference

### Desire to work with faculty at USC



**Aleksandra  
Korolova**

#### Having your Privacy Cake and Eating it Too: Platform-supported Auditing of Social Media Algorithms for Public Interest

→ The research proposes a new method for platform-supported auditing regarding platforms' credibility of relevance estimators that can meet the goals of the proposed legislation.

#### Practical Privacy-Preserving Friend Recommendations on Social Networks

→ Research a practical friend recommendation framework, that preserves the privacy of users' friends lists with respect to brute-force attacks and scales to millions of users.



**Yan Liu**

#### A Case for Explaining Ad-Recommendation Systems via Neural Interaction Detection

→ Focus on a prominent use of machine learning recommendation: ad-click prediction (Interaction)

Description

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