

# Danny To Eun Kim

NATURAL LANGUAGE PROCESSING | INFORMATION RETRIEVAL | KNOWLEDGE REPRESENTATION | DIALOGUE SYSTEM | MACHINE LEARNING

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## Education

### University College London (UCL)

M.ENG. COMPUTER SCIENCE (BS/MS)

• UK First-Class Honours (3.7+/ 4.0 in US GPA scale)

London, UK

Sep 2018 - (Jun 2022)

## Research Experience

### Team Conditia: Amazon 2021 Alexa Prize TaskBot Challenge

London, UK

UCL WEB INTELLIGENCE GROUP

Jun 2021 - (Jun 2022)

- Engineering Task-oriented Dialogue System by using Alexa Skills Kit, Evi, DynamoDB, Lambda, CodePipeline, and SageMaker.
- Constructed CI/CD Pipeline, Deployed multiple microservices with Flask and Docker, dealing with million user-conversations
- Research is focused on Information Retrieval, Knowledge Graph, Question-Answering, Ranking, and Dialogue State Tracking.
- Supervised by Professor Aldo Lipani

### Research spin-off: Viral content Ranking and Generation

London, UK

UCL COMPUTATIONAL STATISTICS AND MACHINE LEARNING GROUP

May 2021 - Present

- Neural-ranking model that decides which marketing article would go viral in social media
- Currently in a funding round
- Working with Professor Emine Yilmaz and Qiang Zhang

### Bachelor Thesis: Olfactory NLP

London, UK

UCL HUMAN-COMPUTER INTERACTION CENTRE

Oct 2020 - Mar 2021

- Group Research Paper: *Exploring the potential of automating the process of clustering smell stories* [paper] [code]
- Literature Review: *An NLP Approach to Classify Smell Experiences* [paper]
- Supervised by Professor Marianna Obrist

## Work Experience

### Undergraduate Researcher @ UCL CSML (ELLIS unit at UCL)

London, UK

UCL COMPUTATIONAL STATISTICS AND MACHINE LEARNING GROUP

May 2021 - Present

- Alexa Prize TaskBot Challenge 2021
- Research Spin-off: Viral content ranking and generation

### Data Analyst Summer Intern

Yeongdeungpo-gu, Seoul, S.Korea

KB SECURITIES (KB 증권)

Jun 2020 - Aug 2020

- Rule-based Investment Funds Recommender System based on Network Analysis, Hierarchical Clustering and Association Rule Mining
- Piloted Stock Price Prediction System using LSTM Network and Natural Language News Data [Github Repo.]
- Piloted a Social Media Monitoring System using KB's NLP Engine and Automation (RPA) software
- Heavy use of SQL in Hadoop ecosystem (Map-reduce, Hive and Hue)

### Software (Dialogue System) Engineer & Industrial Exchange Network Partner

London, UK

ROYAL COLLEGE OF GENERAL PRACTITIONERS (RCGP)

Oct 2019 - Apr 2020

- Built a task-oriented chatbot that assists in checking software compliance regimes that British healthcare organisations have
- Built a RESTful API for user intents and entities detection using Dialogflow and React/Express/Node/MongoDB
- Made python scripts for Chatbot Integration Testing [Github Repo.]

## Society/Service

### UCL Artificial Intelligence Society

UCL, London, UK

DEVELOPER RELATIONS(19/20) → HEAD OF TUTORIALS TEAM(20/21) → ML OFFICER(21/22)

Sep 2019 - Present

- Main contributor/founder and lecturer of Machine Learning tutorials [Season 1] [Season 2] [YouTube playlist]
- Teaching Assistant in Advanced Python Tutorials (19/20)

### NLP paper study group (집현전)

virtual, S.Korea

SEASON 2 ORGANIZER [GITHUB REPO.]

May 2021 - (Nov 2021)

- Task-oriented Dialog System Survey and Knowledge Graph construction [Slides], [Video]

## Google Developer Student Club

CORE TEAM MEMBER

Sep 2021 - (Sep 2022)

Organizing various events such as technical tutorials, workshops, and external speakers event

## Projects

### Netflix-alike Movie Analytics Web App

UCL

FULL-STACK DEVELOPER

Feb 2021 - Mar 2021

- Microservice architecture consisting of a NestJS REST API, PostgreSQL DB, and Redis cache - each component is containerized
- Designed a normalized ERD for Database design, and optimized queries, seeing more than 10% performance increase
- API can pre-cache anticipated requests, enabling extremely low latency infinite scrolling [\[Github Repo.\]](#)

### Credit Card Default prediction

UCL

BEST COURSEWORK NOMINATED

Dec 2020 - Jan 2021

- Data Visualization, Model training and selection, hyperparameter tuning and evaluation. [\[paper\]](#) [\[code\]](#)

### Jsh: bash-like shell implemented in Java

UCL

PROJECT BY TEAM OF 3 MEMBERS

Oct 2019 - Jan 2020

- Low and High level Code Refactoring & Agile Methodology
- TDD and DevOps (Unit&System Testing by JUnit, Branch&Instruction Coverage tests, Blackbox testing&Fuzzing, Static Analysis)
- Implemented in Factory, Decorator and Visitor Design Patterns

### Propositional Semantic Tableau validator

UCL

COMPUTATIONAL LOGIC COURSEWORK

Dec 2019

- Parse propositional logic, build a semantic tableau, and check its satisfiability (implemented in C) [\[Github Repo.\]](#)

### Relationship-Expert (Hackathon at FB London)

Facebook London

BUILDING CONVERSATIONAL AI FOR MESSENGER HACKATHON

Dec 7-8 2019

- Built a messenger-bot that checks if user's reply to one's lover is okay to send or not [\[Github Repo.\]](#)
- Fine-tuned a Transformer Language Model (BERT) using Pytorch for Sentiment Analysis
- Deployed the model with Facebook Messenger API (Node.js) and a Flask server

## Professional Training

### Google Developers Korea Machine Learning Bootcamp

virtual (GDG Korea)

TRAINEE

Oct 2020 - Jan 2021

- 4-month-long ML Bootcamp hosted by Google Developers Korea. Education fees are all funded, selected in one of 8% of 3K+ applicants.
- Earned Deep Learning Certificate by weekly assignments, and attended weekly tech-talks and clinics

### KAIST Artificial Intelligence Bootcamp

Yangjae AI Hub, S.Korea

TRAINEE

Jun 2019 - Aug 2019

- Project 1: Kaggle Titanic - 81% Accuracy [\[Github Repo.\]](#)
- Project 2: Neural Style Transfer. Model comparison, Feature map visualisation and Hyperparameter Tuning [\[Github Repo.\]](#)

## Awards/Grants

2021 **Centenary Award** 20/21 UCL best societies award (Head of Tutorials @ Artificial Intelligence Society)

UCL Student Union

2021 **CS Undergraduate Summer Research Internship Fund**

UCL CS Dept.

## Certifications

2020 **Deep Learning Specialization** 5 courses on Coursera - Prof. Andrew Ng

[deeplearning.ai](#)

2020 **The Fundamentals of Digital Marketing** Google Adsense, Search console, SEO, etc.

[Google D.G](#)

2020 **Introduction to AI in the Data Center** Data centre Architecture and GPU accelerated computing

[NVIDIA](#)

2020 **JavaScript Essential Training**

[LinkedIn Learning](#)

2019 **KAIST Artificial Intelligence Bootcamp** Certificate of Completion

[KAIST & Seoul Gvmt.](#)

## Professional Skills

**Programming** Python, Java, C, Haskell, JS, Arduino, R,  $\text{\LaTeX}$

**ML / DL** Tensorflow 2, Pytorch, Keras, OpenCV, Scikit-Learn

**Data Skill** SQL, Hadoop, SAS, Numpy/Pandas/Matplotlib, Web-Scraping

**SW-Dev** Node, Express, React, Flask, MongoDB, PostgreSQL,

**Platforms** Linux, Git, Docker, AWS, Google Cloud Platform(GCP)