Sinan Ozdemir

Founder + CTO of Kylie.ai

About me

- Passionate educator
  - Obtained Masters from and was a lecturer at Johns
  - High school teacher
  - Taught in two different prisons in Maryland
  - Taught in bootcamps like General Assembly over 15 times
- Textbook Author
  - Four textbooks (one of which is Microsoft's book of choice for Data Science)
  - Primary focus on AI, ML, Data Science
  - https://azure.microsoft.com/en-us/resources/principles-of-data-science/
- YC Alum with Kylie.ai
- Podcast guest conference speaker
  - Launch, SuperDataScience podcast and conference, Blackhat, and more

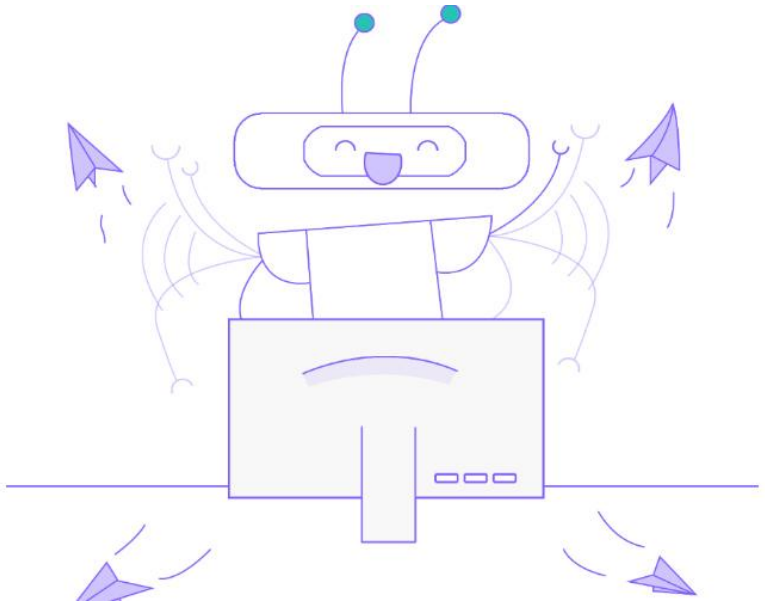
Project - Kylie.ai
CTO & Founder

ML Engineer, DevOps, Client Manager, Customer Service, Sales, Compliance Officer, etc.....

Company Overview

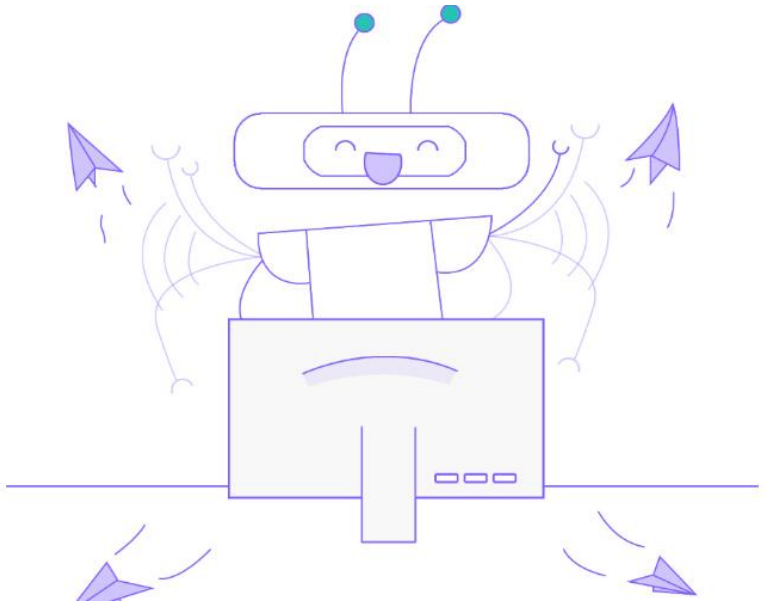
Kylie.ai automates enterprise-grade conversational AI and has serviced customers such as:

- CenturyLink (third largest telco in America)
- Luxottica (owner of SunglassHut, Rayban, Oakley, etc)



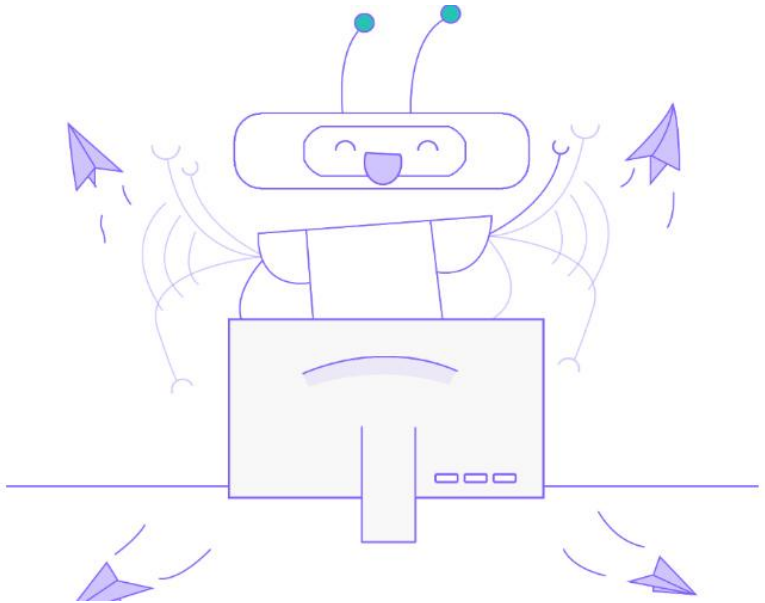
Business Case

- Automate > 25% of conversations
- Omni-channel
  - Voice, SMS (Twilio)
  - Chat (LiveEngage, Intercom, etc)
- Auditability
- Scalability
  - System designed to handle > 250,000 calls a month



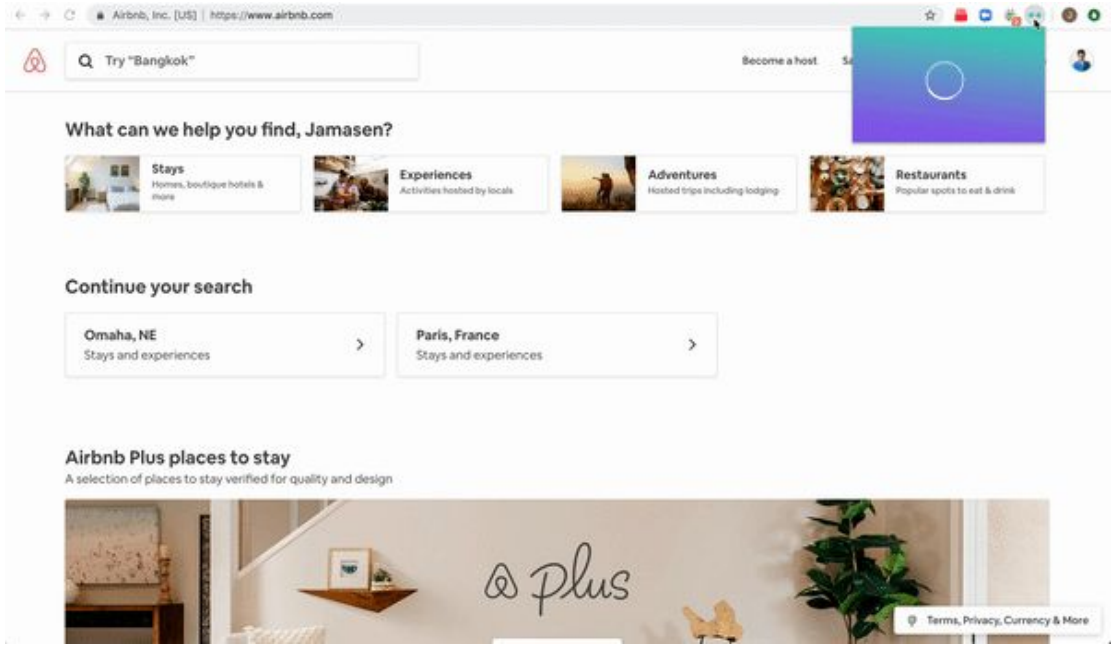
Tech Stack

- DevOps
  - K8s, Docker
  - AWS, EKS, RDS
- ML
  - Scikit-learn
  - GLoVe
  - Tensorflow
- App/API
  - Django
  - React
  - Redis / RabbitMQ



Products

- RPA:
    - Sidekick
- Conversational AI
    - ML Framework
    - SIMon
- Topic Analysis
    - Unsupervised learning of conversation automation



Take Home

https://github.com/sinanuozdemir/airbnb_th/blob/master/Take.Home.ipynb

General Approach

- Treat it like a classification problem
  - Features were listing criteria, query criteria, preference criteria (dynamically generated)
  - Response was label column
    - host_contact, book, click, impression or a combined contact and book
- Steps
  - EDA / Preprocessing
  - Feature Engineering
  - Machine Learning Pipeline building
  - Training
  - Evaluation

Attempts

- Null model (random model): predicts label at the same distribution as the ground truth
    - Custom precision: ~ 21-25% (not consistent because..it's random)
- First approach: use listing, query to predict label
    - Sometimes barely better than random model: 23%
- Add in preference vector (a vector with the same number of cols as listing that represents the user's preference
    - Calculated by taking previous clicks, contacts, books before `ts_search` and multiplying them together
    - Custom precision: ~ 27%
    - Biggest problem is explode number of cols
- Used the dot product between preference and listing to create a single "preference_listing" col and got rid of preference col as well as query cols
    - Best precision yet: ~ 31%