Sonia Sargolzaei

sousargol@gmail.com ▪ www.linkedin.com/in/sonia-sargolzaei ▪ Houston, TX

EDUCATION

MSc., Georgia Institute of Technology – *Atlanta, GA* May 2022

- **Computer Science**, specializing in **Machine Learning**
- **Master's project:** Using **Python** and **D3.js** to create a adjusted map of US cities based on their popularity
- GPA: 3.90 / 4.0
- **Selected Course Work:** Deep Learning, Data Visualization Principles, Machine Learning, Computer Vision, Data and Visual Analytics, Computer Science and Engineering Algorithms, Special Problems (Research on Transformer for NLP)

BSc. University of Tehran – *Tehran, Iran* Dec 2017

- **Computer Engineering**
- Selected Course Work: Data Structure and Algorithms, Engineering Probability and Statistics, Introduction to Artificial Intelligence, Calculus, Differential Equations, Discrete Mathematics, Advanced Programming

WORK EXPERIENCE

Software Engineer at **Ebay** *– San Jose, CA (remote)* Present

- Used **Golang** to assist in development of the storage team project
- Used **Kubernetes** to diagnose errors and triage issues in the K8s environment

Data Analyst Intern at **Degree Analytics** *– Austin, TX (remote)* August 2021

Advisor: David Palumbo, Aaron Benz

- Used **Python** to perform data preparation, cleaning and analysis on Integrated Postsecondary Education Data System (IPEDS) data
- Used **AWS QuickSight** to create a multi-sheet dashboard showing the Diversity, Equity and Inclusion (DEI) metrics for all secondary schools in the US

SKILLS

Programming Languages

- **Golang** (proficient), **Python** (proficient), **C++** (intermediate), **C** (intermediate), **MATLAB** (intermediate), **SQL** (intermediate), **Scala** (intermediate), **Java** (intermediate)

Web Technologies

- **HTML** (proficient), **CSS** (intermediate), **JavaScript** (intermediate)

Tools

- **Kubernetes** (Proficient), **Git** (proficient), **Jupyter Notebook** (proficient), **PyCharm** (intermediate), **AWS** (intermediate), **GCP** (Intermediate), **Databricks** (intermediate), **Azure ML Studio** (Intermediate), **Spark** (Intermediate), **Hadoop** (novice), **Pig** (novice), **Hive** (novice), **HBase** (novice)

Data Science & Machine Learning Libraries

- **PyTorch** (proficient), **scikit-learn** (proficient), **Pandas** (proficient)**, NumPy** (proficient)**, SciPy** (proficient)**, Matplotlib** (proficient)**, Keras** (intermediate)**, BeautifulSoup** (intermediate)**, Seaborn** (intermediate)**, Plotly** (intermediate), **Selenium** (novice)

Data Visualization Tools & Libraries

- **Tableau** (proficient)**, AWS QuickSight** (proficient)**, D3.js** (proficient)

RESEARCH PROJECTS

College of Computing, Georgia Institute of Technology

Special Problems–Transformers Research in NLP May 2022

Advisor: Professor Mahdi Roozbahani

- Conducted research on **Transformers** and their application in **NLP**—made a presentation about why the Transformers are the state-of-the-art structures for NLP tasks, explaining the structure of Transformers in detail, and introducing the famous language models

Map Label Scaling Based on Destination Popularity – Friendly Cities Lab May 2022

Advisor: Professor Clio Andris

- Performed research in the **GIS** field focusing on the label size of cities on maps
- Master's project: Used **Python** and **D3.js** on SafeGraph Patterns dataset to create an map visualization, in which label sizes of cities are based on metrics other than population

Data analysis on Georgia Tech students' WiFi data – Ubicomp Lab Apr 2021

Advisor : Professor Gregory Abowd

- Used **Python**, **Pandas**, **Matplotlib** and **scikit-learn** libraries to perform data analysis on Georgia Tech students' WiFi data in the *Wifi Study* projects, to predict academic success based on attendance, and in the *Contact Tracing* project, to infer high-risk locations, events and gatherings at Georgia Tech campus, which led to two papers
    - Published paper: Swain, Vedant Das, et al. "WiFi mobility models for COVID-19 enable less burdensome and more localized interventions for university campuses." *medRxiv* (2021).
    - Published paper: Swain, V. Das, et al. "Leveraging WiFi Network Logs to Infer Student Collocation and its Relationship with Academic Performance." *arXiv preprint arXiv:2005.11228* (2020).

SELECTED PROJECTS

- Used **PyTorch** to train a virtual home assistant robot using **Reinforcement Learning** and Actor-Critic algorithms
- Used **PyTorch** to implement the Saliency Map and GradCam algorithm to find the areas that have the greatest effect on the **classification** algorithm score
- Used **PyTorch** to implement **Class Visualization** algorithm to turn a random noise image to an image recognized as a target class
- Used **PyTorch** to transfer a style of an image to another image (**Style Transfer**)
- Used **PyTorch** to create hybrid images using a low pass filter and a **gaussian kernel**
- Used **PyTorch** and **Python** to implement the **SIFT** pipeline to create a local feature matching algorithm
- Used **Python** to calculate a camera projection and best fundamental matrix using **RANSAC**
- Used **PyTorch** to create a **CNN**-based stereo depth estimation algorithm
- Used **PyTorch** to implement a scene recognition algorithm using: **CNN**, fine-tuned **ResNet-18**
- Used **Keras API** to perform image **Classification** on MNIST Dataset
- Used **Spark**, **Scala** and **Docker** to analyze, compute measures and present results on NYC trip data, a large dataset, using multiple cloud platforms: **AWS**, **DataBricks** and **GCP**
- Used **Python** and **AWS QuickSight to** create a **QuickSight dashboard** for all the schools in the US and give insights about the DEI metrics