

# Subham Kumar Sah

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## EDUCATION

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### University of North Carolina at Charlotte

Charlotte, NC

*Masters of Science in Information Technology*

*Graduation: December 2022, GPA: 3.79/4*

### Indian Institute of Engineering Science & Technology

India

*Bachelor of Architecture*

*2013-2018, CGPA: 7.6/10*

## TECHNICAL SKILLS

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**Languages:** Python, JavaScript, SQL

**Web Technologies:** HTML, CSS, JavaScript, Node.js, React.js

**ML Packages:** Pandas, NumPy, JAX, sci-kit-learn, PyTorch, TensorFlow, Keras

**Frameworks:** Flask, React, Django, Streamlit

**Databases:** MySQL, MongoDB

**Cloud Services:** AWS EC2, Azure, Google Compute, Heroku, PySpark Notebooks, Google Collaboratory

**Visualization Tools/Softwares:** AWS QuickSight, Tableau, PowerBI

**Mapping Technologies:** ArcGIS, Mapbox, Folium Maps, Open Street Maps, Google Map APIs

**Interface Design Tools:** Figma, Adobe XD, Sketch, Adobe Illustrator, Adobe Photoshop

## WORK EXPERIENCE

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### Arcadis IBI Group

February 2023 – Present

*Machine Learning Enginner*

- Worked on developing a Machine Learning Model to analyze Austin city data and to identify and predict parcels and census tracts with a higher potential for return on investment. This analysis was based on historical data including income, tax information, census data, local amenities, crime rate etc.
- Conducted in-depth data analysis and data engineering on Austin Bike Share data, influencing the company by providing valuable insights. The analysis pinpointed streets with the highest occurrence of bicycle-related crashes and the units involved, using Python, Google API and Mapbox. This information played a pivotal role in advising the City of Austin on effective methods to reduce these incidents, contributing to the overall enhancement of street safety in the area
- Worked on creating a statistical model, centered around the concept of a "15-minute city." This model aimed to determine the most appropriate types of development in the vicinity of subway station areas, focusing on accessibility and convenience.
- Worked on clustering analysis on a dataset comprising 1000 station areas. The objective was to uncover discernible patterns of development and land use. This analysis aimed to provide insights that could guide new development initiatives and inform land use strategies for the future.

### UrbanSim Inc.

June 2022 – Deceber 2022

*Machine Learning Intern*

*Seattle - WA*

- Worked on a Machine Learning Model using Graph Neural Network (GNN) that learns from Urban Parcel geometry, predicts place types(for e.g- Residential, Commercial, Industrial, etc.), and predicts building footprint geometry.
- Worked on mixed input Neural Network with population, income, and household with satellite(Mapbox) image to predict the place types in the neighborhood
- Worked on a Machine Learning algorithm using Graph Neural Network(GNN) to capture the Growth/Decline of population, income, and household for a given region over a period of time.

### Urban Synergetics Lab & Digital Arts Center

January 2021 – Present

*Research Assistant*

*UNC Charlotte, Charlotte - NC*

- Developed an exploratory data analysis tool for jointly embedded Texts and Images. This tool is designed to identify and analyze the sentiments and emotions associated with the combined content, followed by a clustering analysis.
- Developed a dashboard for analyzing the City of Charlotte's "Service Requests 311" Dataset and US Census Demographic Data for Mecklenburg County. This tool is designed to aid local policymakers in assessing the 311 service requests in Charlotte, integrating them with demographic information for Mecklenburg County.

- Worked on a competition for Determining Transaction Categories Using Machine Learning and Natural Language Processing.
- Worked on the Machine-Learning Model (Graph-Neural Network) that controls Air purification systems using Microcontrollers(RespberryPi).
- Developed an application for professionals in social science, data science, data analysis, and related fields seeking to utilize social media data. This intuitive tool streamlines Exploratory Data Analysis and incorporates a data pipeline, addressing the needs of those interested in leveraging social media data but lacking the programming skills required for existing NLP toolkits.
- Worked on analyzing the relationship between the Cost and Demand of shared Mobility Systems (On-Demand mobility systems).
- Designed and developed a cellular IoT Platform for Cyber-Physical Interaction between humans using Node.Js, SocketIO, ESP-32, and Pneumatics Structures.

## QUANTIFIABLE ACHIEVEMENTS & RESEARCH WORKS

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### **IEEE TVCG Journal-2024**

*Co Authors: Milad Rogha, Dr. Alireza Karduni, Douglas Markant, Dr. Wenwen Dou*

- The impact of elicitation and contrast charts on engagement, recall and attitude change with news articles containing data visualization

### **Short Paper Presentation at Division of Research**

Fall-2022

*Advisor Prof. Jefferson Ellinger*

- Presented a Research work on Machine-Learning Model (Graph-Neural Network) that controls Air purification systems using Microcontrollers(RespberryPi)

### **Best Research Thesis Award**

Spring-2023

*Advisors: Prof. Eric Sauda, Dr. Wenwen Dou, Dr. Alireza Karduni*

- Interactive Topic Guided thematic Analysis for social Media Data.

### **Research and Tuition Assistantship**

Spring 2021-Fall 2022

*School of Architecture, UNC Charlotte*

- Research and Tuition Assistantship from School of Architecture, University of North Carolina at Charlotte-January 2021-December 2022