

# Nicholas Occhipinti

## Education

- 2020–2021 **University of North Carolina at Charlotte,**  
*Data Science and Business Analytics, Master of Science.*  
GPA – 4.0
- 2012-2014 **Oregon State University,**  
*Geographic Information Science, Graduate Certificate.*  
GPA – 3.93
- 2001-2004 **Kean University,**  
*Computer Science, Bachelor of Science.*

## Experience

- 2017–Present **GIS Developer, UNIVERSITY OF NORTH CAROLINA AT CHARLOTTE.**
- Administer ArcGIS Server, Portal and NGINX servers hosting mapping applications to support Facilities Management (FM) operations.
  - Maintain the Campus' web map application used by students, staff and visitors to find buildings and services on campus.
  - Develop geospatial solutions to help groups solve different problems such as creating a utility network to support better data management and setting up maps and database schemas for field data collection of assets.
  - Create interactive Tableau dashboards to highlight work request performance metrics for FM.
- Summer 2021 **Data Science Intern, UNIVERSITY OF NORTH CAROLINA AT CHARLOTTE.**  
– Fall 2021 As part of my Masters program in Data Science I had an internship with Facilities Management where I used machine learning in the following areas.
- XGBoost regression models to predict the time and cost for a work request to be completed.
  - Word2Vec and Deep Learning models to classify the type of problem from work request descriptions.
  - Analyzing the survival probability of different equipment categories over time.
- 2017 **GIS Developer, NYC DEPARTMENT OF EDUCATION.**
- Created and maintained spatial datasets for the New York City school system which consisted of data for over 1,800 schools and 1.1 million students.
  - Maintained an ASP.NET mapping application and the related ArcGIS map services, and automated GIS tasks using Python.
  - Developed a prototype web mapping application as a Proof of Concept using only Open Source technology.
- Winter 2011 – **Assistant Professor, RUTGERS UNIVERSITY.**  
Spring 2011
- Taught a course on object-oriented programming covering concepts such as classes and inheritance.
  - This program was part of a certification for veterans of Iraq and Afghanistan that provided them tools to start a career in the Information Technology field.
- 2007 – 2017 **GIS Specialist, MOTT MACDONALD.**
- Developed Python scripts for a variety of uses such as FTP image transfer, spatial analysis, creating map books and developing geoprocessing services.
  - Developed an ASP.NET mapping application to view and edit data which played a pivotal role in acquiring new clients.
  - Architected a document management system that linked documents to spatial assets in a web-based GIS application.
  - Administered a production GIS Server environment to host data for approximately 25 clients.

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## Projects

- 2021 **Finding Clusters of NYPD Complaints**, *UNC Charlotte Student Project*.
- Used Neo4J to load NYPD complaint data and identify clusters of complaints using Louvain community detection and PageRank centrality to find the most influential locations that are central to other nearby areas where similar offenses occurred.
  - Created an interactive map that was integrated into Jupyter notebook using ipyleaflet to show where hotspots of complaint clusters are occurring.
  - Used machine learning to perform graph link prediction to predict the locations where future offenses will occur.
  - [Final Project Report](#)
- 2021 **Analyzing Twitter Data for Popeye's Chicken Sandwich Release**, *UNC Charlotte Student Project*.
- Used R with the Twitter API to collect tweets about the 2019 Popeye's chicken sandwich release.
  - Developed an emoji cloud in Tableau to capture the range of emotions over time.
  - Created dashboards showing sentiment analysis, topic modeling, and the change in retweet volume over time.
  - Performed network analysis to study the centrality of tweets about the fights that occurred at Popeyes.
  - [Final Project Report](#)
- 2020 **External Camera Mapping Project**, *UNC Charlotte*.
- Built a secure application in our GIS Enterprise Portal that allows the Campus police department to view the locations of their external cameras on Campus through a web based viewer and mobile device.
  - Built a separate application that allowed them to edit the camera locations and attributes and attach images to the camera point features.
- 2020 **ArcGIS Enterprise Upgrade**, *UNC Charlotte*.
- Implemented a complete enterprise upgrade of the campus' GIS technology.
  - Upgraded ArcGIS Server and Portal applications, migrated maps from ArcDesktop to ArcGIS Pro and configured security best practices by setting up secure services, firewall rules, reverse proxies and Shibboleth authentication.
- 2019 **Opioid Addiction Dashboard**, *UNC Charlotte Student Project*.
- Developed an R Shiny application that showcased data about Opioid addiction in the United States.
  - Application was interactive and allowed the users to filter by different states and select a range of years.
  - Used a word cloud, bar charts, geospatial maps and a radar chart as part of the dashboard.
  - This was a final project for a Visual Analytics course where my group won best project.
  - [Final Project Dashboard](#)
- 2017 **Open Source Technology Proof of Concept**, *NYC Department of Education*.
- Developed a prototype web mapping application as a Proof of Concept using Open Source technology as a contingency plan in the event the city's contract with their current GIS vendor did not get renewed.
  - Used GeoServer to connect to an SQL Server Spatial database to publish layers, OpenLayers to consume the OGC WMS and WFS services in a web application and Turf.JS to perform analysis operations.
  - Provided a detailed report where I published the technology used, methods and findings.
- 2015 **Pedestrian Crossing Model**, *Mott MacDonald*.
- Worked in Qatar with the Ministry of Transport to analyze a road network and assist with the development of a network model and data visualization tool to find suitable locations to build pedestrian crossings.
  - Analysis was related to an infrastructure improvement project to accommodate the high volume of people expected for the 2022 FIFA World Cup.
- 2011 **Pipeline Risk Model**, *Mott MacDonald*.
- Managed the creation of a risk model for a natural gas pipeline system spanning two states that determined which pipe segments in their system have the highest probability of failing.
  - Collaborated with subject matter experts to develop formulas to calculate the probabilities of failure.
  - Analyzed data for the calculations, ranging from a variety of factors such as pipe segment features, soil data analysis and field survey reports.

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## Relevant Courses

- UNC Charlotte Network Science, Visual Analytics, Applied Machine Learning, Advanced Business Analytics, Cloud Computing, Consumer Analytics, Social Media Marketing and Analytics
- ESRI Spatial Analysis with ArcGIS Pro, ArcGIS Enterprise: Configuring a Base Deployment, Configuring Utility Networks in ArcGIS, Creating and Managing Utility Networks with ArcGIS