

Visualizing Platform Power:

how third-party delivery platforms control
the movement of people and food around Denver

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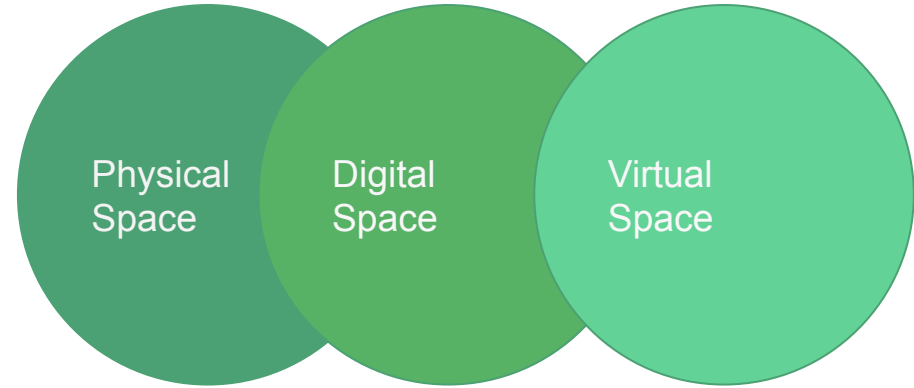
Third-Party Food Delivery

- **Three-sided Marketplaces:** connects Restaurants, Drivers & Customers.
- **Doordash**, increased revenues 33% between September 2021 and September 2022 (Doordash Inc., 2021 & 2022)
- The entire food delivery app industry is expected to reach \$320 b revenue by 2029 up from \$140 b in 2022 (Curry, 2021)



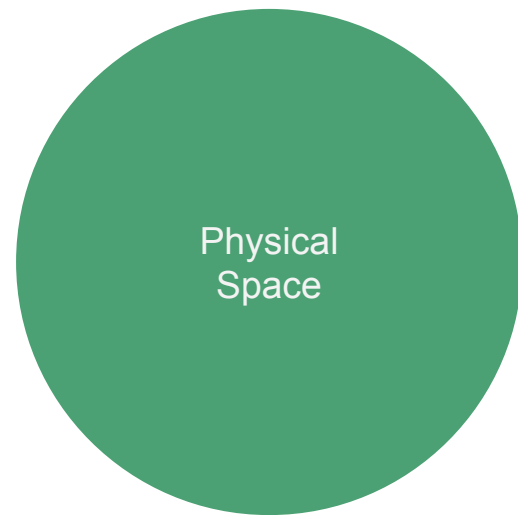
Overarching Research

- Pilot Research sponsored by CU Denver Presidential Initiative Seed grant
- How do food delivery platforms use physical, digital, and virtual spaces to increase profit and growth?
- How do users encounter third-party food delivery in these strategically articulated and often blurred spaces?



Research Questions

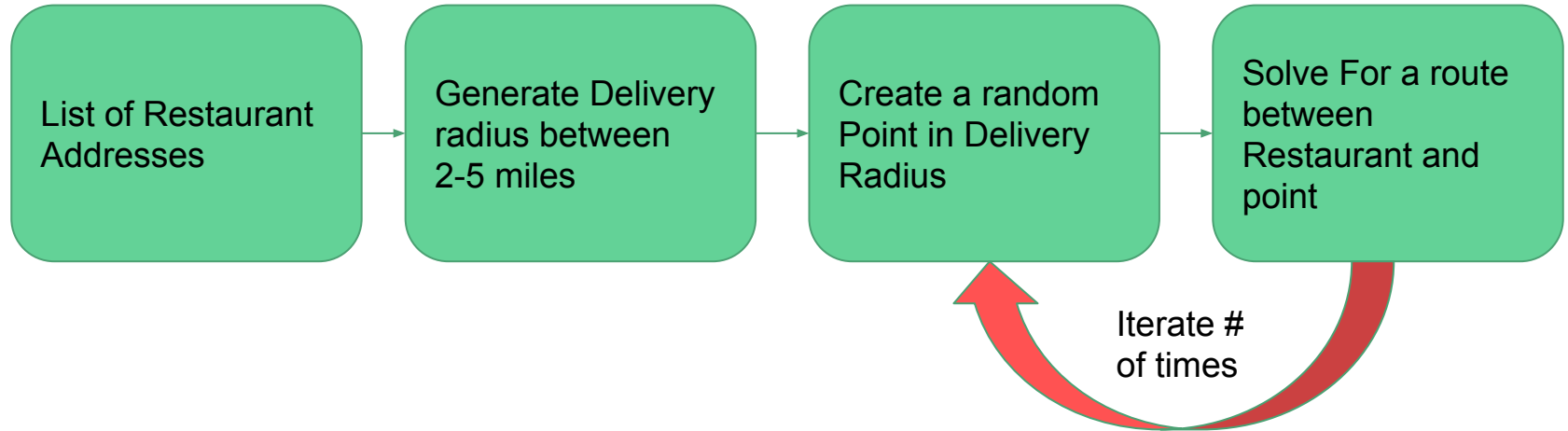
- Using a modeling approach, how do third-party platforms change the movement of vehicles across a city?



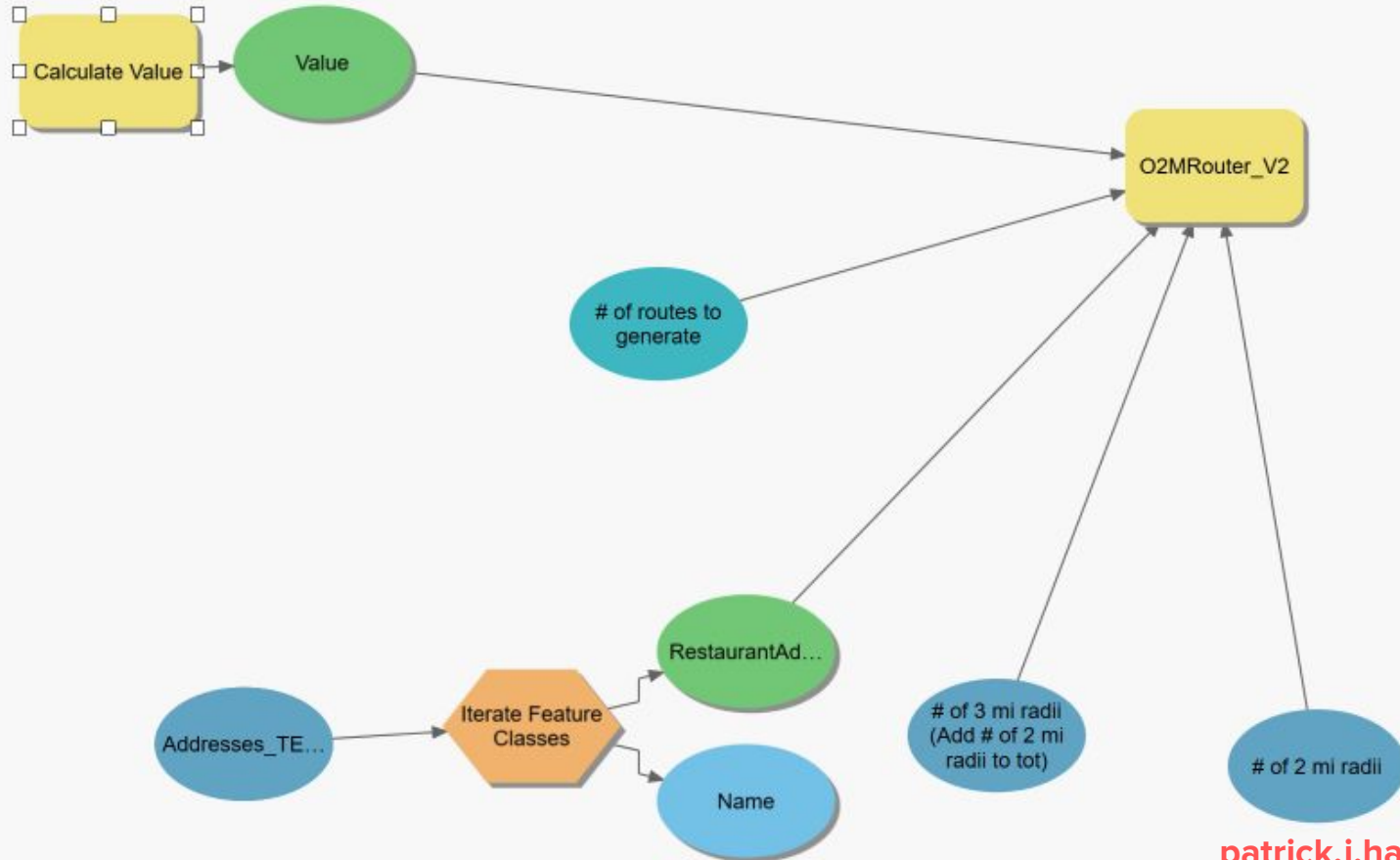
Methods

1. List of 126 Small and medium sized independent Restaurants inventoried by Hillary Quarles in Spring 2021
2. ArcGIS Pro Model Builder
3. Create Points along a Line
4. Intersect + Statistics Summary
5. Create Raster symbolizing frequency of intersection

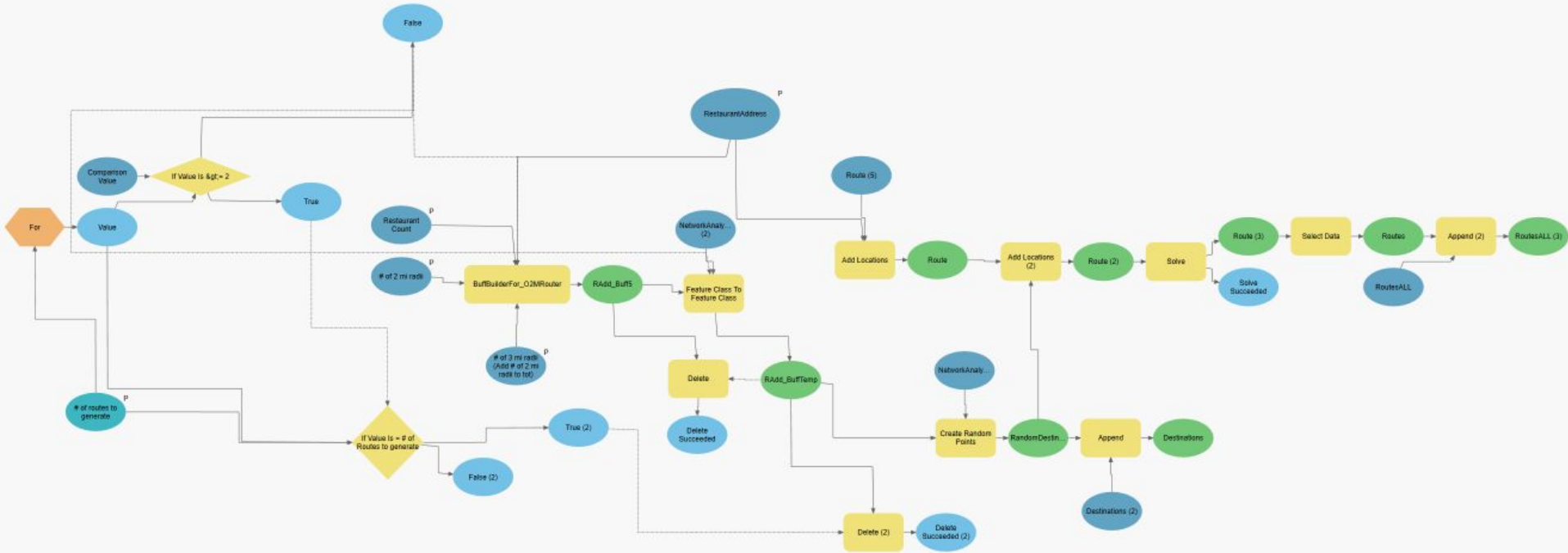
How to Play Dispatcher



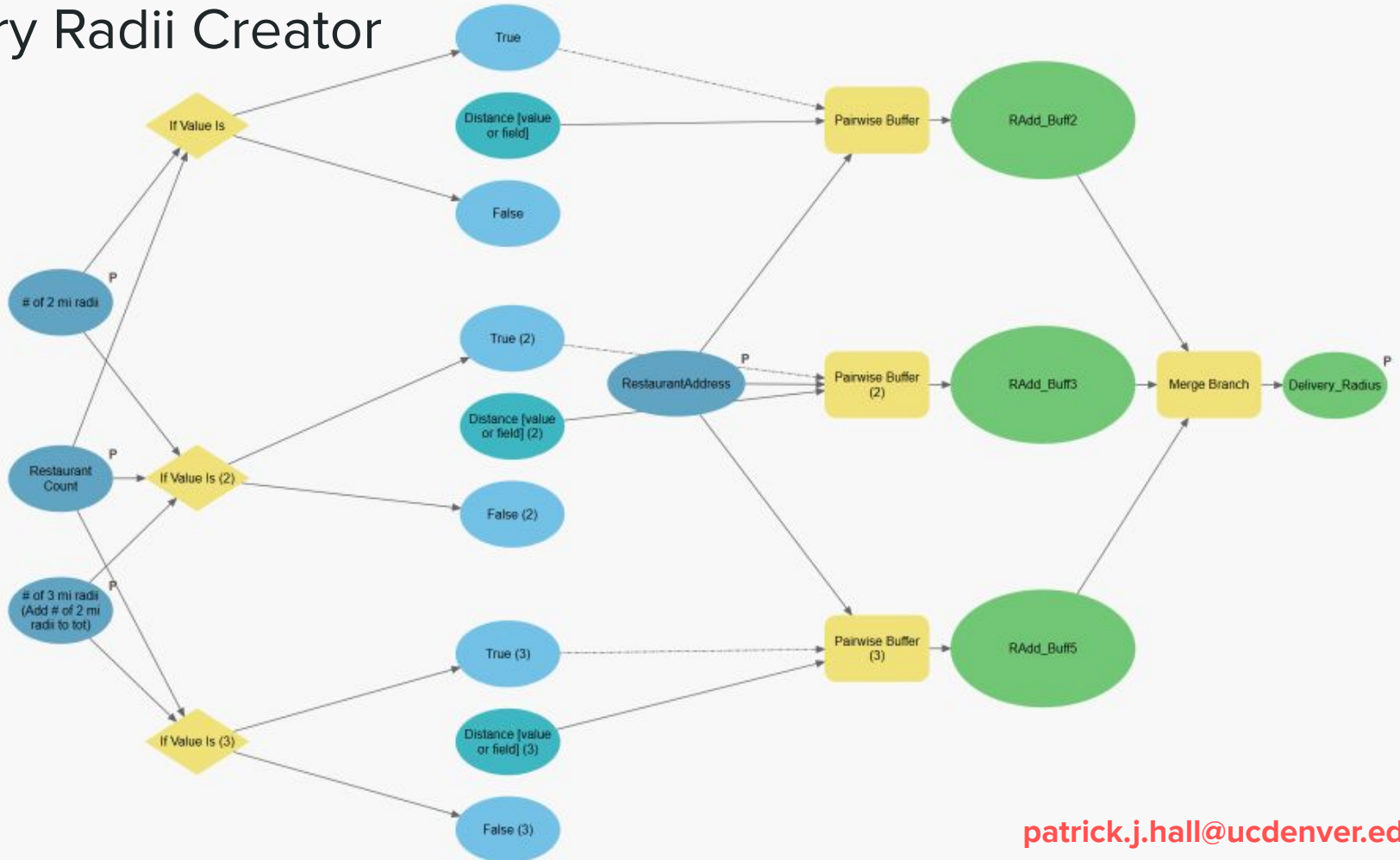
Restaurant Address Iterator



Route Iterator Submodel

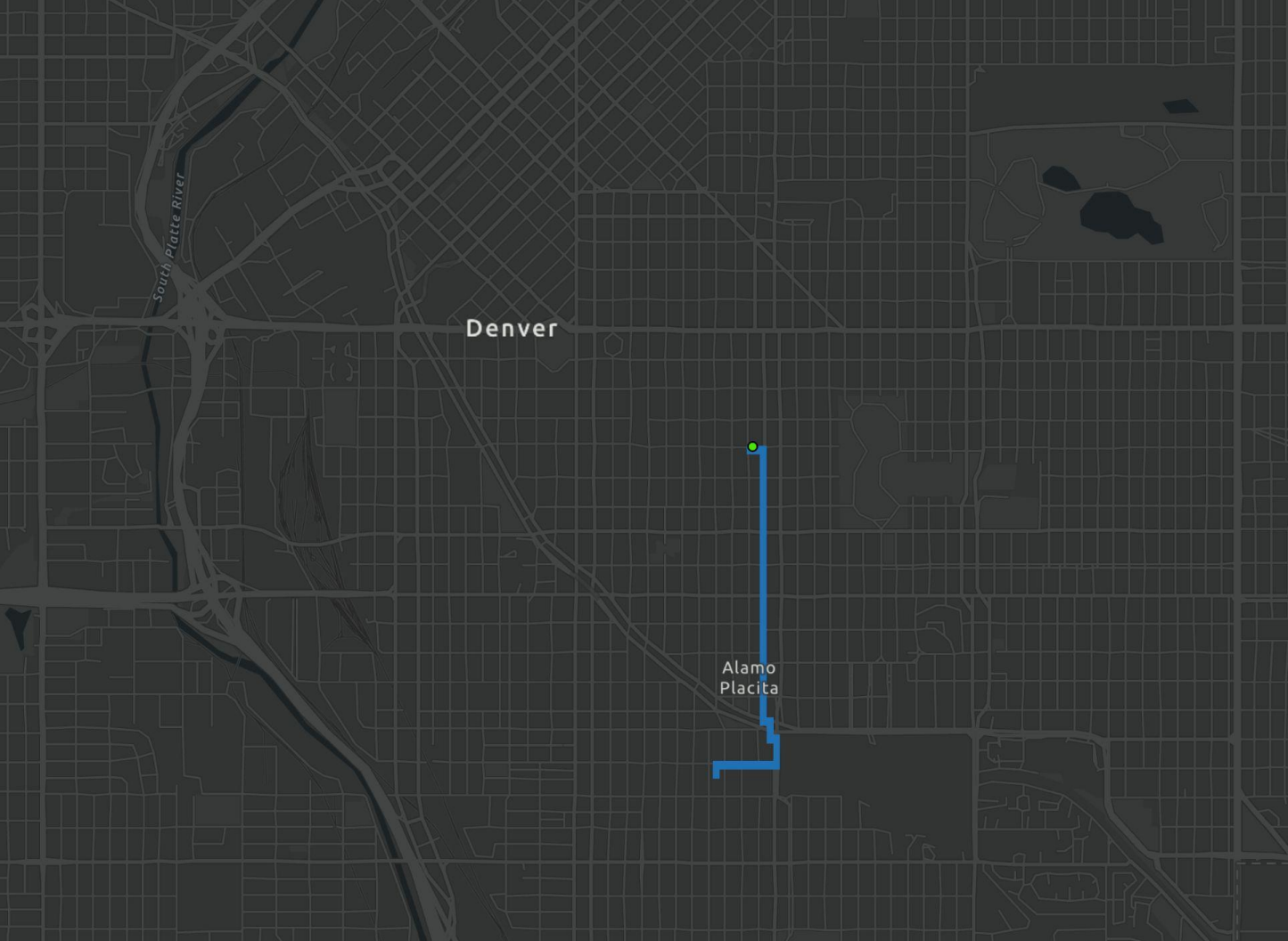


Delivery Radii Creator



Results

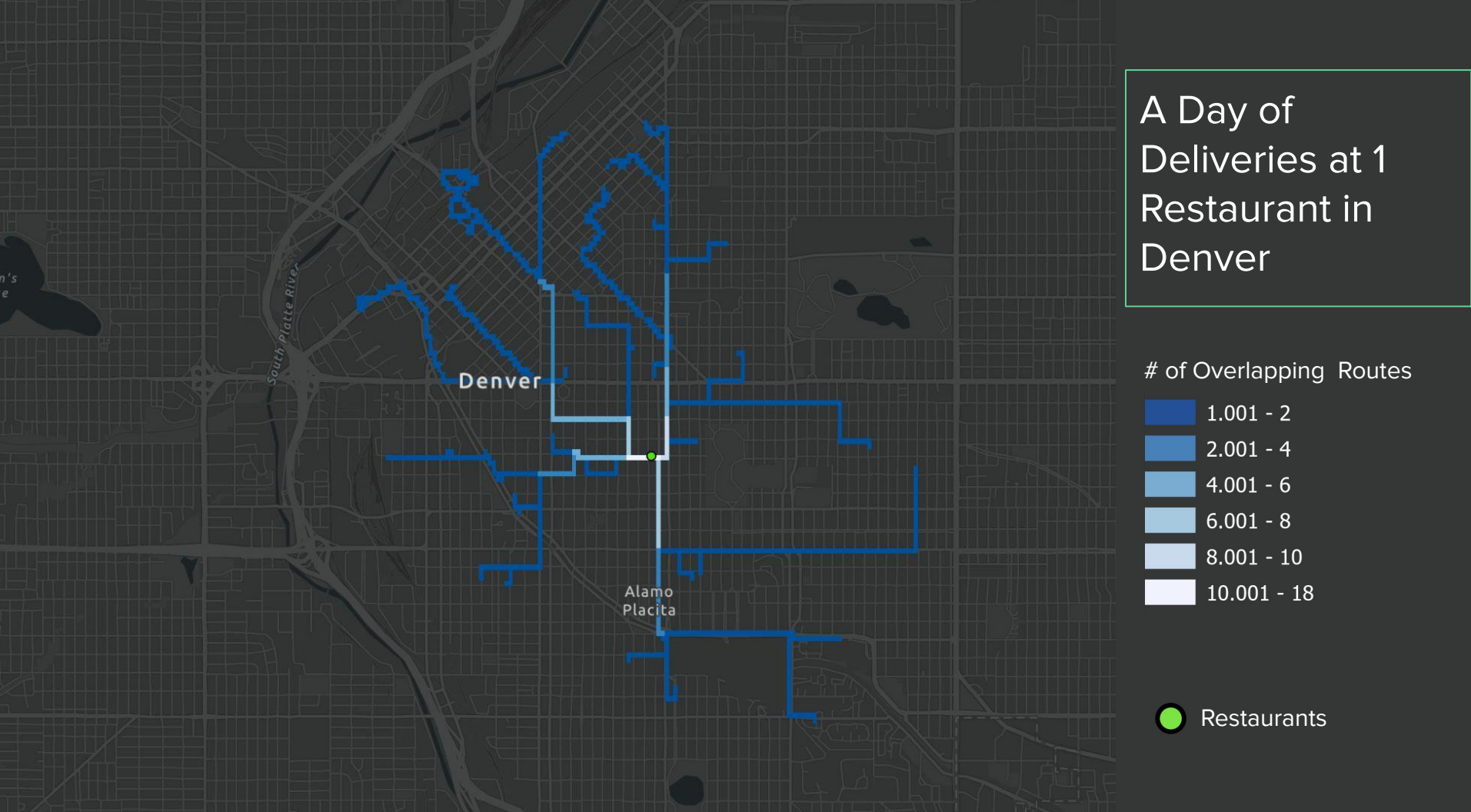
A Delivery from 1 Restaurant in Denver



 Delivery Route

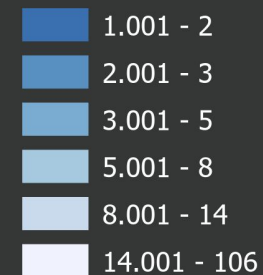
 Restaurant

A Day of Deliveries at 1 Restaurant in Denver

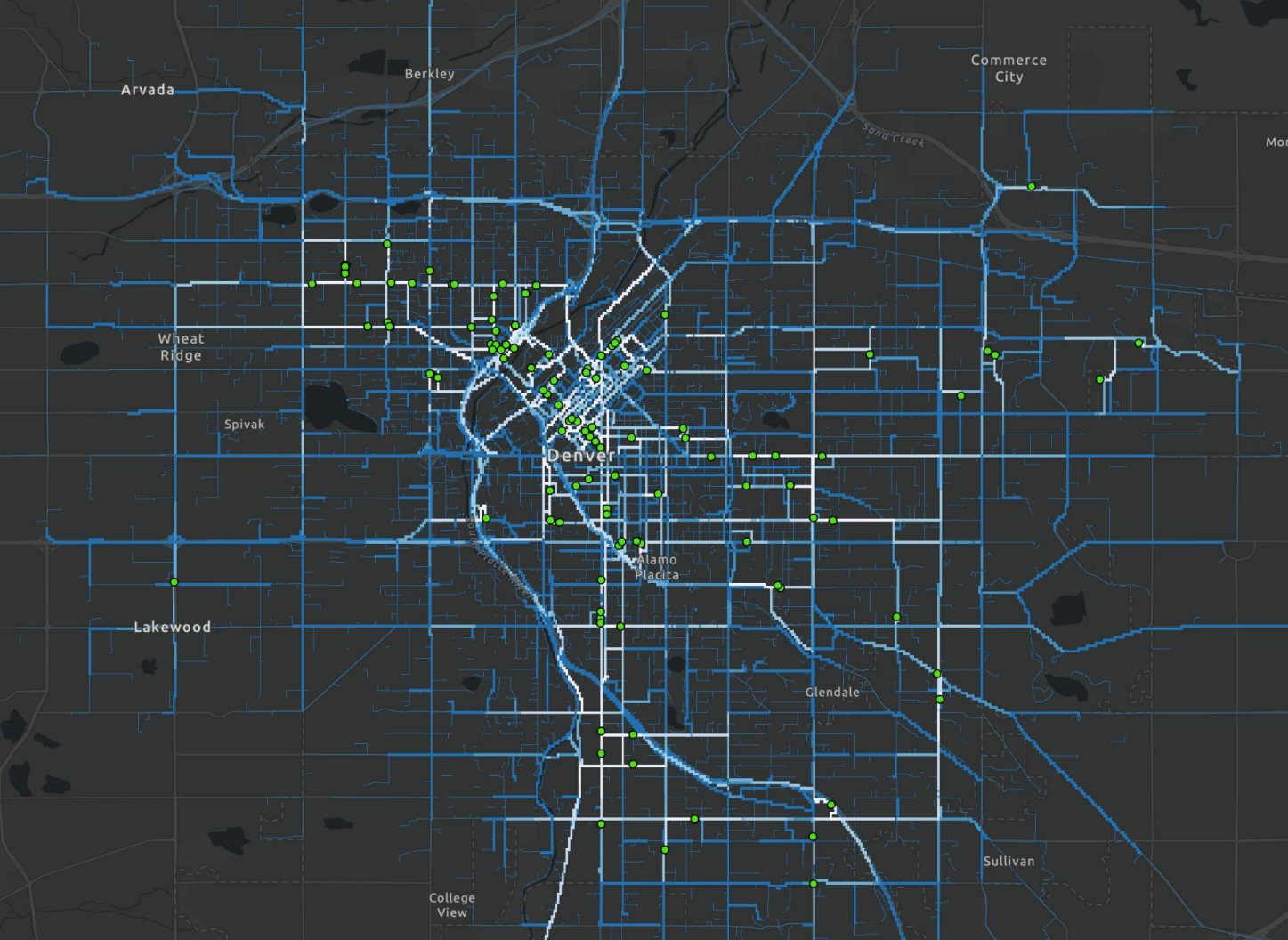


A Day of Deliveries at 126 Restaurants in Denver

of Overlapping Routes



 Restaurants



Conclusions

- We can visualize the power of these platforms in tangible way.
- We've created an initial methodology for determining how traffic is modulated across a city by these platforms.

Next Steps

- Tuning the model to more accurately reflect real life:
 - Adding Ghost Kitchens and National Chains
 - Accounting for socio-economic ordering habits
 - Driver Drift- Where drivers exist when waiting between orders
- Drilling Deeper
 - Not Just **How Much** Driving, but **Where traffic is** concentrated, and **Who** is bearing that burden.

Sources:

Doordash Inc. (2021) *Q3 2021 Financial Statements*.

https://s22.q4cdn.com/280253921/files/doc_financials/2021/q3/DASH_Q3-2021-Financials.pdf

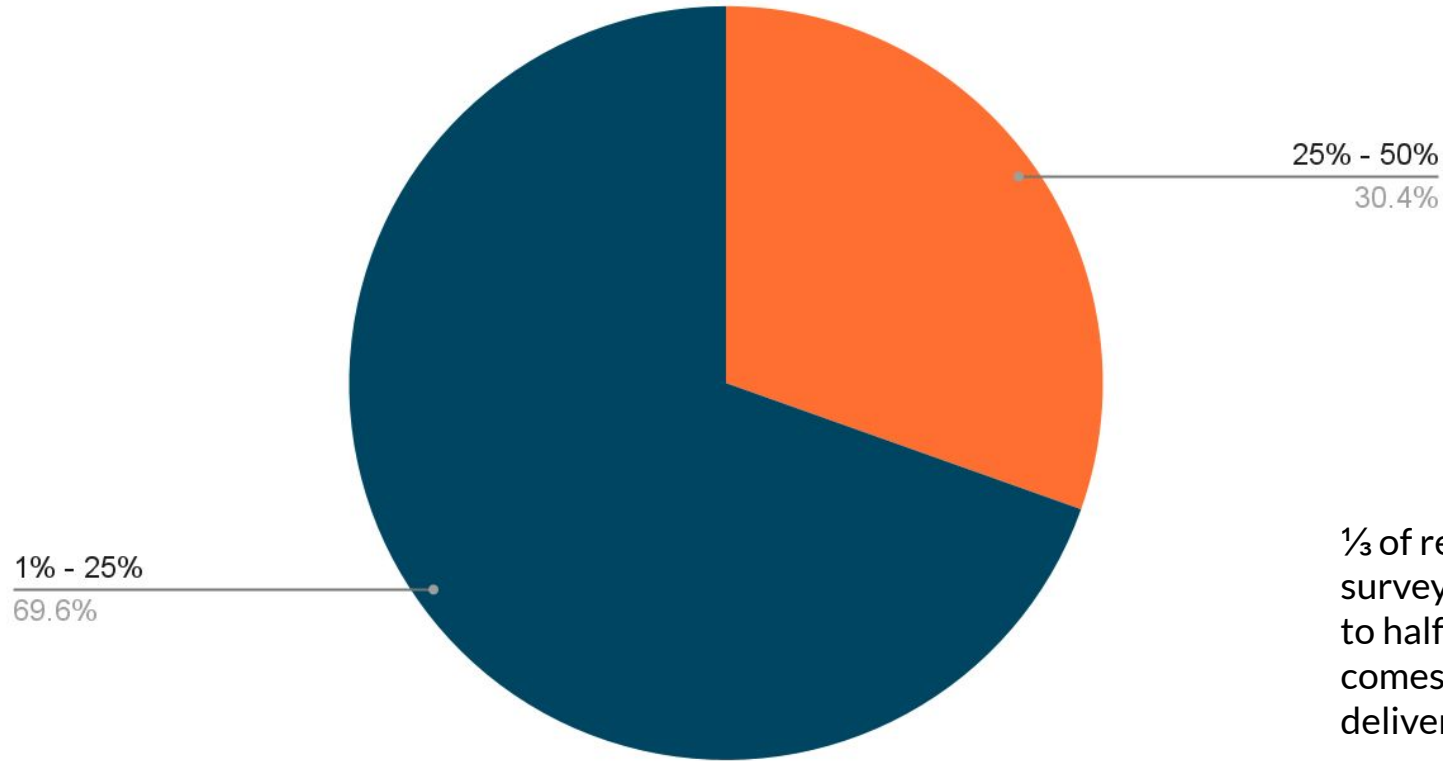
Doordash Inc. (2022) *Q3 2022 Financial Statements*.

https://s22.q4cdn.com/280253921/files/doc_financials/2022/q3/DASH-Q3-2022-Financials_FINAL.pdf

"Curry, David. "Projected Food Delivery Market Size Worldwide 2021-2024." Business of Apps, 9 Jan. 2023,

<https://www.businessofapps.com/data/food-delivery-app-market/#:~:text=Share-.Projected%20food%20delivery%20market%20size,du,e%20to%20the%20coronavirus%20pandemic>. Accessed 25 Mar. 2023.

% of Revenue Tied to Third-Party Delivery



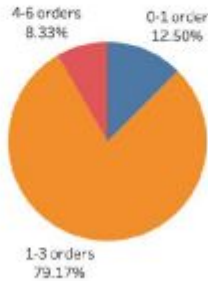
$\frac{1}{3}$ of restaurants surveyed said a quarter to half of their revenue comes from third party delivery services.

Delivery + Power

1. Do Food delivery apps put more cars on the road?
2. Do Food delivery apps divert revenue away from restaurants in the more immediate vicinity of the user?
3. Do Food Delivery Apps reduce the quality and availability of local food spaces?
4. How are the emergence of ghost kitchens influence traffic across the city
5. What does this mean for the Driver's in the cars (HQ)

Convenience

CP 2c | Times per Week Customers Order Delivery



Of the people we surveyed, ~80% said they order delivery 1-3 times a week.

