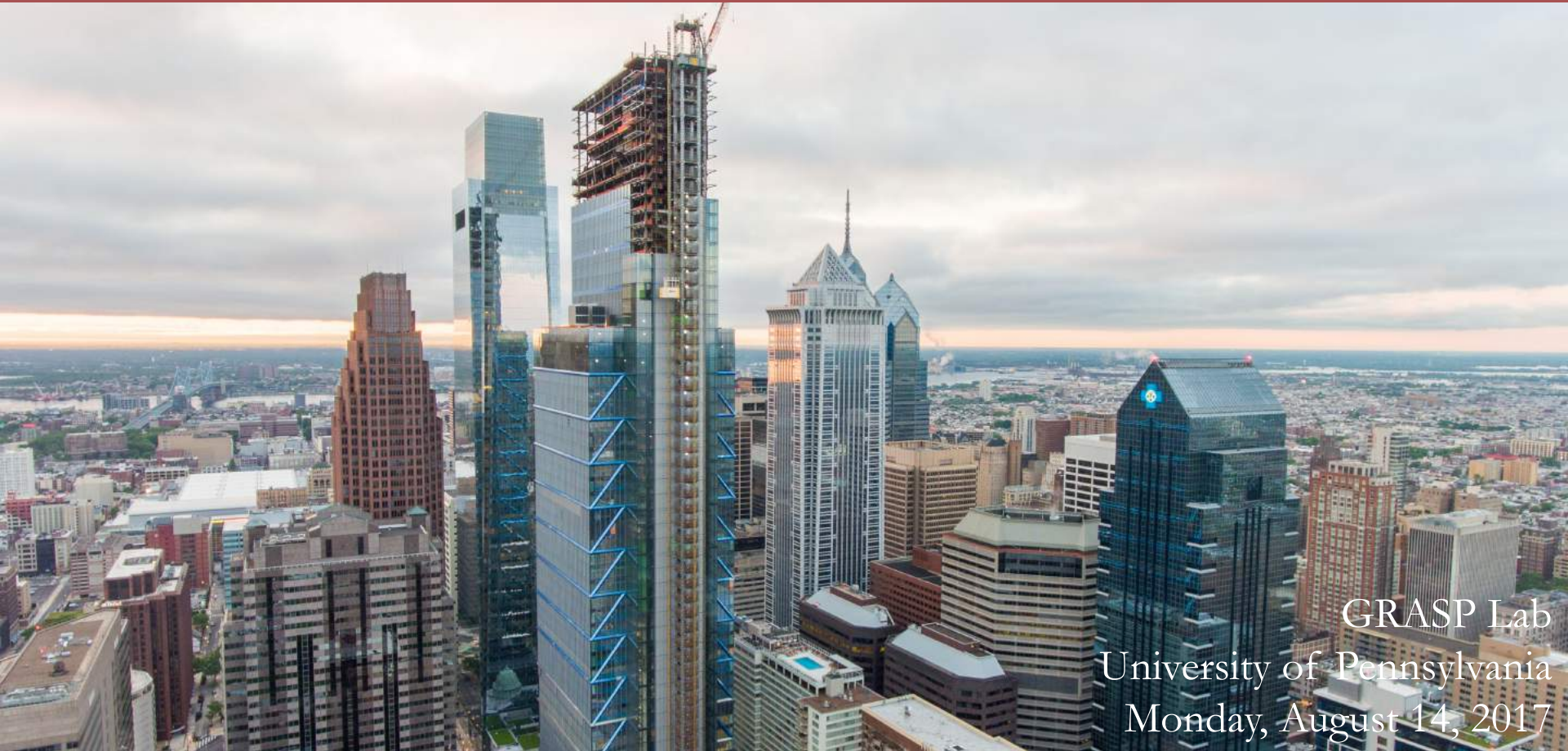


# Successful Applications of Drones to Real Estate and Its Many Challenges



GRASP Lab  
University of Pennsylvania  
Monday, August 14, 2017

Christopher Kao  
[chris@phillybydrone.com](mailto:chris@phillybydrone.com)  
(714) 855-5951



# Philly By Drone specializes in aerial real estate photography and cinematography.

## Drone Photography



## Some of Our Clients





# Philly By Drone has shot drone photography of the majority of new developments in Philadelphia.



# My involvement with drones came from years of filmmaking experience.

## Filmmaking Experience

- Grew up in Huntington Beach, California, about an hour drive from Hollywood
- Official photographer for Penn
- Directed over 50 films, including a documentary film about Philadelphia energy hub
- At Penn, have made films for Penn Admissions, Penn Masala, Penn Counterparts, Penn Dhamaka, Spring Fling, Assembly of International Students, etc.



Drone photo of Class of 2020 for Office of University Communications



Low-resolution screenshot from Penn Masala's *Nashe Si Chadh Gayi* music video





# Drone cinematography helps developers accelerate pre-leasing.

## 1213 Walnut Showroom



**Anthony Barone**

Property Manager at  
Bozzuto

“One night I left the TV on with the looping drone shots of 1213 Walnut. The next morning I had received emails from pedestrians who had walked past the showroom at night and were amazed by the aerial perspective.”



[www.vimeo.com/phillybydrone/1213-walnut](http://www.vimeo.com/phillybydrone/1213-walnut)

## This was a challenging shoot.



JeffSTAT helicopter 3 blocks away

- Notified JeffSTAT air traffic control, PHL FAA air traffic control
- Compass errors from magnetic interference of parking structure
- Intermittent GPS signal from high density of buildings



# Drone photography strengthens clients' proposals in the RFP process.

## Foster + Partners



Comcast Technology Center

- Foster + Partners is using our images for social media, website, presentations, internal material, and press stories

## HFF



Conshohocken, PA

- Brokerage firm includes our drone photos in proposals (printed book and slides)
- Recently awarded 2 projects which included our photos



# Forward-thinking developers are using drone photography for view-based pricing.

## East Market – 1199 Ludlow



**Charles  
Norman**

Development  
Manager at National  
Real Estate  
Development

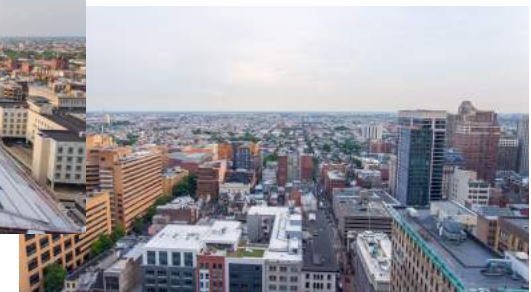
“Philly By Drone allowed us to better visualize the views from the different apartments and floors in the building. The images and videos are helping us refine our thinking on which apartments will have the most sought after views and help us arrive at a better marketing and pricing strategy.”

## Opposite Views

- East Market’s second residential tower currently under construction
- NRED team had previously underestimated how good the views to the south would be
- Drone photos helped NRED understand relationship between neighboring buildings



**Looking north at 250  
feet elevation from  
the NW corner**



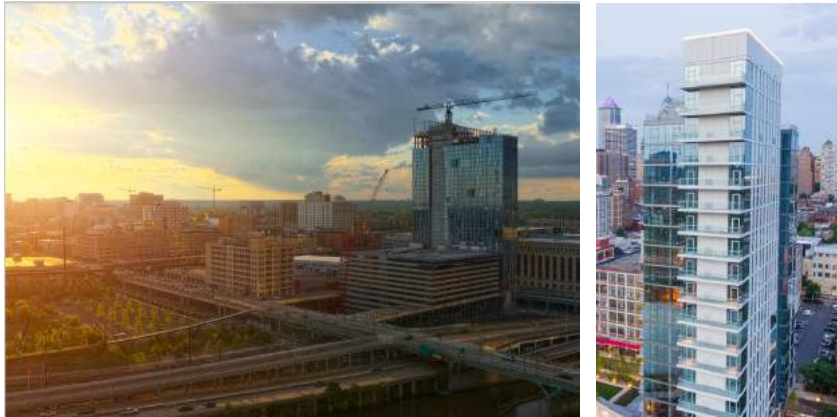
**Looking south from  
the SW corner**





# Hundreds of U.S. developments are using aerial panoramas to showcase views from specific floors before construction.

## One Riverside (Philly)



## One Riverside Showroom



**Norm Eckert**  
Senior Sales  
Associate at Dranoff  
Properties

“I literally closed 50% of my sales standing in front of this monitor (shown in picture below) with clients. And this was **before** construction had even started. They were blown away by the views of the city.

## Websites With Panoramas

[www.vistatowerchicago.com](http://www.vistatowerchicago.com)  
[www.oneriversidecondos.com](http://www.oneriversidecondos.com)  
[www.anahawardvillage.com](http://www.anahawardvillage.com)  
[www.theresidenceswaikiki.com](http://www.theresidenceswaikiki.com)  
[www.1seaport.com](http://www.1seaport.com)  
[www.one57.com](http://www.one57.com)



[www.oneriversidecondos.com/views](http://www.oneriversidecondos.com/views)





# Aerial panoramas provide the visual context that investors seek.

## Bridge on Race



**Jeff Brown**  
Partner at Brown  
Hill Development

“We’re seeing a lot of interest from foreign investors. They haven’t been to Philadelphia, and don’t fully appreciate the value of Old City’s location. We need to showcase (Bridge on Race)’s visual context.

## Schuylkill Yards



- Currently 3003 JFK is an undeveloped parking lot.
- Philly By Drone’s aerial panorama unlocks the view from the future building for investors and tenants.

[www.phillybydrone.com/panoramas/schuylkill-yards/tour.html](http://www.phillybydrone.com/panoramas/schuylkill-yards/tour.html)



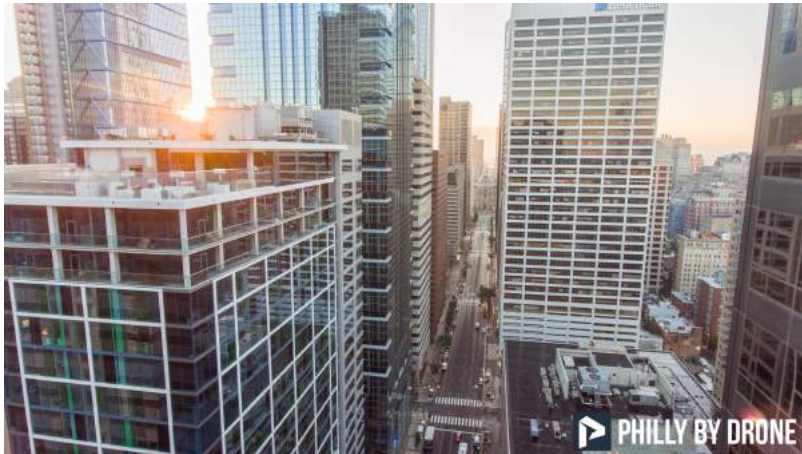
# Prospective tenants are discovering apartments through our clickable drone photos.





# Magnetic interference and weak GPS signals make flying in the city difficult.

## Magnetic Interference



1919 Market

- Drone drifts from side to side between tall buildings on Market Street
- Magnetic interference caused by the immense amounts of metal within these buildings

## Weak GPS Signals



Above 1301 Market

- Looking downwards at a parking lot which will become 1301 Market
- Could not connect to enough satellites to fly under stable GPS conditions. Drone would hover around unpredictably
- Ultimately had to go to top of parking structure 2 blocks away to fly in



# Estimation of distance from drone to objects is very difficult.

## Ex. 1: Crossing a River



Schuylkill River East Bank

- I am standing on one end of the river; I want to fly the drone to the other end
- It is very difficult to tell when the drone is about to crash into the trees.
- As a result, I have to play it safe and fly the drone around 2/3rds across the river; I don't get the best angle photo

## Ex. 2: Flying above Water



Photo taken by drone in Conshohocken, PA

- I am always very nervous when flying over water.
- By definition, water level will always be lower than pilot's point of reference.
- Hence you cannot tell how close drone is getting to the water.





# Conclusion

- Talked about successful uses of drones in real estate, and challenges of flying in the city and near water.
- Slides can be downloaded to the right.



## Contact

Christopher Kao  
chris@phillybydrone.com  
[www.phillybydrone.com](http://www.phillybydrone.com)  
(714) 855-5951

## Download Slides

[www.phillybydrone.com/grasp-lab-talk.pdf](http://www.phillybydrone.com/grasp-lab-talk.pdf)

