

# UNRAVELING THE MAGIC

## Houdini Mastery for Mesmerizing Earth City Lights



### INTRODUCTION

Step inside a real production workflow where data transforms into art. In this hands-on Houdini course, you'll turn real-world coordinates into living, breathing city lights - merging technical mastery with cinematic storytelling.

Guided by studio professionals, you'll work through a production-style project that shows not just how to build complex systems, but why they work.

By the end, you'll understand how to make information glow - visually, emotionally, and artistically.

### WHAT YOU WILL LEARN:

- Access and convert real-world data into 3D coordinates;
- Design procedural attributes to drive light and motion;
- Translate, animate, and color data for cinematic presentation;
- Apply attribute logic used daily in real studio pipelines

Difficulty Level: *Advanced*

Requirements: *Houdini*

Duration: *3 days*

Material Included: *CSV File*

# COURSE STRUCTURE



## ○ ACCESS AND READ CSV FILES

Read our CSV data inside Houdini

city	city_ascii	lat	lng	country	iso2	iso3	admin_na	capital	population	id
Tokyo	Tokyo	35.6897	139.6922	Japan	JP	JPN	TŌkyō	primary	37732000	1.39E+09
Jakarta	Jakarta	-6.175	106.8275	Indonesia	ID	IDN	Jakarta	primary	33756000	1.36E+09
Delhi	Delhi	28.61	77.23	India	IN	IND	Delhi	admin	32226000	1.36E+09
Guangzho	Guangzho	23.13	113.26	China	CN	CHN	Guangdong	admin	26940000	1.16E+09
Mumbai	Mumbai	19.0761	72.8775	India	IN	IND	Mahārāṣṭra	admin	24973000	1.36E+09
Manila	Manila	14.5958	120.9772	Philippine	PH	PHL	Manila	primary	24922000	1.61E+09
Shanghai	Shanghai	31.1667	121.4667	China	CN	CHN	Shanghai	admin	24073000	1.16E+09
Sŀo Paulo	Sao Paulo	-23.55	-46.6333	Brazil	BR	BRA	Sŀo Paulo	admin	23086000	1.08E+09
Seoul	Seoul	37.56	126.99	South Kor	KR	KOR	Seoul	primary	23016000	1.41E+09
Mexico Ci	Mexico Ci	19.4333	-99.1333	Mexico	MX	MEX	Ciudad de	primary	21804000	1.48E+09
Cairo	Cairo	30.0444	31.2358	Egypt	EG	EGY	Al Qŀhira	primary	20296000	1.82E+09

## ○ CREATING ATTRIBUTES

Going through the power of attributes in Houdini.

## ○ CONVERTING GEOGRAPHIC TO CARTESIAN COORDINATES

Transform our data into visual magic.

```

VEXpression
float x = cos(radians(f@Lat_Index)) * cos(radians(f@Lon_Index)) * @radius;
float y = cos(radians(f@Lat_Index)) * sin(radians(f@Lon_Index)) * @radius;
float z = sin(radians(f@Lat_Index)) * @radius;
  
```

## ○ TRANSLATE POINTS

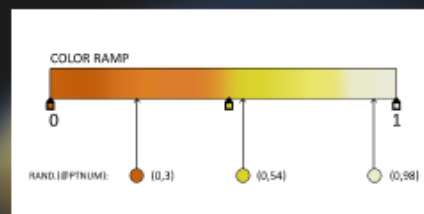
Learn to animate your data in 3D space.

## ○ CREATING THE WORLD

Construct your procedural Earth model and sync it with your data points.

## ○ ADAPTING LIGHT AND COLOR

Visualize population through data-driven design.



## ○ BONUS

After rendering, composite your result in Nuke to achieve a stunning final look.

[CLICK TO SEE THE  
FINAL RESULT](#)