
# Esri CityEngine & Minecraft

## - Engaging Citizens in 3D City Planning -

# Brought to you by:


## Brian de Vogel

- VU Amsterdam -



## Safe Software

- Makers of FME -


A 10 Year Old
City Planner?

# Seeing the Value:

Source: http://blockbyblock.org/

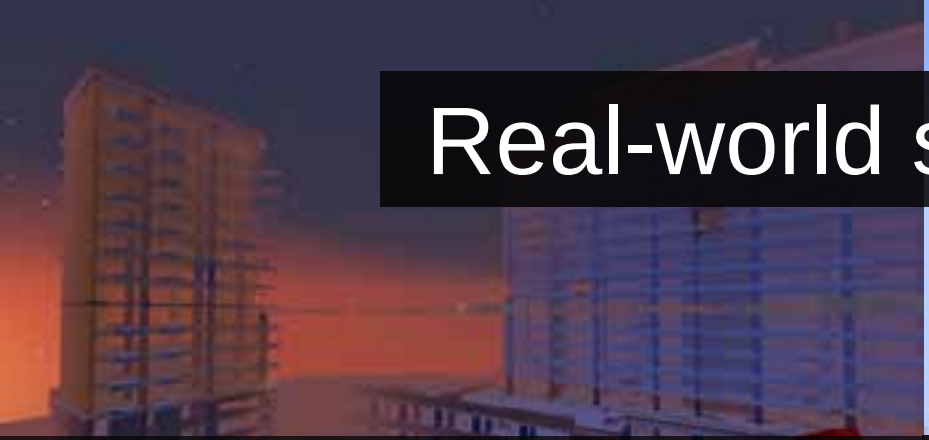

“Block by Block involves young people in the planning of urban public spaces. Minecraft has turned out to be the perfect tool to facilitate this process.”

BLOCK BY BLOCK


Complex worlds dreamed up by kids and created in Minecraft.

Source: Ulf Masson (SWECO)

# Real-world scenarios

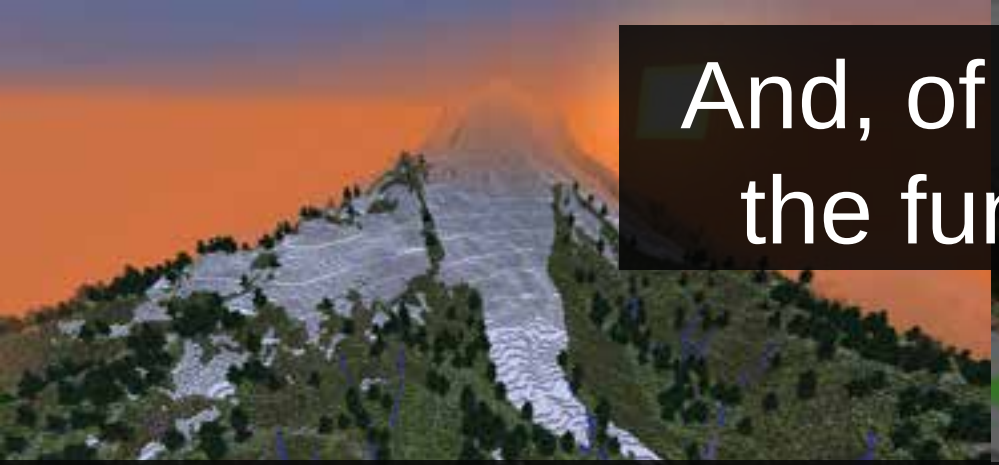


My town - its current look, what if we build/destroy

Lava flow (ie. Hypothetical Mount Rainier eruption)

Forest fire (ie. Stanley Park)

Sea levels raising



# And, of course, the fun stuff

Roller coasters in nature

Maze Generating

Racing across Toronto streets

Living in a new world

# How we can share our worlds with theirs.

How 2D data can be leveraged in 3D with Esri CityEngine.

# Project Vision:

Leverage Esri CityEngine and Minecraft to increase citizen engagement in neighborhood design & planning in the Netherlands.

# Source Materials

Result

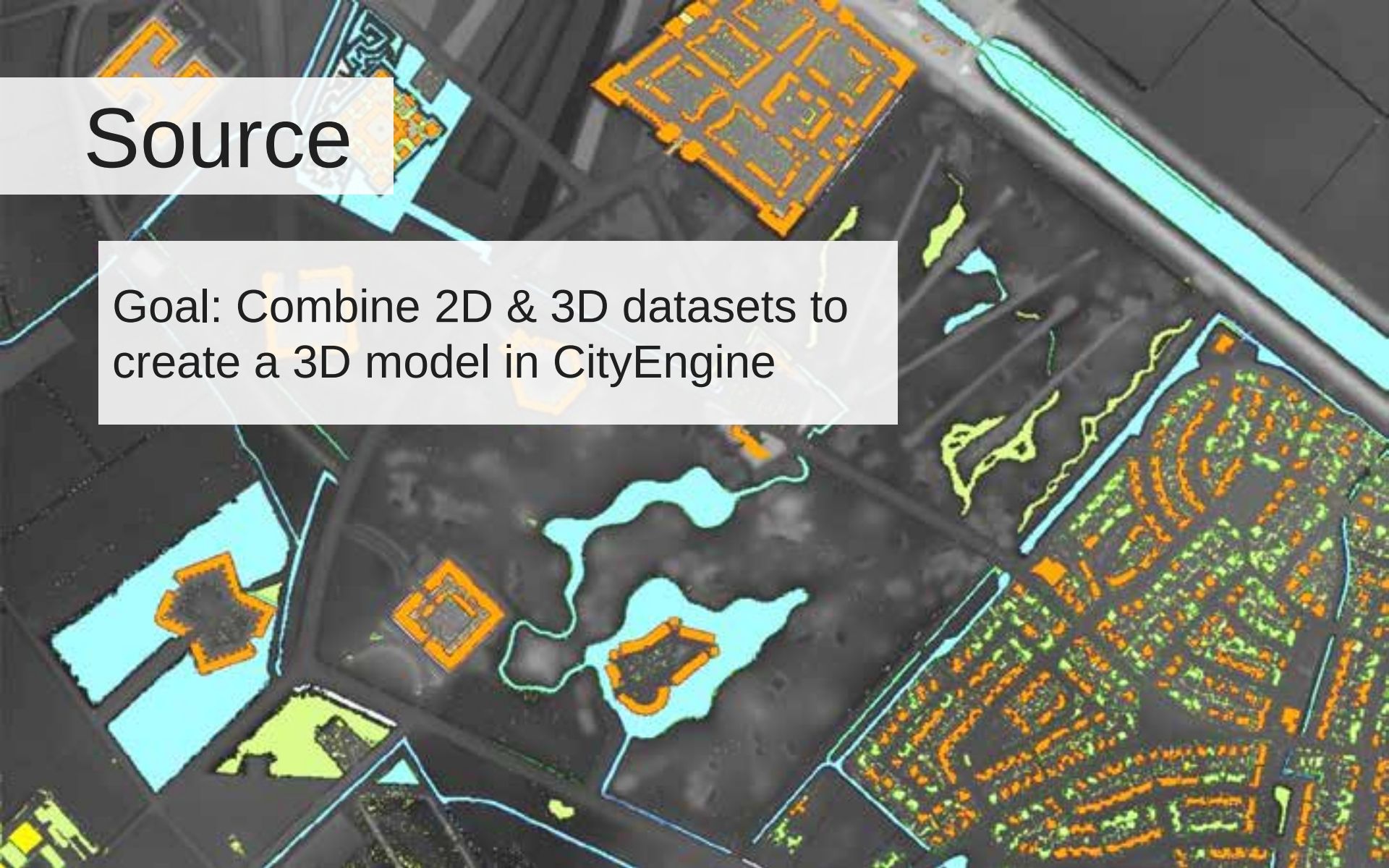
# GIS and CityEngine to Minecraft

Andrés Nieto Porras

CityEngine is a great tool for transforming data into a realistic city model, which can then be adjusted according to further needs.

# Source

Goal: Combine 2D & 3D datasets to create a 3D model in CityEngine



# City Engine Results

## Output (for professionals)

CGA rules

```
version "2011.1"

attr HGT = 0
attr opacitytwit=1
attr opacityshape=0.6


##to use for a colorramp
#attr maxHGT= 1000
#attr min = 0
#@Range(0,1)
#attr colorValue = 1
#attr x_norm =1 / (maxHGT - min) * (maxHGT - min)


Lot -->


        ##use colorRamp
        #extrude (HGT)
        #color (colorRamp("brownToBlue",x_norm))
        #set (material.opacity, opacity)
        #Volume.


        case  HGT < 5 :
        extrude (10)color ("#CACACA")
        set (material.opacity, opacityshape)
        Volume.

        case  HGT < 100 :
        extrude (HGT)color ("#CACACA")
        set (material.opacity, opacityshape)
        Volume.

        else :
        extrude (HGT)color ("#CACACA")
        set (material.opacity, opacity)
        Volume.
```

# City Engine Results

The GIS output becomes a canvas of the city in Minecraft, which then offers a gaming style geo design tool that citizens and their children can interact with.

# Appeal to a wider audience

**3 Keys:**

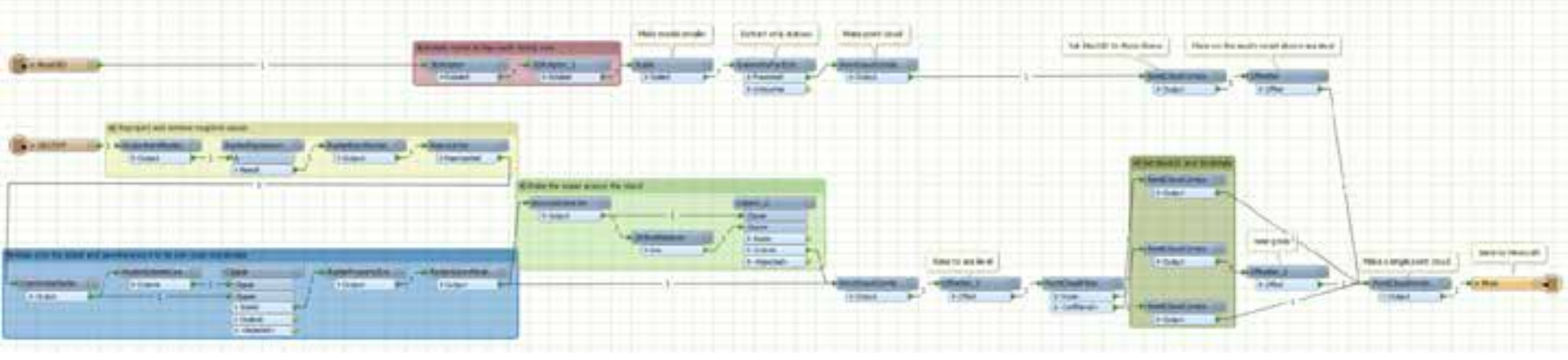
Make it **easy.**
Make it **cheap.**
Make it **fun.**

# How it’s done

- Create CGA Rules to Create a 3D World
- Classify created 3D objects in CityEngine
- Set block ids from 3D Object classification on way to Minecraft

# The path from CityEngine to Minecraft

- Export the model to a 3D format for further work in FME (Esri Data Interoperability Extension)
- CityEngine rules for can prepare for conversion to Minecraft
- Data Interop / FME Workbench creates the transformation to Minecraft



# Project Summary

CityEngine is a powerful tool for combining 2D & 3D datasets. The 3D model output is realistic and puts the data in a perfect position to be converted to Minecraft.

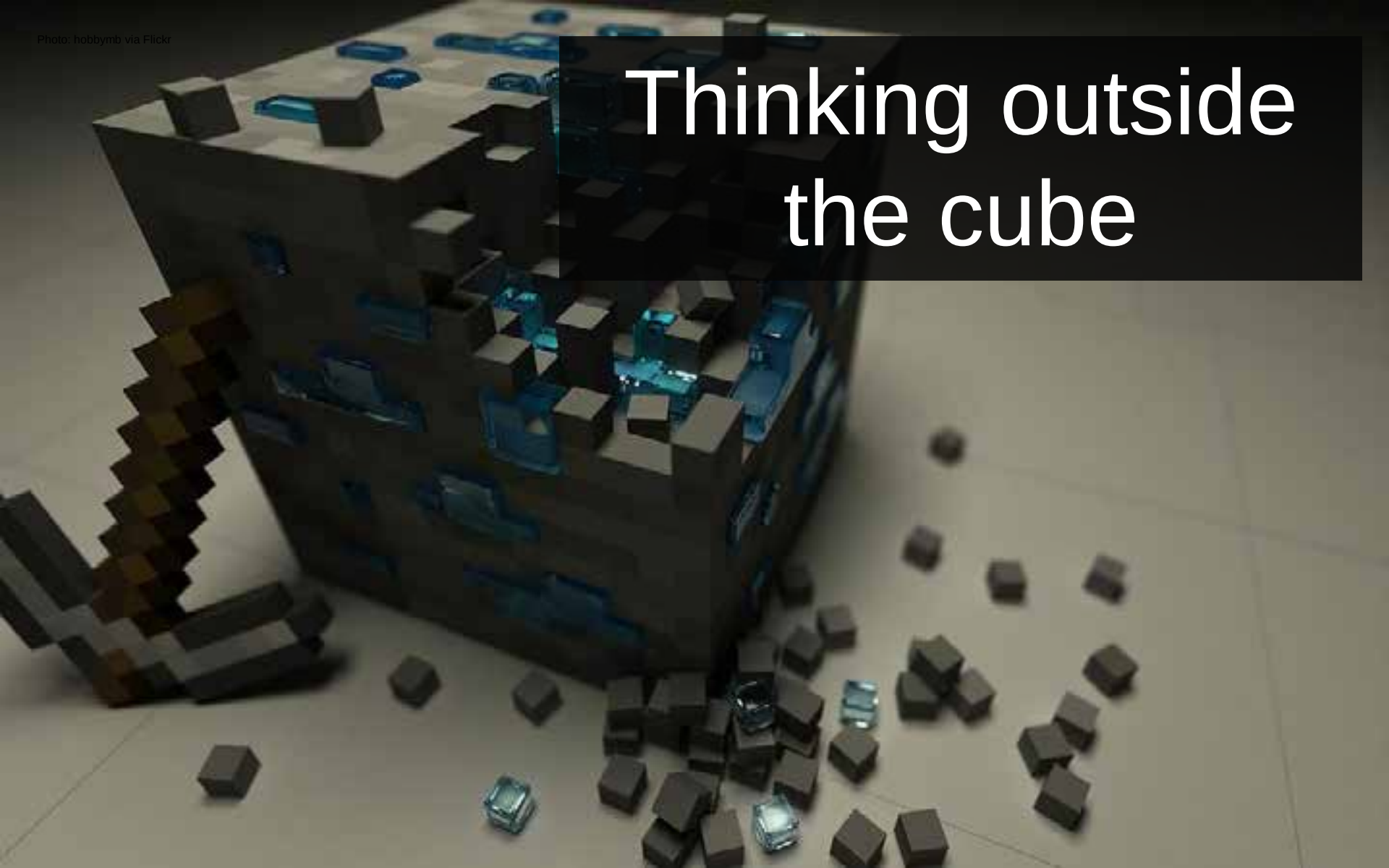
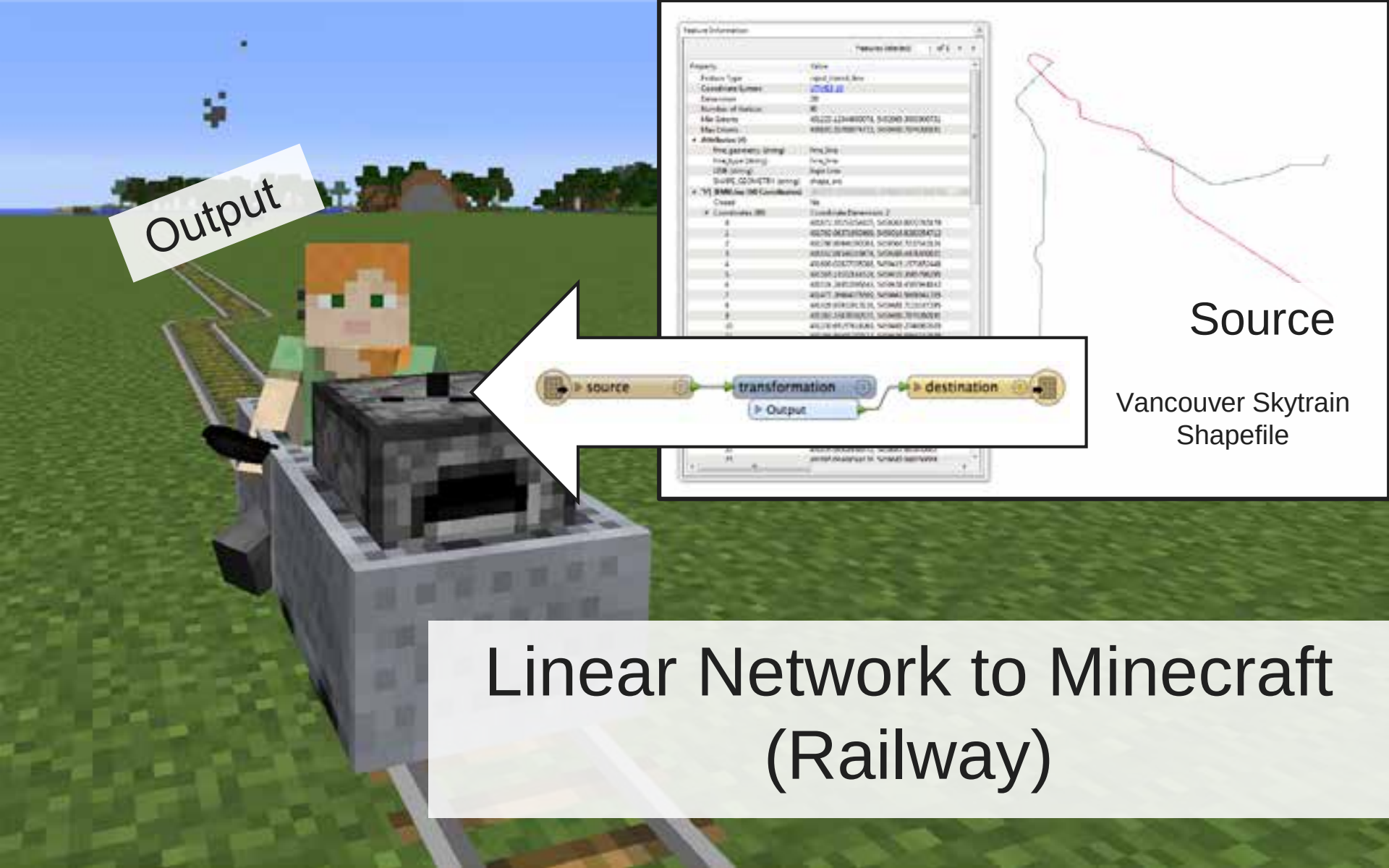


Photo: hobbymb via Flickr
Thinking outside the cube


source
transformation
destination
Output

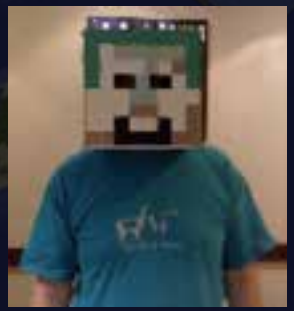



# Linear Network to Minecraft (Railway)


BIM to Minecraft
is fun and easy!
Photo: hobbymb via Flickr

Input (IFC)

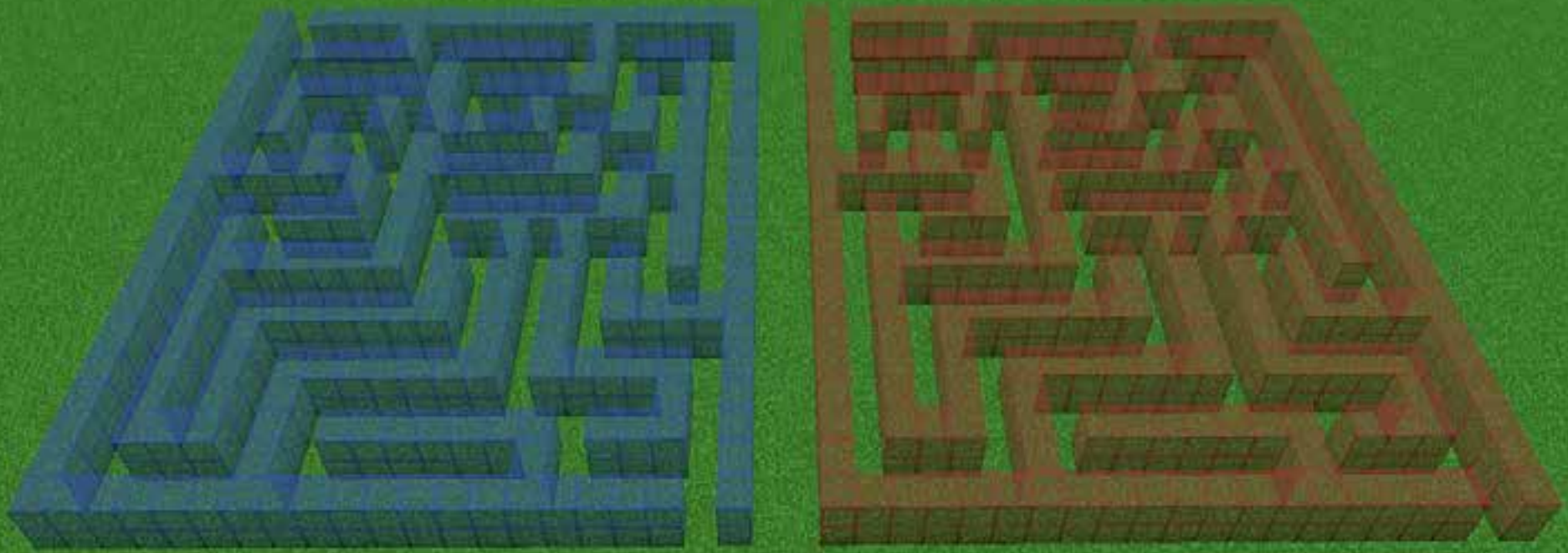

Output



- Map IFC objects to Minecraft block types
- Convert each IFC object to Point Cloud
- Consider scaling depending on use case
- Watch x/y/z position for multiple building worlds

# Maze Runner Generator

fme.ly/MazeGenerator



# How to Make Minecraft Worlds

fme.ly/MinecraftWorlds

# Thank you!

www.safe.com