



**COBURG  
UNIVERSITY**

of applied sciences and arts

# Vista and Vortex: EarthSync

Real-Time Simulation of Environmental Data as Part of the 3D Data Visualization Course

Prof. Dr.–Ing Carolin Helbig

Group Nr. 2 (a. k. a. TriDimensional)

Adrian Häfner | Maximilian Heß | Seyedmasih Tabaei

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**Great things in business are never done by one person;  
they're done by a team of people.**

Steve Jobs

# EarthSync Architects: Team Members



Adrian Häfner  
Visual Computing Student

Unity  
API Management  
Data Pre-Processing



Maximilian Heß (a. k. a. Max)  
Visual Computing Student

Unity  
3D-Modelling  
Data Gathering



Seyedmasih Tabaei (a. k. a. Masih)  
Computer Science Student

Unity (VR)  
Software Architecture  
Git Maintenance

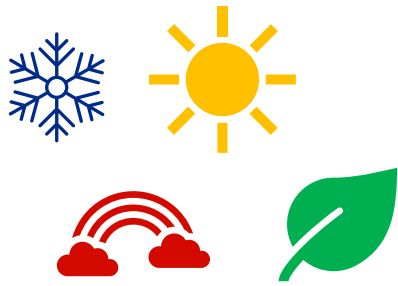




**He who has a 'why' to live for can bear with almost any 'how'.**

Friedrich Nietzsche

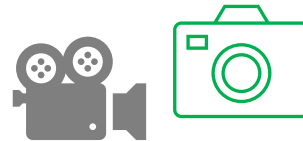
# Unveiling EarthSync: A Real-Time Environmental Odyssey - 0



A Real-time visualization of climate data  
with an option for inspecting future  
scenarios



A 3D scene (Vista) and an  
immersive scene (Vortex)



Both First-person and bird's-eye  
views



Three different city districts in Coburg (UAS  
Coburg, Veste Coburg and Coburger Marktplatz)



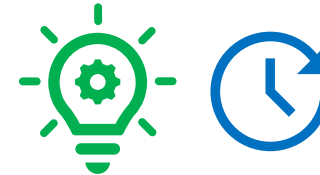
# Unveiling EarthSync: A Real-Time Environmental Odyssey - 1



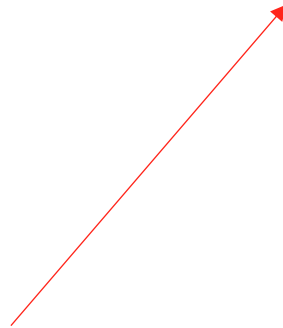
Proof of concept for the use of digital twins in Coburg



More insights from environmental data  
visualized in a 3D-scene



Assisting by taking **futuristic** and **sustainable**  
decisions for city





**A good tool improves the way you work. A great tool improves the way you think.**

Jeff Duntemann

# Building Blocks of EarthSync: Tech Stack



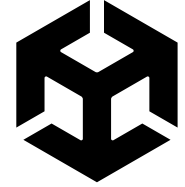
Git



Google Earth



Blender



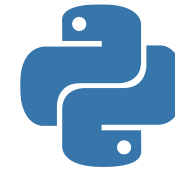
Unity 3D



GitHub



OpenStreetMap



Python 3

Source: <https://simpleicons.org/>

And many more ...







**The moon is the first milestone on the road to the stars.**

Arthur C. Clarke

# EarthSync Evolution: Key Milestones

- 1 Procedural Generation of Desired 3D Environments
- 2 Data Gathering, Aggregation and Synchronization
- 3 Visualizing Data in the 3D Environments



Testing and documenting are both integrated in each step of development!

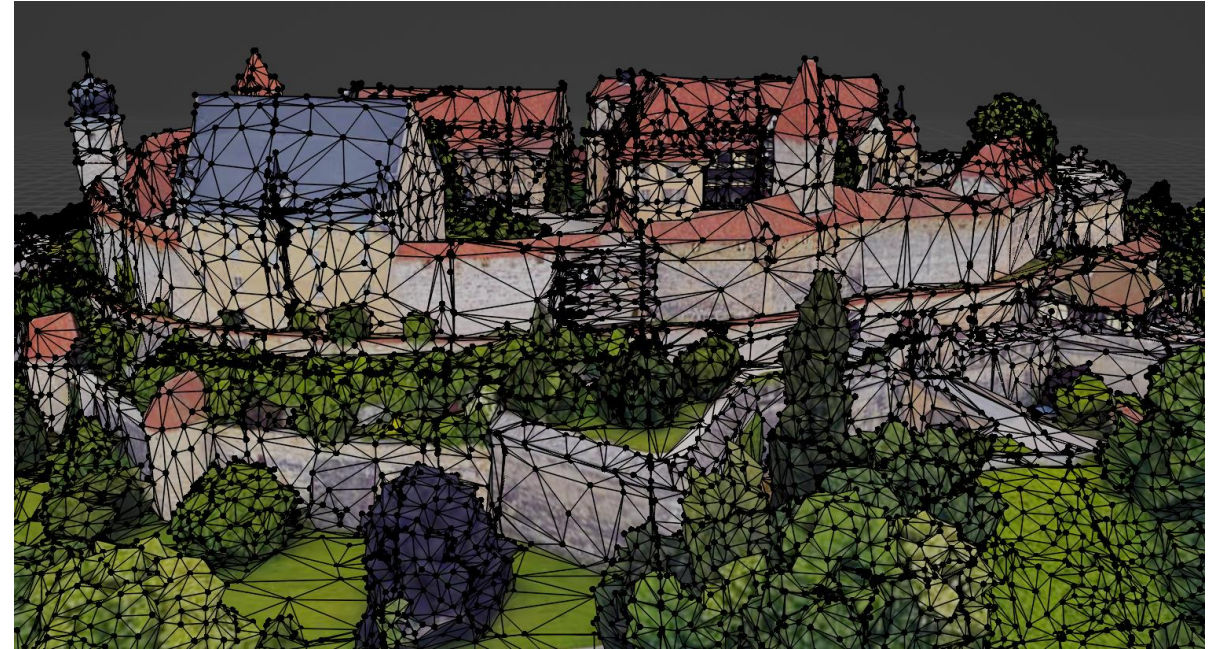


# First Steps: Procedural 3D Environment Generation - 0





# First Steps: Procedural 3D Environment Generation - 1





# Echoes of EarthSync

Your Questions and Reflections



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Thank you for syncing with EarthSync!

*[www.hs-coburg.de](http://www.hs-coburg.de)*