

# Sean Henry Lewis

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## EDUCATION

### Bachelor of Science, Mathematics

University of Texas at Austin

May 2024 (Expected)

Awards: Merner Scholarship, HSF Scholarship

## WORK EXPERIENCE

### University of Texas at Austin - Austin, Texas

August 2022 - Present

Good Systems Smart City Researcher under Dr. Junfeng Jiao

- Lead developer of \$100,000 CoA×UT Grant for Multilingual AI-Assisted Emergency Preparedness
- Solo lead and developer of several research projects (ex. OpenCityAI, SmartCityData, etc.)
- Built full-stack interfaces and applications for the Urban Information Lab
- Innovated urban informatic solutions with the forefront of technology: AI, ML, NLP

### Aspen Games - Austin, Texas

February 2023 - Present

Lead Developer

- Founded a not-for-profit startup for creating ecocentric games
- Developed and launched Patchwork Beast, the startup's flagship game, on Steam
- Presented at UT Austin Digital Demo Day 2023 and EGaDS' GDC<sup>2</sup> 2024

### University of Texas at Austin - Austin, Texas

June 2022 - August 2022

UTCS Program Assistant

- Tutored Swift through Xcode to effectively design and develop apps for iOS
- Taught C++ & PID with Arduino to program a robot to navigate autonomously in the real world
- Trained others in using HTML & JavaScript with Phaser to create deployable web games

## PROJECTS

### [OpenCityAI](#) (Python/HTML/CSS/JS, Solo)

January 2023 - Present

- Developed and launched AI chat model on United States open city data
- Utilized PyTorch and Tensorflow to train a large language model on city datasets, optimized for question answering using SQuAD2.0
- Validated against current AI solutions, outperforms Google Bard and Microsoft Bing
- Trained on more than 200,000 datasets from 200+ cities

### [DataPoweredAI](#) (Python/HTML/CSS/JS, Solo)

January 2023 - Present

- Built GAI system designed to generate personalized AI models for public
- Simplified AI training- just upload data, democratizing AI accessibility

### [AuditoryAR](#) (Python/HTML/CSS/JS, Solo)

March 2023 - Present

- Built AR application for the hard-of-hearing which displays 3D text near the source of a sound
- Used natural language processing to analyze audio and then geospatially place it

### [TrafficEMS](#) (Python/HTML/CSS/JS, Solo)

January 2023

- Created framework for scraping open traffic cameras data feeds for ML traffic analysis and GIS to optimize routing of EMS vehicles
- Created GIS routing web app which calculates optimal route with weight-based pathing

### [SmartCityData](#) (Python/HTML/CSS/JS, Solo)

September 2022 - March 2023

- Centralized city data in an advanced search engine + API, with live updating for each city
- Created easy-to-use automatic in-browser preview system for visualizing data
- Custom-built web querying apps for data, displayed with pandas and Flask

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## Warehouse Transport (Python/HTML/CSS/JS, Solo)

August 2022 - December 2022

- Created GIS routing web application which calculates and displays CO2 emission and transport time of delivery trucks versus autonomous delivery robots over any given route
- Made Python API to handle various route, vehicle configurations, optimize distances, throughputs for visual delivery and comparison
- Extended OSRM routing engine, implementing predictions, scalable inputs

## Patchwork Beast (GDScript, Team)

January 2023 - Present

- Developed a 2D top-down game about environmental destruction due to industrialization
- Published on Steam, integrated Steam Cloud and achievement support within the game

## RPG Wurdle (GDScript, Solo)

May 2022

- Developed and published a mobile game on the Google Play Store & Amazon Appstore
- Implemented custom achievements, database, and Play Games support within the app

## Various Websites (HTML/CSS/JS, Solo)

November 2017 - Present

- Constructed various websites using HTML & CSS, deployed using Google Firebase
- Maintainer of OpenCityAI, SmartCityData, Warehouse Transport and other UT affiliated sites

## Various Games (Python/C#/GDScript/C++, Solo)

August 2017 - Present

- Full cycle developed various games on Github, Google Play, Amazon, Steam, etc.
- Implemented UI, enemy AI, occlusion culling, procedural generation, navigation, animations, etc.

## SKILLS

Green: 5+ Years, Orange: 3+ Years, Red: 1+ Year

JavaScript & TypeScript  
English and Spanish Fluency  
SQL

Python & Flask/Django  
C# & C++  
Swift

HTML & CSS  
Java  
Kotlin

## TOOLS

Linux  
Visual Studio  
Google Firebase

Git  
Android Studio  
PyTorch/TensorFlow

Godot/Unity/UE4  
Docker  
Octave

## RELEVANT COURSEWORK

Engineering Computation  
Physics and Mechanics

Software Design  
Multivariable Calculus

Computer Science  
Linear Algebra

## TALKS AND PUBLICATIONS

### "Using Generative AI for Digital Planning" (Preprint)

April 2024

*Computers, Environment and Urban Systems*

### "Digital Planning for Sustainable Urban Future"

January 2024

*Utrecht University, Netherlands*

### "AI-Powered Insights: Extracting Value from Complex Data Ecosystems"

August 2023

*Smart Cities and Generative AI Symposium (Texas Advanced Computing Center)*

## LEADERSHIP EXPERIENCE & ORGANIZATIONS

### Eagle Scout

March 2020

- Constructed an animal habitation for the Texas Wildlife Rehabilitation Council
- Led more than a dozen scouts to complete my project

### Mental Health Awareness Advisor, Memorial High School

August 2019 - May 2020

- Organized mental health discussions, facilitated awareness and issue advocacy