RYAN HARDESTY LEWIS

Austin, TX 78712
rhl@utexas.edu | linkedin.com/in/ryanhardestylewis | ryanhardestylewis.com

EDUCATION

The University of Texas at Austin, Austin, TX — August 2021 - May 2023
Bachelor of Science in Mathematics, Certificate Elements of Computing, Certificate Computational Science and Engineering
Cumulative GPA: 4.0

Relevant Coursework: Software Design, Mobile Computing, Databases, Vector Calculus, Linear Algebra, Modern Geometry, Probability and Statistics, Numerical Methods, Partial Differential Equations

WORK EXPERIENCE

Good Systems, University of Texas at Austin — May 2022 - Present
Undergraduate Research Assistant
- Developed machine-learning algorithms to predict city development
- Implemented dispersion models for real-time fire tracking map

Tubular.network, Startup — August 2022 - December 2022
Research Intern
- Developed large-scale logistics platform and data visualization system
- Created multiple demos and deliverables for partners including USDOT

Department of Computer Science, University of Texas at Austin — June 2022 - July 2022
Summer Academy Program Assistant
- Helped teach over 50 students in creating Java applications
- Assisted students in low-level animation, GUI, and data visualization

iD Tech, Remote — April 2022 - August 2022
Private Instructor
- Taught curriculum on programming and math to kids 10-17 years old
- Lectured on 10+ programming languages and software like Blender and Unity

AWARDS

College: College Scholar, Dell Scholar, Good Systems Fellowship Recipient, UGS Dean's List x2, Second-Year Excellence Award
High School: Eagle Scout, Magna Cum Laude, National Merit Scholar, AP Scholar with Distinction

SKILLS

Programming Languages: C#, Python, Java, HTML, CSS, JavaScript, Bash, C++, SQL, Kotlin, XML, Ruby
Tools: Linux, Git, Unity, Photoshop, Blender, Visual Studio, Unreal Engine, Android Studio, Docker, Heroku, Firebase, AWS, Ruby on Rails, PyTorch, WebRTC, CUDA, TensorFlow
Languages: English, Spanish
Green: 5+ Years, Orange: 3+ Years, Red: 1+ Year

RESEARCH PROJECTS

Houston Food Deserts — March 2023 - Present
Developer: A blockchain-based food charity marketplace, advised by Dr. Ioannis Kakadiaris — *Python, JS*
- With University of Houston, developed principal technology for $750,000 NSF grant
- Developed a ML model for automated food distribution to alleviate food deserts, with a dashboard, trade system, and inventories using blockchain

Fire and Smoke Digital Twin — July 2022 - Present
Developer: A 2D and 3D live fire map of national cities, advised by Dr. Junfeng Jiao — *Python, JS*
- Worked with City of Austin Fire Dept., winning $150,000 grant entirely due to my work
- Standardized format and API for 20+ fire departments, geolocated 20,000+ fires

- Generated live in-browser potential smoke paths using 3D housing geometry and fluid simulations in a novel workflow, publishing two papers

ComputeGPT March 2023
Developer: A large language model for computational tasks, advised by Dr. Junfeng Jiao *Python, C++*
- Deployed state-of-the-art model for numerical answers, publishing one paper
- Built out web, mobile app, competitive on GRE, SAT, outperforming Wolfram NLP

Warehouse Transportation August 2022 - December 2022
Developer: A logistics and transportation website, advised by Dr. Junfeng Jiao *Python, JS*
- 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

Ethical Games in Machine Learning January 2022 - July 2022
Developer: Research in ethical game-oriented AI, advised by Dr. Sam Baker *Python*
- Researched how situations can be gamified for machines to interpret, specifically Google's Mu-Zero, culminating in a fifteen-page paper
- Developed an "ethical ML" algorithm based on Mu-Zero, which employed different ethical strategies when playing Chess, effectively creating moral agents

PERSONAL PROJECTS

Git-based Cord (Solo) March 2023 - Present
Developer: A git-based Discord-esque client for messaging. *JS*
- Created a decentralized and ultra-efficient git-based messaging, utilizing WebRTC and WebSockets for calls and GPG end-to-end encryption

Atmosphere Cloud (Solo) July 2022 - Present
Developer: A marketplace for computer sharing. *Ruby*
- Created a live marketplace for streaming VMs as alternative to mining
- Automated virtualizing the GPU into a full-fledged cloud machine and wrote custom hypervisor to spawn Windows VMs for clients

RecyclAR (Team) March 2023
Developer: An AR-enabled visual recognition and recycling app for education. *JS*
- Won annual Texas Immersive Buildfest 1st place, $1500 from Niantic Labs
- Applied material inference in real-time AR to determine recyclability

Otaku Puzzle (Solo) July 2021 - August 2021
Developer: A 3D top-down multiplayer and solo puzzle game. *C#*
- Created a web scraper to grab any media from web, along with custom updater and launcher, published to Steam and Google Play
- Implemented WebSocket multiplayer and networked physics using Unity and C#
- Integrated various libraries for GIFs, YouTube, Discord, Steam, Google Play

Various Websites (Solo & Team) June 2019 - Present
Developer: Websites for most of my games, people, and more. *HTML, CSS*
- Produced ultra-optimized websites, scoring 100 on Google Lighthouse
- Limited host bandwidth to <10kb per load, backended Python, SQL, PHP

Various 2D Games (Solo & Team) June 2020 - Present
Developer: Good Guy Knight, Princess & Protector, Time Trodden, etc. *Java, C++*
- Integrated scaling systems, like procedural difficulty, leveling, shops
- Made using GML, JavaScript, Node.JS, Phaser 3, Socket.io, & HTML

ACTIVITIES & LEADERSHIP

Electronic Game Developers Society, Austin, TX January 2022 - Present
Unity Workshops Officer
- Taught bi-monthly seminars on using Unity and C# for game development, covering concepts ranging from quaternions, computational physics, texture projection, and ML in game engines
- Hosted the largest student-run game jam in Texas in 2022, over 200 participants from 10 colleges