GRAND CANYON UNIVERSITY
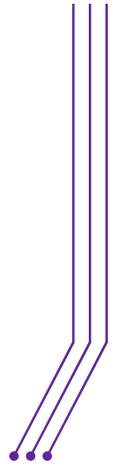
TECHNOLOGY

SPRING 2022 TECHNOLOGY CAPSTONE SHOWCASE

April 7, 2022

GCU
STRATEGIC EMPLOYER INITIATIVES & INTERNSHIPS

COMPUTER SCIENCE

1. Circuit Tiles
Developer: Justin Fernald
Learning tool to build out digital logic circuits in a tile-based system.

2. Data Streaming Solution
Developers: McKenna Branting, Kasey Cocking, Nghi Tran, Alita Rodriguez, Erick Lagunas, Gaj Carson
Dynamic system implemented through the creation of an Event Hub in Azure, where Apache Kafka-based clients act as Event Hub publishers.
Build with Azure Products, Terraform, Apache Kafka, GitHub, VS Code and DevOps

3. Evidence Analysis Tool
Developer: Emilee Spence
Holistic tool for image evidence analysis that includes text extraction, analysis and reports.
Built with Django, Tesseract and Python

4. GCU Early Alertz Analyzer
Developer: Brett Silvey
Program to sort and automate thousands of alerts based on urgency and type of alert.
Built with Python and MongoDB

5. GCU Student Nutrition Monitor Web Application
Developers: Adam Harris and Justin Fernald
Web application to better student nutrition on GCU's campus.
Built with React, HTML, MySQL, Azure, GCU POS and Student ID data

6. Get Out
Developers: Chris Jiaqi Zhou, Kyle Luster and Talbert Herndon
Virtual reality outdoor escape room game experience for the Oculus Quest.

7. GPEC Risk Management
Developer: Dharma Teja Bhattu
Risk monitoring project researching four different topics, including the natural disaster index in all the metropolitan statistical areas across the U.S.

8. iLearn Virtual Game
Developer: Joikeria Turner
System that accommodates students with different learning styles and teaches basic mathematical concepts.
Built with Unity 3D, Visual Studio, audio equipment and a DSLR video camera

9. NeuralSong
Developer: Justin Canode
Artificial intelligence model that can generate novel melodies based on given lyrics.
Built with Python, Postgres, Tensorflow and GPT-J

10. robot xd: Artificially Intelligent Robot
Developers: Kevin Ahlstrom, Luis Peña Espinoza, Jonathan Lopez Valdez and Abdulmalik Bawa
Low-cost, open-source, modular artificial intelligence-powered robot.
Built with Raspberry Pi

11. Simulated V2V Communication Network
Developers: Paul Andrews, Josiah Jibben, Collin Stratton and Jake Whitebread
Visual representation of autonomous vehicles with vehicle-to-vehicle communication as a proof of concept through a Unity simulation.
Built with Unity 3D

12. The Virtual Piano
Developers: Ryan Jones, Tristan Janisse, Tyler Williams and Stephen Blake Sanders
VR experience allowing users to simulate a real piano playing experience. This includes a variety of pianos as well as the option to play songs via sheet music or a Guitar Hero-style experience. Users will receive a performance review that gives them information about how well they played the song they chose.

13. Virtual Reality Operating System (VROS)
Developer: Andrew Goodman
VROS allows users to interact with their computer in a novel and intuitive way that provide new opportunities for ease of use and efficiency.
Built with Unity 3D, C#, SteamVR and the HTC Vive VR headset and controllers

14. Virtual Reality Therapy
Developers: Logan Hoots, Natsuki Abe, Lucio Infante, Keegan McGonigle
A therapeutic tool delivered through virtual reality simulations.
Built with Unreal Engine, VR Goggles with Muse EEG a headband

IT AND CYBERSECURITY PROJECTS

15. ATXS: Technology Overhaul

Developers: Tim Quoc Bao Thinh Huynh, Kenneth Sison and Ty Moultrie

System facilitating the transition of email and external websites to the cloud, minimizing maintenance costs and simplifying administration.

16. Lopes Pass Password Manager

Developers: Elijah Nicely-Martin, Devyn Hodges, Casey Williams and Amjed Zahrah

System that manages complex passwords for an organization or user's online accounts, storing them with high-level encryption and removing the hassle of keeping track of secure passwords.

17. Sentinel: Framework for Network Hardening against Ransomware

Developers: Teddy Kruger, Justin Polin Mark Stephen Mislang and Robert Cave

Best practices framework for preventing ransomware which hardens organizations' networks and defense against the financial consequences of ransomware occurrences.

18. Skylark: Production Data Center Cloning

Developers: Derek Atlow, Ajienne Lambey, Mandela Thomas, Sani Piric and Zac Perry

Physical data migration system that eliminates the reliance and strain on main data centers by creating a need-based redundancy on a per-site basis.

19. Volt

Developers: Cheyanne Boaz, Hunter Bernard, Antonio Morales Jr. and Dominic Lanzante

Standardized framework for securing electric vehicles via cloud platform through a hardening software that will prevent hackers from gaining access.

SOFTWARE DEVELOPMENT PROJECTS

20. ADVENTR
Developer: Emily Quevedo
Innovative community travel guide.
Built with Laravel, HTML/CSS, Bootstrap and MySQL

21. Child Alert System
Developer: Lincoln Munago

22. College Trade
Developer: Noah Vandervelden
College Trade is a project to give students the platform to buy, sell and trade items in the safety of college campuses. Students will be able to create shops and post listings for items.
Built with MERN Stack and Amazon Web Services

23. DockerGUI
Developer: Dominic Sutton
Graphical user interface for constructing Docker containers for more efficient software development.
Built with C#, .NET Core, .NET Framework, Docker Desktop and VMware

24. Dryer Reminder
Developer: Michael Mohler
Raspberry Pi equipped with a Sense HAT users can attach to their dryer to notify their Android phone of the completion of their load of laundry.
Built with Raspberry Pi 4 and Python

25. Epidemic Simulation
Developer: Jacob Hushaw
Unity-based application that allows users to input epidemic variables such as infection rate and choose whether agents will socially distance, isolate or spread an illness. The application simulates the epidemic to show how this epidemic could affect a community.
Built with Unity 2019.4.19f1, MySQL and Amazon Web Services

26. Famazone: Social Media
Developer: Tyler Wiggins and Vrijesh Patel
Social media web application with e-commerce integration, allowing users the unique ability to link a pet profile to their main profile and post pet-centered content.
Built with JavaScript, ReactJS, Spring Boot, GoogleAddress API, Stripe API, MySQL and Amazon Web Services

27. Family Bible Store
Developer: Harold Bermudez
E-commerce site for users to shop for faith-based merchandise. Site is user-friendly and offers deals to bring back customers and strengthen their relationship with God.
Built with C#, ASP.NET, SQL and Amazon Web Services

28. Guarding MX

Developer: Adrian Rodriguez-Aguilar

Guarding MX is a web application with the purpose of use in subdivisions to collect information from the people who live there and the visitors.
Built with C#, ASP.NET and MySQL

29. HotelZilla

Developer: Cyrus Duncan

Web-based application allowing users to search, book, create and review hotel listings.
Built with React, Express, MongoDB Atlas, Auth0, Synk and Amazon Web Services

30. Just An Idea

Developer: Henry Harvey

Forum web application for browsing ideas and topics. With an account, you can post, comment, upvote, pin content.
Built with Spring Boot, React, MySQL, Swagger, SLF4J and Amazon Web Services

31. LionQ

Developer: Jeanna Maye Benitez

Web application allowing users to interact with one another via messaging as well as create, update and delete posts.
Built with Java, Spring Boot, MySQL, Azure, WebSocket and SockJS

32. Manzanita Residential Communities

Developer: Jack Setrak

Web application that allows residential communities to accomplish all their work on one large feature-rich website.
Built with Spring Boot, VueJS, MongoDB and Heroku

33. MeMa

Developer: Sylvanus Edi

Blog allowing users to create their posts on fashion and other topics.
Built with React, MongoDB Atlas, Axios and Express

34. MyPortfolio

Developer: Holland Aucoin

Web-based application that combines the contents of a student's resume, LinkedIn profile, and GitHub into a single portfolio platform.
Built with React, Spring Boot, MongoDB Atlas and Amazon Web Services

35. OpinionMarket

Developer: Josh Van de Walle

Social news and community discussion web application.
Built with React, Spring Boot, React, MongoDB, Docker and Amazon Web Services

36. Ordinary Week

Developer: Pengyu Yin

37. Popsie Professional Website

Developer: Raymond Popsie
Purchasing platform using a full-payment API that can accept real payments from cards, Apple Pay and Google Pay.
Built with C#, .NET, SQL Server, Azure, Stripe and Microsoft Identity

38. PositionPortal

Developer: Adam Bender
A web app to track all current and past investments in stock and cryptocurrency markets. Each position will contain information current price, gain and /loss, charting and more.
Built with C#, ASP.Net, VueJS, MySQL and Azure

39. Project Mentality

Developer: Carson Perry
Unity WebGL game aims to assist people's understanding of mental illnesses by placing them in circumstances to facilitate that thinking in themselves.
Built with HTML5, WebGL, Unity, .NET and Azure

40. Reflect and Assist

Developer: Kacey Morris
Raspberry Pi kit with all materials and software needed to create a Smart Mirror display. This display is a customizable, mobile mirror that projects information contained in modules alongside its reflection.
Built with PHP, Python, MYSQL, MariaDB and Raspberry Pi

41. Rich Purnell Maneuver

Developer: Salvatore Parascandola
Clock running on the DE10 standard board, utilizing onboard peripherals such as a 7-segment display, 10x switches, 4x key buttons and an LCD display. Users can change time zones and set an alarm.
Built with C, VHDL, Linux and DE10 Standard Development Kit

42. Shiftin

Developer: Stanley Backlund
Open-source social media developed for the car enthusiast community.
Built with .NET Core, Razor, CSS, JS, Ajax, jQuery Unobtrusive, MySQL, Heroku and Docker

43. Small Ratings

Developer: Brian Basinger
Review platform that allows niche small businesses to thrive and connect with customers.
Built with C#, ASP.NET, SQL and Azure

44. SofanaGPS

Developer: Ana Sanchez and Safa Bayraktar
Solution for tracking the GPS golf carts on campus by utilizing an Arduino and creating a custom web application with RESTful API system.
Built with React, C# .NET Core, MongoDB, Arduino Uno and Azure

45. Steepl

Developer: Derek Lundy and Collin Willis
Mobile app that gives users access to topic-organized Christian content to provide a meaningful, online substitute or replacement for church.
Built with React Native and Google Firebase.

46. USpeed

Developer: Anthony Clayton
Raspberry pi with a Sense HAT and GPS module to display the current traveling speed of the device and will send speed and location data to a Spring Boot webpage where a user can view their previous data.
Built with Java, Spring Boot, Python, Raspberry Pi, Sense HAT, Adafruit GPS, MySQL and Heroku

47. What School Didn't Teach Me

Developer: Jason Stine
Two-part project including a website and a VR environment that allows individuals to sign up for classes to learn new topics or ideas taught by other individuals through virtual reality, providing no limits to what can be taught, where it is taught, and how it is taught.
Built with Unity, .NET, Azure Web Hosting, Azure Database and Oculus

48. VSpend

Developer: Jonathan Couture
Live, interactive report on the U.S. government's current spending and budgets.
Built with C#, PowerBI, Amazon Web Services and SQL

49. WorkX Time and Attendance

Developer: Stefanos Sophocleous
Software that allows a company to create scheduling and manage HR tasks on the same platform. Acts as a simple punch-in and punch-out platform as well as an administration management platform.
Built with Mongo DB, Spring Boot, and Angular JS, Azure