MICHIGAN STATE UNIVERSITY

08/29,08/31: Capstone Overview

The Capstone Experience

Dr. Wayne Dyksen
James Mariani

Department of Computer Science and Engineering
Michigan State University

Fall 2023

From Students…
…to Professionals

CSE498, Collaborative Design

- "The Capstone Experience"
- Professors
  - Dr. Wayne Dyksen ("Dr. D.")
  - Prof. James Mariani
- Team Managers (TMs)
  - Tommy Hojnicki
  - Griffin Klevering
  - Luke Sperling
- Class Meetings
  - Tu, Thu 3:00 – 4:20 p.m. Eastern Time
  - All-Hands:
    - STEM 1130
    - Microsoft Teams General Channel
  - Split-Hands:
    - Luke: International Center 115
    - Griffin: STEM 1130
    - Tommy: Engineering 1145
- Website
  - capstone.cse.msu.edu
  - Check it often.
- Syllabus
  - www.capstone.cse.msu.edu/other-links/syllabus
  - Read it thoroughly and carefully.
- Email
  - Check your email often.
  - Read your email immediately, thoroughly and carefully.

Meeting Goals for 08/29 and 08/31

- 08/29
  - Introduction to Capstone Logistics
  - Overview of Projects
  - Team Member Survey
- 08/31
  - Capstone Logistics
  - What's ahead?

Capstone Overview

- Course Logistics

- Client Projects

- Course Logistics (Continued Next Meeting)

Course Goals

[1 of 3]

- Give You Experience In
  - Real World
  - Corporate Setting
- Start Your Transition
  - From Student…
  - …To Professional
- Start Your Transition
  - From… “Make one of these.” –CSE Professor
  - …To “Solve my problem.” –Customer/Client

Course Goals

[2 of 3]

- Teams of 5-6 Students
- Build Significant Software System
  - Design
  - Develop
  - Debug
  - Document
  - Deliver
- For Project Sponsor / Client
  (Note: We'll use "project sponsor" and "client" interchangeably.)
- In 15 (Short) Weeks

Course Goals

[3 of 3]

- Build a significant software system.
- Work in a team environment.
- Learn new tools and environments.
- Build and administer systems.
- Develop communication skills.
- Develop interview talking points.
- Learn to do stuff on your own.
- Etc…

Professional Meeting Expectations

- Starts at 3:00 p.m. ET (Eastern Time) Promptly
- Meeting Ready
  - In Person: Seated
  - Microsoft Teams: Joined
  - Ready to Go
  - Looking Professional
- Not Meeting Ready Include But Not Limited To…
  - Entering a Room
  - Walking to a Seat
  - Being in the Process of Sitting Down
  - Joining a Meeting
- No…
  - Other Electronic Devices
    - Phones
    - Laptops
    - Etc.
  - Hats or Hoods
  - Coats
  - Eating
  - Sleeping
  - “Breaks”

Project Deliverables

- Project Plan Presentation & Document
- Alpha Presentation
- Beta Presentation
- Project Software
- Project Video
- Design Day

See Major Milestones.

All-Hands/Split-Hands Meetings

- All-hands
  - Dr. D.
  - James Mariani
  - Guest Speaker(s)
- Split-Hands
  - Team Status Reports
  - Team Formal Presentations (30% of Final Grade)
  - Team Project Videos

Weekly Schedule

- 08/29: Capstone Overview 1
- 08/31: Capstone Overview 2
- 09/05: Risks and Prototypes
- 09/07: Team Status Report Presentations
- 09/12: Project Plan
- 09/14: Schedule and Teamwork
- 09/15: Team Photos (8:00 a.m. – 5:00 p.m.)
- 09/19: Team Project Plan Presentations
- 09/21: Team Project Plan Presentations
- 09/26: Team Project Plan Presentations
- 09/28: Design Day Booklet Process
- 10/03: Creating and Giving Presentations
- 10/05: Resume Writing and Interviewing
- 10/10: Team Alpha Presentations
- 10/12: Team Alpha Presentations
- 10/17: Team Alpha Presentations
- 10/19: Intellectual Property
- 10/24: October Break
- 10/26: Design Day and the Project Videos
- 10/31: Ethics and Professionalism
- 11/02: Team Status Report Presentations
- 11/07: Team Status Report Presentations
- 11/09: Team Status Report Presentations
- 11/14: Team Beta Presentations
- 11/16: Team Beta Presentations
- 11/21: Team Beta Presentations
- 11/23: Thanksgiving
- 11/28: Team Status Report Presentations
- 11/30: Team Status Report Presentations
- 12/03: Project Videos Due
- 12/05: Project Videos
- 12/06: All Deliverables Due
- 12/07: Project Videos
- 12/07: Design Day Setup
- 12/08: Design Day
- 12/13: Capstone Wrap Up (10:00 a.m. – 12:00 p.m.)

The Capstone Labs

[1 of 2]

- 3340EB, 3352EB, 3358EB
- Door Lock
  - Electronic Keypad
  - Code = #########
  - Do Not Give Out to Other Students
- Systems
  - Up to Three per Team
    - Two 27” iMacs
    - One Dell Rack-Mounted Server (Optional)
  - Team 100% Responsible
    - Building
    - Maintaining
    - Securing
    - Backing Up
- WiFi
  - SSID: CSE498, CSE498 5MHz
  - Key: ???????
- Appliances
  - Water Cooler/Heater
    Nota Bene: The water cooler is not connected to a drain. Do not pour things into it, like rinsing out your water container.
  - Whirlpool Refrigerator
    - Cold Water From Bottled Water
    - Ice From Bottled Water
  - Microwave
  - Keurig Coffee Maker
- Lockable Storage
  - At Most One Drawer Per Team
  - Only As Needed
  - Assigned by Instructors
  - Obtain Keys from CSE Office

The Capstone Labs

[2 of 2]

- 3340EB, 3352EB, 3358EB
- In-Person Access
  - Sanitizing Wipes
    - Keyboard and Mouse
    - Desktop
    - Before and After Use
  - Hand Sanitizer
- Remote Access
  Instructions will be emailed.

Scheduled Lab Times

- No Formal Lab Sessions
- “Credit” for Scheduled Weekly Meetings
  - Team Meetings
  - Client Conference Calls
  - Triage Meetings with TMs
- Meeting Times TBA With
  - Team
  - Client
  - TMs
- Students must be available to meet in person.
  - Team Meetings
  - Triage Meetings
  - Client Conference Calls
- Schedule Accommodations
  - Made For Reasonable Requests
  - Not Made For
    - Working Unreasonable Number of Hours
    - Commuting Distance to Campus

CSE498 Prerequisites

- Must Have Successfully Completed In Advance
  - CSE300 (Waived for Students "Grandfathered" In)
  - CSE325
  - CSE335
  - At Least Two CSE Technical 400-Level Courses Chosen From CSE402, CSE404, CSE410, CSE415, CSE420, CSE422, CSE425, CSE431, CSE434, CSE435, CSE440, CSE450, CSE460, CSE471, CSE472, CSE476, CSE477, CSE480, and CSE482
  - WRA (Tier I Writing Requirement)
- Ability to Read Email
  - Immediately
  - Carefully
  - Completely

Capstone Overview

✓Course Logistics

➢Client Projects

- Course Logistics (Continued)

Team / Project Generalities [1 of 3]

- Clients
  - Vary in Size and Type
  - Sponsor/client contacts are “volunteers.”
- Team Contact Person
  - Picked By Team
  - Main Point of Contact for Client

Team / Project Generalities [2 of 3]

- Project Types
  - All Significant Software Development
  - Vary in Specifics
- Project Level of Difficulty
  - Hard Enough
  - But Not too Hard
- Deliverable
  - To the Client
  - By the Due Date

Team / Project Generalities [3 of 3]

- Challenges
  - Very Short, Unforgiving Timeline
  - Client Contact
  - Team Dynamics
  - Project Plan (in ~3 Weeks)
  - Entirely New…
    - Languages
    - Environments
    - API's
    - SDK's
    - Processes
    - Protocols
    - Hardware
    - Etc.
  - Project Management
  - Etc…

Project Specifics

- Vary
  - Type
  - Current State of Specificity
- Challenge
  - Connect with Client
  - “Nail Down” the Project
    - Hard Enough
    - Not too Hard
  - Course Feature, Not Bug

Intellectual Property and Non-Disclosure Agreements

- Intellectual Property Agreement
  - You agree to assign ownership of intellectual property that may be created as a result of your project to your client.
    - Copyrightable Program Code
    - Patentable “Ideas”
  - Most clients will require an IP agreement.
- Non-Disclosure Agreement
  - You agree not to disclose client confidential information.
  - Most clients will require an NDA.
- To date…
  - Most code has not gone directly into production.
  - No patents have resulted.
- Use agreements provided by MSU to clients. See Downloads.
- Contact Dr. D. or James For Questions.
- Not Willing to Sign Affects Project Choice

Project Teams

1. Ally
2. Amazon
3. Anthropocene Institute
4. Auto-Owners
5. Bosch
6. DRIVEN-4
7. Evolutio
8. GM
9. HAP
10. Kellogg's
11. Kohl's
12. Lockheed Martin Space
13. Magna
14. Meijer
15. Michigan State University CSE
16. Moii
17. MSUFCU
18. Roosevelt Innovations Data Science
19. Roosevelt Innovations Knowledge Science
20. RPM
21. Stryker
22. TechSmith
23. Union Pacific
24. United Airlines Quality Assurance
25. Urban Science
26. UWM
27. Vectra
28. Volkswagen
29. W K Kellogg Co
30. Whirlpool

Team Ally

Project Overview

Ally Financial Education Platform

- Functionalities
  - Educate Consumers about Money Management
  - With an Interactive Learning Platform
- Features
  - Support Many Types of Media
    - Courses
    - Blogs
    - Videos, etc.
  - Recommend Financial Courses
  - Track User Progress Through Quizzes
  - Include Admin and User Views
- Technologies
  - Visual Studio Code
  - React / JavaScript / NodeJS
  - Amazon Web Services
  - Machine Learning (ML)

Detroit, Michigan
Charlotte, North Carolina

Team Amazon

Project Overview

Email Improvement Tool

- Functionalities
  - Make Automated Emailing Simpler
  - By Analyzing Email Templates and Content
  - Using a Machine Learning Model
- Features
  - Create and Train a Machine Learning Model
  - Classify Email Templates
  - Summarize Email Contents
  - Evaluate Email Clarify and Empathy
  - Create an Easy-to-Use Web Application
- Technologies
  - Angular / Vue / React
  - AWS Machine Learning (ML)
  - AWS Cloud Development Kit
  - AWS Lambda / EC2 / ECS
  - AWS Dynamo / Relational Databases

amazon

Seattle, Washington
Detroit, Michigan

Team Anthropocene Institute

Project Overview

Machine Learning for Optimization of Carbon Removal

- Functionalities
  - Make the Earth Greener
  - Using Real Environmental Data
  - And Machine Learning Methods
- Features
  - Access Multiple Unique Data Sources
  - Analyze Data for Patterns
  - Create and Train a Machine Learning Model
  - Identify Sites for Carbon Removal
  - Within an Attractive Web Application
- Technologies
  - Modern Web Framework
  - Database Technologies
  - Machine Learning (ML)

Anthropocene Institute

Palo Alto, California

Team Auto-Owners

Project Overview

Help me see!

- Functionalities
  - Minimize Number of Insurance Claims
  - Through Augmented Reality Application
  - That Provides Intuitive Loss Info on AR Objects
- Features
  - Provide Loss Exposure and Prevention Info
  - Overlay Objects into the Live Scene
  - Identify Existing Object to Gather Info
  - Develop Game Aspect for Testing
- Technologies
  - C++
  - Windows SDK
  - Unity
  - HoloLens (Developer Mode)
  - Augmented Reality (AR)

Auto-Owners INSURANCE

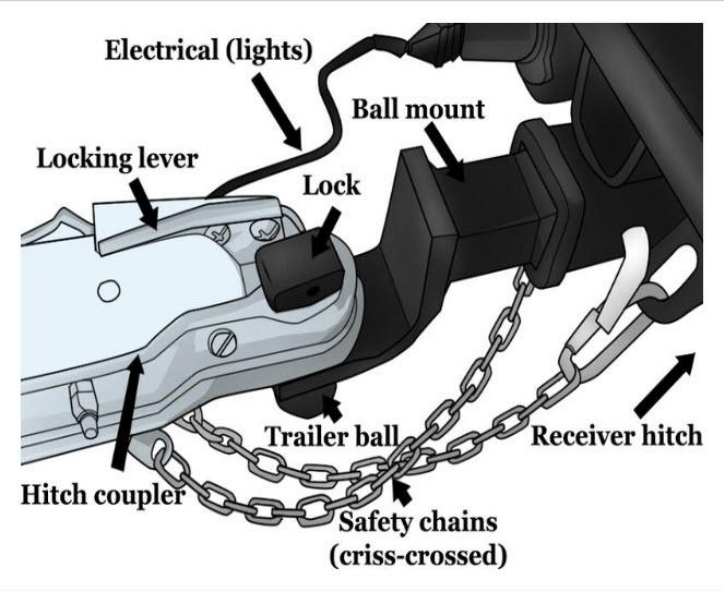
Lansing, Michigan

Team Bosch

Project Overview

Trailering Safety Using Computer Vision

- Functionalities
  - Make Trailer Hitching Safer
  - By Analyzing and Rating Videos
  - Using a Machine Learning Strategy
- Features
  - Process Video Frames
  - Analyze and Label Hitching Videos
  - Train a Machine Learning Method
  - Rate Hitching Attempts
  - Report Errors in the Hitching Process
- Technologies
  - Python / Java / CPP
  - Video Processing Framework
  - Machine Learning (ML)



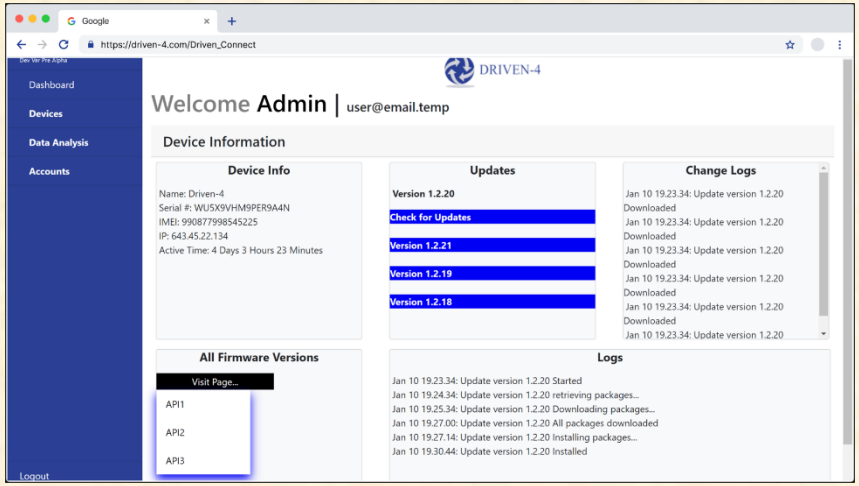
BOSCH
Plymouth, Michigan

Team DRIVEN-4

Project Overview

DRIVEN-4 Connect Update and Upgrade

- Functionalities
  - Streamline Data and Device Management
  - For Internet of Things (IoT) Devices
  - With Web App and Supporting APIs
- Features
  - Analyze Data From Various Databases
  - Perform Device Firmware Updates
  - Manage Users and Devices for Firm
  - Learning Center for Users
- Technologies
  - Python
  - Java
  - Flask / Flask API
  - MySQL
  - Fast API



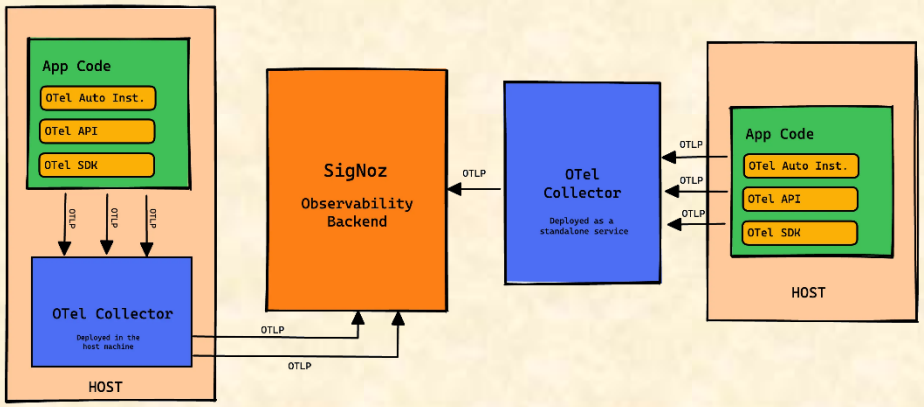
DRIVEN-4
St. Joseph, Michigan

Team Evolutio

Project Overview

Evo Observability Platform

- Functionalities
  - Make Application Monitoring Easier
  - Using a Variety of Tracking Tools
  - Within an Easy-to-Use Web App
- Features
  - Trace Backend Services
  - Track Live Metrics and Dependencies
  - Integrate Error and Exception Logging
  - Generate Alerts via Email, SMS, and More
  - Build a Unique Web-Based Interface
- Technologies
  - OpenTelemetry
  - Apache Kafka
  - Druid / Neo4J
  - AWS Hosting

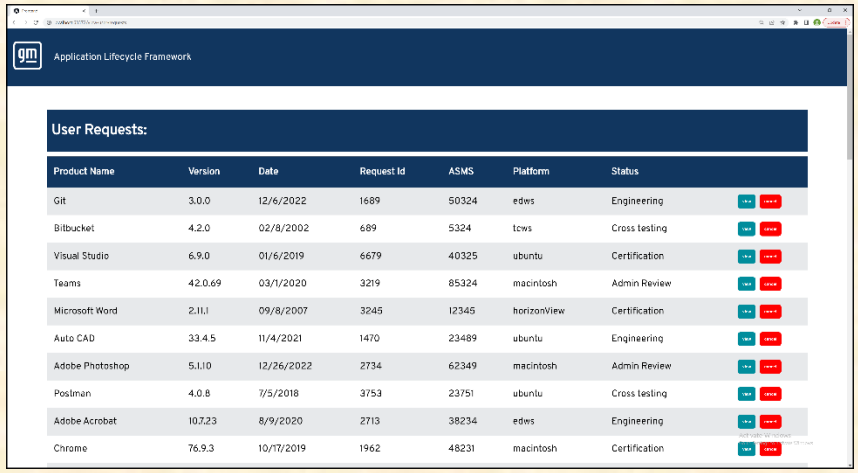


Team GM

Project Overview

Application Lifecycle Framework 2.0

- Functionalities
  - Enhance the GM Application Lifecycle
  - Track, Automate, and Validate Application Distribution
  - With an Intuitive Web Platform
- Features
  - Build New Features for an Existing Platform
  - Support Domain-Aware Requests
  - Incorporate Existing Validation Scripts
  - Offer Robust Troubleshooting and Logging
- Technologies
  - HTML
  - Java
  - Angular / JavaScript
  - MariaDB



Detroit, Michigan

Team HAP

Project Overview

Leveraging OpenAI for Business Analytics

- Functionalities
  - Make Business Analytics Faster
  - By Exploring the World of Artificial Intelligence
  - Within a Web Application
- Features
  - Utilize Many Different Data Sources
  - Train Several Machine Learning Models:
    - Search the HAP Site for Faster Answers
    - Help Users Create New Insurance Plans
    - Summarize Call Center Transcriptions
  - Apply Artificial Intelligence to an Existing Web App
- Technologies
  - OpenAI
  - ChatGPT
  - Artificial Intelligence (AI)
  - Machine Learning (ML)

Detroit, Michigan

Team Kellogg's

Project Overview

Global Business Services Process Intelligence

- Functionalities
  - Improve Efficiency of Kellogg's Global Business Services
  - By Automatically Processing Customer Requests
  - With a User-Friendly Customer-Facing Web App
- Features
  - Design Platform to Handle Any Customer Request
  - Support Returns, Overages, Damages, and Shortages
  - Automate Many Parts of the Process
  - Unify System through Standardization
  - Create Intuitive Analytics Dashboard
- Technologies
  - Microsoft Office 365
  - Microsoft Power BI

Battle Creek, Michigan

Team Kohl's

Project Overview

Infinity Gauntlet

- Functionalities
  - Leverage Existing Data Centers
  - To Create Flexible Infrastructure
  - In a Cohesive Framework
- Features
  - Support Projects, Networking, Firewalls
  - Offer a Cloud-Agnostic Solution
  - Manage Configuration Synchronization
- Technologies
  - Terraform
  - Backstage

KOHL'S

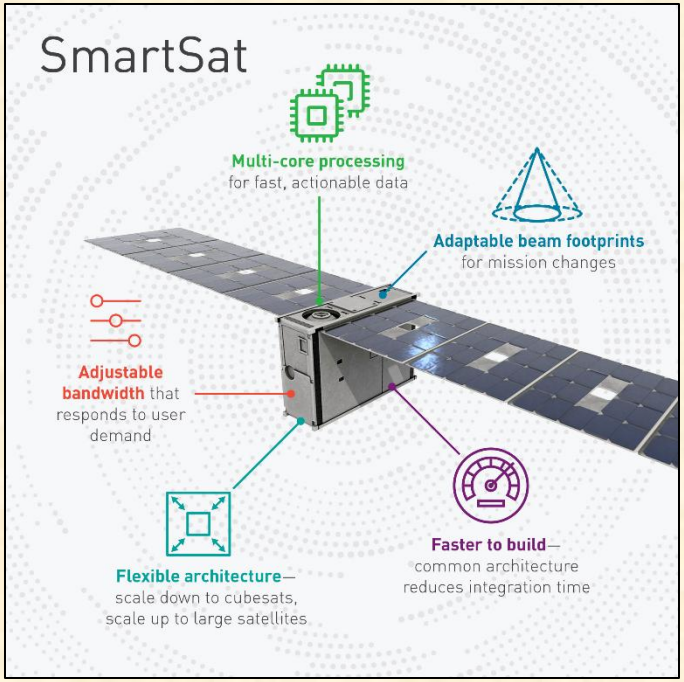
Menomonee Falls, Wisconsin

Team Lockheed Martin Space

Project Overview

SmartSat™ Heterogenous Computing in Space

- Functionalities
  - Enable Applications to Run on Various Devices
  - By Developing Unified Execution Platform
  - That Provides Efficient Resource Use
- Features
  - Develop Accelerator App for Enabling Devices Access
  - Distribute Computation From Single File
  - Accelerate Applications Ran From SBC
- Technologies
  - C++
  - Python
  - Yocto Project™ / PetaLinux
  - SYCL / Vitis



LOCKHEED MARTIN

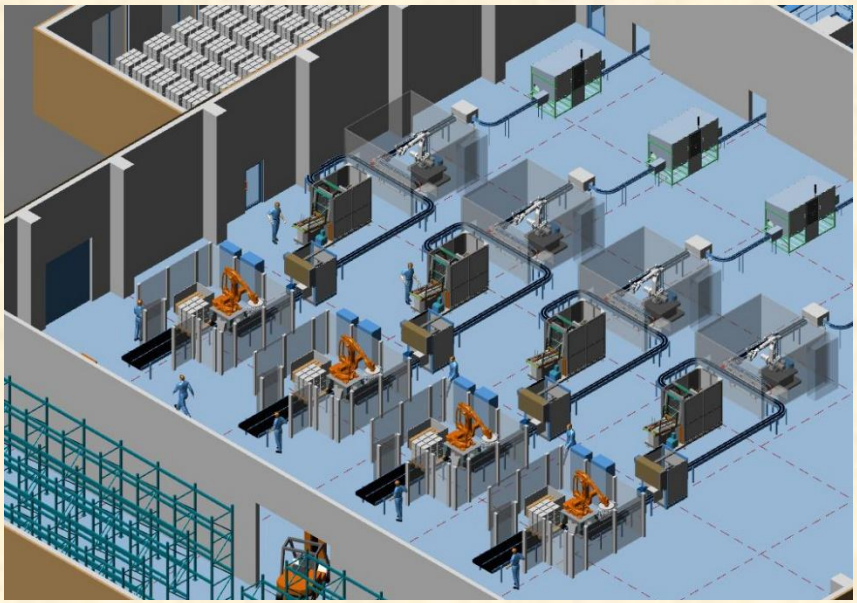
Littleton, Colorado

Team Magna

Project Overview

Composable 3D Model for a Manufacturing Plant

- Functionalities
  - Efficiently Manage Factory Resources
  - By Modeling Factories and Assets in 3D
  - Through a Web-Based Visualization App
- Features
  - 3D Visualizations of Factory
  - Fixed and Movable Assets
  - Rearrange Assets to Test New Layouts
  - Provide Feedback on Efficiency
- Technologies
  - GeoJSON / TopoJSON
  - CesiumJS / OpenRMF
  - gITF Editor (Gestaltor)



MAGNA

Tory, Michigan
Aurora, Ontario, Canada

Team Meijer

Project Overview

Enhanced Shopping Experience Using AI

- Functionalities
  - Improve Meijer Customer Satisfaction
  - By Offering Recipes Based on Previous Purchases
  - Personalize the Shopping Experience
- Features
  - Recommend Recipes Based on Purchases
  - Add Items for Recipes to Cart
  - Update Recipes for Diet Restrictions
- Technologies
  - React Native
  - SQL
  - Blazor Web Assembly
  - Microsoft Azure Web Services
  - Artificial Intelligence (AI)

meijer®

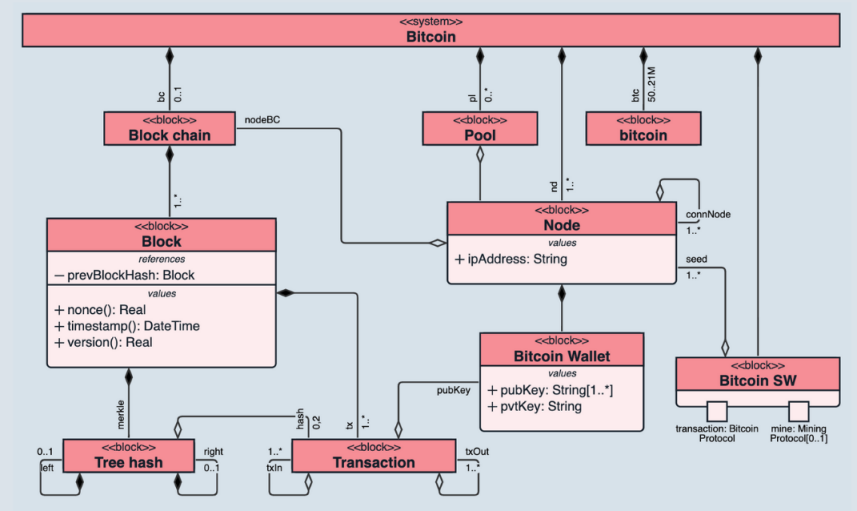
Grand Rapids, Michigan

Team Michigan State University CSE

Project Overview

clUML: A Browser-Based UML Editor

- Functionalities
  - Provide UML Designers Improved Experience
  - Streamline Design Experience for Students
  - Through a Course-Lib Embedded Page
- Features
  - Full-Featured UML Editor
  - Sanity Check for Identifying Common Errors
  - API For File Management
  - Unit Testing to Verify Functionality
- Technologies
  - JavaScript
  - Yarn
  - Karma / Jasmine
  - PhpStorm



East Lansing, Michigan

Team Moii

Project Overview

Small Object Detection Using CCTV Cameras

- Functionalities
  - Make the World a Safer Place
  - By Locating Small Objects
  - Using a Unique Artificial Intelligence Approach
- Features
  - Train an AI Model Using an Existing Dataset
  - Create an API to Utilize your Model
  - Deploy and Run the AI Model in a Real Time Setting
  - Send Real Time Alerts Using a Variety of Methods
- Technologies
  - Python 3.6+
  - PyTorch
  - Google Cloud API
  - Artificial Intelligence (AI)

moii

Troy, Michigan

Team MSUFCU

Project Overview

Digital Banking Car App

- Functionalities
  - Improve MSUFCU User Experience
  - Through Dedicated Mobile Car Apps
  - To Enable Easy Account Management
- Features
  - Enable Voice Management
  - Check Account Balances
  - M2M Payments
  - Full Chatbot Integration
- Technologies
  - HTML
  - PHP
  - Swift / Java
  - MySQL

msufcu

East Lansing, Michigan

Team Roosevelt Innovations Data Science

Project Overview

Predictive Claims Scoring

- Functionalities
  - Protect Roosevelt Innovations and its Members
  - By Minimizing the Frequency of Fraud
  - With Machine Learning and Data Analytics
- Features
  - Identify Fraudulent Claim Likelihood
  - Model Performance Metrics
  - Data Visualizations for Model Impact
- Technologies
  - Snowflake
  - PyTorch
  - Scikit-learn
  - FastAPI
  - Tableau
  - Machine Learning (ML)

Roosevelt
simple. seamless. smart.
Okemos, Michigan

Team Roosevelt Innovations Knowledge Science

Project Overview

Universal Guided Web Editor

- Functionalities
  - Improve Developer Environment
  - By Developing a Guided Editor Component
  - That Adapts Desktop Editor for the Web
  - With Expanded Functionality
- Features
  - Adapt to Many Languages
  - Save and Restore Authoring Sessions
  - Configure Rendering Properties
- Technologies
  - TypeScript
  - Angular
  - Git

Roosevelt
simple. seamless. smart.
Okemos, Michigan

Team RPM

Project Overview

AI-Based Chat Service

- Functionalities
  - Improve RPM's Carrier Productivity
  - By Aiding Carriers with Specifications of Shipments
  - With a Context-Aware Chatbot
- Features
  - Understand Pertinent Details during Chats
  - Identify when to Connect to a Live Employee
  - Provide a Reusable and Scalable Solution
- Technologies
  - Microsoft C# / .NET
  - Artificial Intelligence (AI)
  - Machine Learning (ML)

RPM

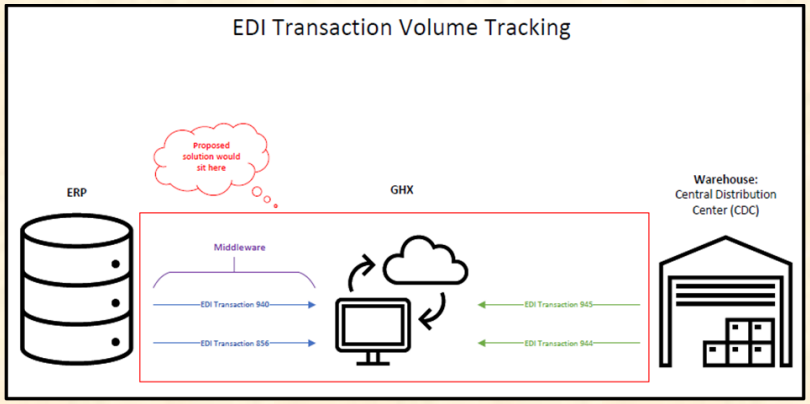
Royal Oak, Michigan

Team Stryker

Project Overview

Electronic Data Interchange (EDI) Transaction Monitoring

- Functionalities
  - Improve Stryker's Electronic Data System
  - By Automatic Processing of Transaction Info
  - In an Easy-to-Use Web App
- Features
  - Analyze and Visualize Performance
  - Simulate Flow of Transactions Supply Chain
  - Detect and Alert Decreases in Transaction Volumes
  - Visualize Data and Alerts
- Technologies
  - Microsoft PowerBI
  - Microsoft SQL
  - Microsoft Azure Web Services



stryker

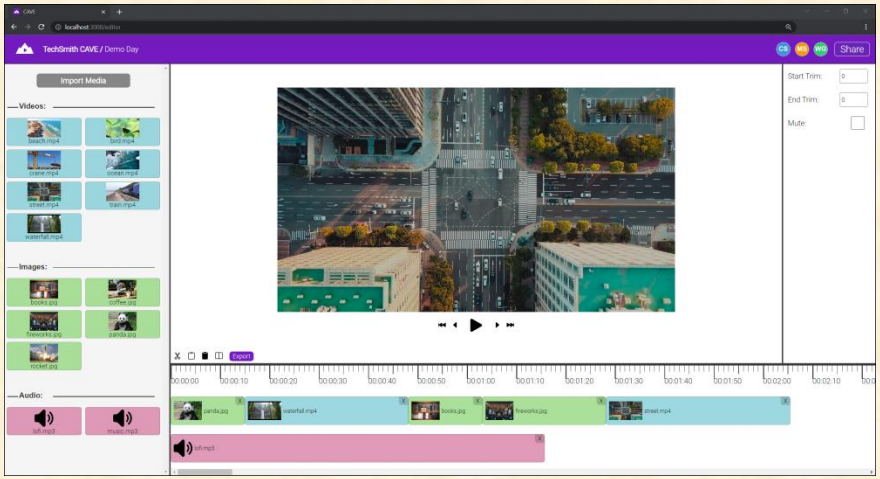
Kalamazoo, Michigan

Team TechSmith

Project Overview

ACE: Automated Content Editor

- Functionalities
  - Make Video Creation Easier
  - By Creating Video Based On User Input
  - Using an Artificial Intelligence Model
- Features
  - Create a Linear Video Editor
  - Train an Artificial Intelligence Model
  - Read User Inputs for Video Requests
  - Use the Model to Dynamically Create Video
  - Edit Video, Audio, and Images Automatically
- Technologies
  - Angular
  - FFmpeg
  - Microsoft Azure Web Services
  - Artificial Intelligence (AI)
  - Machine Learning (ML)



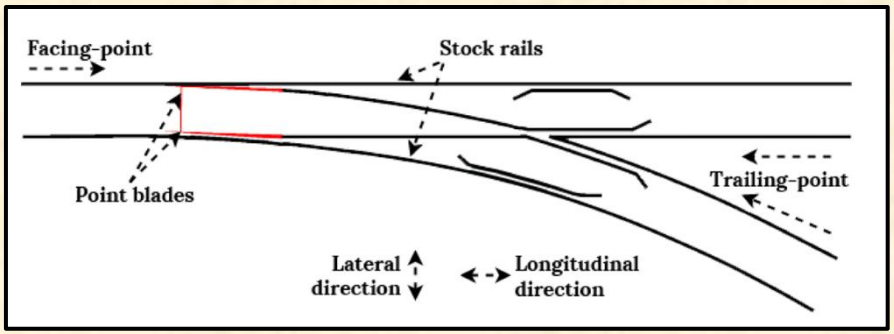
TechSmith®
East Lansing, Michigan

Team Union Pacific

Project Overview

Railroad Switch Alignment Training

- Functionalities
  - Train Employees to Align Railroad Switches
  - With an Interactive Training Course
- Features
  - Provide Variety with Randomized Challenges
  - Offer a Realistic Simulation
  - Teach Basics with a Tutorial
- Technologies
  - Unity3D
  - WebGL
  - SCORM



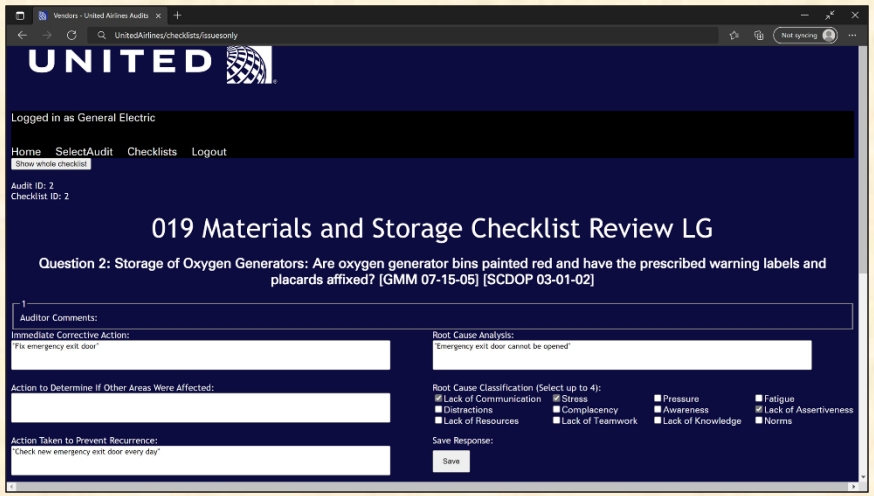
BUILDING AMERICA®
Louisville, Colorado
Omaha, Nebraska

Team United Airlines Quality Assurance

Project Overview

Audit Automation Tool

- Functionalities
  - Improve Efficiency of United Airlines Auditing
  - By Detecting if Manuals Meet Industry Standards
  - With Natural Language Processing
- Features
  - Ingest Maintenance Manuals and Requirements
  - Automatically Generate Reports
  - Answer Questions about Requirements
  - Suggest Candidates for Audit Coverage
  - Develop Feedback Loop to Improve Accuracy
- Technologies
  - Python
  - Natural Language Processing (NLP)



UNITED

Chicago, Illinois

Team Urban Science

Project Overview

Synthetic Media

- Functionalities
  - Make Video Creation Easy
  - By Utilizing Artificial Intelligence
  - To Create Generated Instructional Videos
- Features
  - Train Artificial Intelligence Models to Create
    - Synthetic Avatars
    - Fake Voices
    - Scripts
  - Design an Attractive User Interface
  - Create an Admin Application to Track Videos
- Technologies
  - HTML / CSS
  - C# / .NET Core
  - Python
  - Angular / Chart.js / TypeScript
  - Dapper
  - SQL
  - Artificial Intelligence (AI)

URBAN SCIENCE
Detroit, Michigan

Team UWM

Project Overview

Change Insights Datamart and Risk Assessment

- Functionalities
  - Make Data Collection Easy
  - By Analyzing Information Faster
  - Using an Artificial Intelligence Model
- Features
  - Aggregate Data From Multiple Sources
  - Create a Single Data View
  - Train a Model To Track Changes in Data
- Technologies
  - C#
  - Octopus
  - Harness
  - ServiceNow
  - JIRA
  - Microsoft Azure Web Services
  - Talend
  - Artificial Intelligence (AI)

UNITED WHOLESALE MORTGAGE

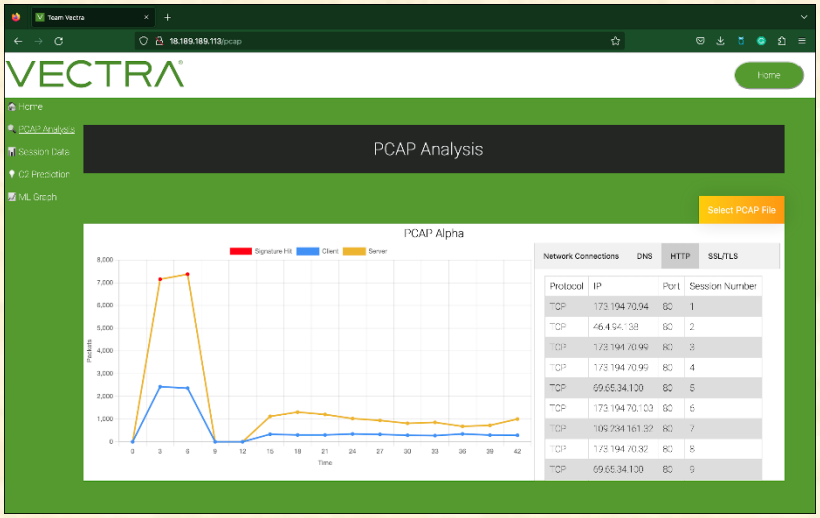
Pontiac, Michigan

Team Vectra

Project Overview

Malware Command and Control Channel Simulator

- Functionalities
  - Improve Malware Detection
  - By Simulating Command and Control Channels
  - With Advanced Artificial Intelligence
- Features
  - Execute Evasion Detection Techniques
  - Identify Patterns using Artificial Intelligence
  - Leverage Data to Improve Detection
- Technologies
  - PyTorch
  - Scapy
  - Merlin
  - Artificial Intelligence (AI)
  - Machine Learning (ML)



VECTRA®

San Jose, California

Team Volkswagen

Project Overview

Volkswagen Shopping App with Augmented Reality

- Functionalities
  - Modernize Car Buying Process
  - With an Augmented Reality Application
  - To View 3D Models of Automobiles
- Features
  - Advertise Various Volkswagen Models
  - Support Both Electric and Non-Electric
  - Swap Interior and Exterior Colors
  - Include Audio for Engine and Horn
- Technologies
  - Xcode
  - Android Studio
  - Blender
  - Augmented Reality (AR)

Auburn Hills, Michigan

Team W K Kellogg Co

Project Overview

Global Business Services Process Intelligence

- Functionalities
  - Make Company Logistics Clearer
  - By Tracking Goods and Metrics
  - Within an Easy-to-Use Phone app
- Features
  - Document Production Information
  - Design an App for Employees to Enter Data
  - Identify Issues with Production
  - Recommend Solutions to Problems
- Technologies
  - Python
  - PowerApps
  - XML
  - Microsoft Office 365
  - PowerBI

Battle Creek, Michigan

Team Whirlpool

Project Overview

DeepOven: Volume and Quantity Estimation in Cooking

- Functionalities
  - Improve the Cooking Experience
  - By Providing Users With Cooking Insights
  - Through In-Oven Quantity Estimation
- Features
  - Build Intuitive Web Application
  - Estimate Volume and Quantity of Food
  - Visualize Data and Provide 3D Reconstructions
- Technologies
  - Python
  - JavaScript
  - Deep Learning
  - Whirlpool Technology 3

Whirlpool

Benton Harbor, Michigan

Attendance Today

- Sign into Google with MSU Credentials
- Google Form
  - https://forms.gle/3UZ56rbZk5w7iXnm7
  - https://shorturl.at/dDMPQ

Team Member Survey [1 of 2]

- Check Student ID
- NetID
  - Yes: dyksen
  - No: dyksen@msu.edu
- Use Upper and Lower Case
  - Yes: Lansing, Michigan
  - No: LANSING, MICHIGAN
- Hometown Country, NOT County
  - Yes: USA, China
  - No: United States, Ingham, Wayne
- Use Floating-Point Numbers Only For GPAs
  - Yes: 3.7, 2.8
  - No: 3.5-3.7, ~3.5, About 3.5

Team Member Survey [2 of 2]

- Get out your laptops.
- Open browser.
- Log into Google with MSU credentials.
- Go to www.capstone.cse.msu.edu.
- Click on…
  - + Other Links
  - > Downloads
  - Team Member Survey: Google Form

First Assignments

- Read the Syllabus.
- Check out the Website.
- Check out the Lab.
  (3340EB, 3352EB, 3358EB)
  - See if you can find it.
  - See if you can get in.
- Find the meeting slides.
  capstone.cse.msu.edu/schedules/weekly-schedule

What's ahead? [1 of 2]

- Teams
  - Receive team assignments later today. (Keep checking your email.)
  - Meet initially later today or by tomorrow morning.
  - Start researching technologies.
  - Start configuring lab machines.
    - Team assignments given in emailed project proposals.
    - Instructors will email remote access instructions.
- Project Sponsor / Client Contact
  - Contact by email ASAP and certainly by tomorrow, COB. (COB == Close of Business)
  - Complete conference call or online meeting by Friday.
  - Review project proposal.

What's ahead?

[2 of 2]

- Team Photos
  - Coordinated by James
  - Friday, September 15, 8:00 a.m. – 5:00 p.m.
    - James will make a schedule.
    - On-Time Attendance Required
    - Put on your calendar now. ← **Note**
  - Scheduled via Google From
    - Email From James
    - Look for it.
    - Respond to it as a team ASAP.

Questions?