Andrew Dykstra

Availability: January – August 2023

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EDUCATION

Northeastern University **September 2021 – May 2025**
Khoury College of Computer Sciences, Candidate for Bachelor of Science - Computer Science

Relevant Coursework: Data Structures & Algorithms, Object-Oriented Design, Fundamentals of Computer Science 1 & 2, Discrete Structures, Mathematics of Data Models, Mathematical Reasoning

SKILLS

Languages: Python, Java, JavaScript, C#, C, C++, SQL, PHP, HTML, CSS
Technologies: Docker, React, React Native, GraphQL, Java Discord API (JDA), ROS, MAVROS
Software and Tools: AWS Lambda, Git, Kubernetes, Jenkins, jQuery, Node.js, MySQL, PX4, Gazebo

EXPERIENCE & CERTIFICATION

Aerospace NU – NUAV Software Team
Software Engineer **September 2022 - Present, Boston, MA**
- Developing drone communication software to lower response time and improve drone AI for the Autonomous Airborne System.
- Utilized MAVROS, a module of ROS, to enable MAVLink Communication feature allowing several computers to overcome interference.
- Reengineered communications decreased response time from drones by 30% from 250ms to 175ms.
- Took advantage of Gazebo, a risk-free simulator to write and test drone AI, for object detection and crash prevention.
- Led communications project by coordinating weekly meetings for progress check-ups and training on new technologies.
- Leveraged: Python, C++, PX4, ROS, MAVROS, Gazebo

AWS Certified Cloud Practitioner (CCP) **Date Issued: September 2022**

PROJECTS

Swipes4Sale App (JavaScript, Java, AWS, React Native)
- Developed an IOS and Android app for student-to-student university meal pass exchanging due to the increase of leftover passes.
- Utilized React Native to develop cross-platform user interface with addition and deletion of posts, user profiles, and private messaging.
- Leveraged GraphQL, instead of REST, to query AWS DynamoDB service in order to dynamically request multiple resources in each query without over-fetching and reduce waterfall requests, thus allowing scalability.
- Conducted an acceptance test with 155 students at Northeastern University and 93% said they would use the app upon release.

Climbing Helper (Alexa Skill/AWS)
- Developed an Alexa Skill to efficiently convert American and European climbing grades and give flash briefings on climbing news.
- Utilized AWS Lambda, a pay-as-you-go service, to remotely host serverless code which reduced costs by 50% compared to EC2.
- Obtained climbing-related news from News API, supporting briefings on headlines, sources, or entire articles.
- Remotely hosted serverless code allowed access to this Alexa skill 24/7 from any Alexa device anywhere.

Messaging Forum (HTML/PHP, MySQL)
- Developed a locally Ubuntu-hosted web messaging interface using HTML, CSS, and PHP for customer account creation, private messaging, and theme selection.
- Messaging interface connects to a MySQL database through MySQLi library that stores account information and messages sent between users.
- Implemented MVC (model-view-controller) architectural pattern for easy modifiability, scalability, and simplified testing and debugging.
- Utilized AJAX to provide a better user experience by showing new messages without refreshing by asynchronously updating the web page.

Discord Bot (JavaScript, Node.js)
- Developed a Discord bot using discord.js, a Node.js module, to communicate with Discord API and incorporated custom commands.
- Improved upon features in other bots including detailed music information upon users' request and allowing song queue editing.
- Utilized YTDL library to pull song and video information from a user-provided YouTube link to play music.
- Custom commands such as clearing bot responses provided a better user experience found through a poll with 80% positive responses.

Brawl (JavaScript) – 3rd Place Regional Hackathon Winner
- Developed 2D one-on-one fighting game with a classmate incorporating a variety of attacks, multiple backgrounds, and fighting stages.
- Utilized JavaScript Canvas API to create a user interface for character selection and attack animations.

Concentration Card Game (Java, JUnit)
- A memory-based card game where you try to match every pair in as few amounts of moves as possible.
- Developed game using Java and added features including a timer, move counter, and maximum move limit.
- Utilized Java image library to create the user interface, draw the game, and portray cards with respective suits.
- Took advantage of JUnit testing to speed up debugging process by creating structured test cases.