Phillip Volkov

Student at the University of Washington - Paul G. Allen School for Computer Science and Engineering
phillipvolkov@gmail.com linkedin.com/in/phillip-volkov github.com/PhillipVolkov

Education

University of Washington **Seattle, WA**
Bachelor of Science in Computer Science 3.88 GPA *9/2022-6/2025*

- **Selected Coursework:** Foundations of Computing I, Intro to Embedded Systems, Software Design and Implementation, The Hardware/Software Interface, Foundations of Computing I, Foundation of Computing II, Data Structures and Algorithms
- **Awards:** Dean's List

Experience

UWashington Formula Motorsports **Seattle, WA**
Software Engineer - Driverless Team *01/2023 - Present*

- Created a simulation environment for virtual simultaneous testing of the software stack
- Planned a systems architecture for a driverless race car system and developed the corresponding ROS nodes
- Worked with electrical engineers to create and integrate a CANBUS network for intra-system communication
- Learned and utilized the YOLO image classification model to detect boundary cones of the race track

FRC Team 1294: Top Gun Robotics **Sammamish, WA**
Director of Software *09/2019 - 07/2022*

- Designed object-oriented code frameworks and templates for functionality such as Swerve Drive and PID algorithms, to aid team performance and efficiency
- Led a group of 15 members through the Software Development Cycle to create autonomous and user-controlled code within 6 weeks
- Created and facilitated the use of a training program comprising of lectures and exercises for new members to learn Java and FRC programming fundamentals
- Mentored by adults from the industry to grow leadership and programming skills

Personal Projects

Tennis Ball Trajectory Tracking - github.com/PhillipVolkov/BallTracking **06/2023 - 08/2023**

- Utilized an image preprocessing framework (OpenCV) and an image classifier (Yolov8) to create a real-time video-processing model to classify live tennis balls in play. The model was able to be run at over 100FPS and had an 85% classification accuracy at under 2m.
- Extracted ball position data from the classifier's bounding boxes to store the ball's trajectory and detect when a bounce occurs based on data-derived features. The classifier was accurate for 95% of bounces for heights of over 25cm.
- Constructed the program using OOP-based techniques, leading to organized, modular, and reliable code allowing for faster integration of the essential systems.

FRC 2022 Codebase - github.com/FRC-1294/frc2022 **01/2022 - 06/2022**

- Worked on leading the overall project and codebase to create software for the 2022 season
- Created the DriveSubsystem, VisionSubsytem, and TubeSubsytem, along with a variety of additional Commands that allowed the robot to be driven by the driver, controlled via state-machine by the operator, and use vision and encoders to automatically move and score points in autonomous

Wiki Links Project - github.com/PhillipVolkov/WikiLinks **07/2021 - 01/2022**

- International Baccalaureate (IB) research project to compare the performance of a naive algorithm and one utilizing a combination of machine learning algorithms to classify whether hyperlinked text matched its linked web-page
- Utilized text preprocessing combined with natural language processing (NLP) techniques such as lemmatization and stemming to prep the corpus for analysis
- Learned and applied the Word2Vec technique, creating a custom-trained model with common computer-science jargon to determine the similarity of phrases
- Combined the previous techniques as features within the linear kernel SVM classification, with a specialized test-set to ensure excellent outlier performance

Budget Application Project - github.com/PhillipVolkov/BudgetApp **02/2021 - 03/2021**

- Full-stack development of a web application to allow a client to sort and monitor their transactions on a monthly budget
- Utilized PostgreSQL to create a complex yet flexible relational database with 8 tables, maximizing efficiency
- Back-end development through the Spring MVC framework in Java allowed for seamless user interaction with the database, with transaction sorting through the Google Places API
- Learned HTML and CSS to provide an aesthetic and functional front-end

Technical Skills

Languages: Java, Python, C, Assembly, SQL, HTML, CSS
Developer Tools: Github, Visual Studio, IntelliJ, Azure DevOps
Technologies/Frameworks: Rest API, Spring Boot, React, Node.JS, YOLO, OpenCV