Samuel Kinstlinger

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EDUCATION

University of Maryland (UMD) College Park, MD

B.S., Computer Science Expected May 2026

- **Honors College:** Gemstone, **GPA**: 3.98/4.0, Dean's List, **Awards:** President's Scholarship
- **Relevant Coursework:** C++, Object-Oriented Programming II, Computer Systems, Signal Analysis, Circuits

TECHNICAL EXPERIENCE

Data Analyst Intern, *Systecon North America* June 2024 - Aug. 2024

- Modeled air vehicle lifecycle management using Pandas, Excel, and Systecon's optimization and simulation software, leading to a 10% improvement in air vehicle reliability and a reduction in spare parts and maintenance costs by $1.9 million
- Researched assumptions of machine learning algorithms and data preprocessing techniques, adjusting for any violations to ensure the validity and reliability of lifecycle models
- Presented a report on future modeling strategies and software updates to integrate additive manufacturing parts

Data Scientist and Machine Learning Engineer, *UMD Terps Baseball Team* Aug. 2023 – May 2023

- Designed and implemented a Gate Recurrent Unit (GRU) model to forecast changes in key pitching metrics during games, facilitating informed pitcher substitutions and utilizing transfer learning to personalize predictions for individual pitchers
- Created and deployed predictive models with Pandas, Scikit-Learn, and TensorFlow to determine the optimal mechanical factors, such as arm angles, for pitchers based on their physical attributes

Researcher, *Maryland Robotics Center* July 2022 - Aug. 2022

- Programmed and simulated ground robots with UMD graduate students using Python and ROS2, employing probabilistic hierarchical semantic mapping to enhance environmental inference capabilities
- Researched, implemented, and fine-tuned a YOLOv5 object detection algorithm for real-time autonomous object recognition and tracking in dynamic environments, achieving a final mean average precision (mAP) of 0.71

PROJECTS

Lead Researcher, *Robots in Dynamic Environments (RiDE) UMD Research Project* Jan. 2024 - Present

- Leading a team of 11 students to review cutting-edge multi-robot navigation and collaboration research
- Formulated a proposal to design advanced robotic systems that track and engage moving targets in diverse and dynamic environments through multi-agent reinforcement learning
- Presented the proposal to research program coordinators and stakeholders, leading to its selection as one of the 10 finalists chosen from 49 submissions for further development

Lead Author and Editor, *Introduction to Robotics and Autonomous Systems Textbook* Mar. 2024 - Present

- Authoring a robotics textbook for undergraduate robotics students covering topics such as reinforcement learning, stereo vision, SLAM, multi-robot collaboration, mechanisms, and controls

Programming Sub-team Leader, *UMD Over Terrain Vehicle Project* Mar. 2024 - May 2024

- Collaborated with a team of students to design, build, and test an autonomous all-terrain robot, completing all defined project targets within a $350 budget and 3-month timeline
- Programmed the mobile robot using C++ to autonomously navigate to a crash site, collect pose and color data of the crash, and navigate to the goal zone while avoiding randomly positioned obstacles
- Planned the mobile robot's task execution strategy using a behavior tree for efficient operation

Computer Vision Engineer, *Vehicular Fraud Detection System* Mar. 2024 - Apr. 2024

- Trained and optimized a convolutional neural network in TensorFlow with a team of 4 for detecting fraudulent insurance claims from images of vehicle damage, achieving an accuracy of .89
- Deployed a Flask-based website enabling users to upload images and obtain predictions on insurance claim fraudulence

SKILLS

Programming Languages: Python, C++, C, MATLAB, Java, SQL, Assembly

Tools & Frameworks: ROS2, Linux, Git, Excel