MATTHEW H. TAYLOR

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EDUCATION

UNIVERSITY OF CALIFORNIA, SAN DIEGO **SEP. 2023 – JUNE 2025**
- MS in Computer Science and Engineering

UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN **AUG. 2019 - MAY 2023**
- Bachelor of Science in Aerospace Engineering *GPA: 3.93 / 4.00*
- Minor: Computer Science

UNIVERSITY HIGH SCHOOL, NORMAL, ILLINOIS **AUG. 2015 - MAY 2019**
- Valedictorian, Illinois State Scholar *GPA: 4.0 / 4.0*

WORK EXPERIENCE

***Maxar Technologies**, Research and Development Intern* **MAY 2022 - AUG. 2022**
- Applied deep learning and semantic segmentation methods to detect building footprints from Maxar satellite imagery using PyTorch Lightning for training and TensorBoard for visualization.
- Researched how the addition of the near infra-red band (NIR) improves model performance.
- Developed visualizations in TensorBoard for the R&D Lab's custom training framework.

***UIUC**, Robotics and Human-Agent Teaming Research* **MAY 2021 - PRESENT**
- Created a CNN to detect objects and transform a robot's camera view into a top-down grid world in simulation and the real-world using the NVIDIA JetBot AI kit.
- Explored useful applications for brain computer interfaces and human-agent teaming, applying machine learning algorithms to EEG data to identify how performance can be improved in a human-agent collaborative environment.
- Created an experiment with multiple participants and developed a multiclass SVM to classify LEDs flashing at different frequencies using steady-state visual-evoked potentials (SSVEP).

***UIUC**, Telecommunications Undergraduate Research* **JAN. 2021 - MAY 2021**
- Created a remote controller that utilizes the MQTT protocol with open-source libraries in Python.
- Simulated the control of a vehicle with a joystick (ground station) GUI and a vehicle GUI.
- Implemented encryption techniques to ensure that only verified users can control the joystick.

TECHNICAL EXPERIENCE

ACM - Artificial Intelligence and Data Analytics Group

***NFL Kaggle,** Team Lead* **AUG. 2021 - JAN. 2022**
- Led a team in the NFL Big Data Bowl 2022 Kaggle competition, producing and analyzing a new metric called kicker excellence rating (KER) based off data from previous NFL seasons.
- Created a supervised learning feed forward neural network to find KER using features such as score difference, time remaining in the game, distance from the field goal, and weather data.
- Delegated tasks to team members wrote a report outlining the teams' design, algorithm, and methodology.

Illinois Space Society (ISS) – SEDS Chapter

***Large Rocketry,** Avionics Subteam* **AUG. 2020 - OCT. 2021**
- Wrote software in C++ for UART communication between a Teensy microcontroller and the BeagleBone Black (a micro-computer). Data is sent in the form of bytes and converted to floats once received.
- Created a library for the GPS sensor on the rocket that utilizes SPI communication between the sensor and the Teensy.

RELEVANT COURSEWORK AND TECHNICAL SKILLS

- CS 173: Discrete Structures, CS 225: Data Structures, CS 446: Machine Learning, CS 440: AI
- Programming Experience: Python, C/C++, Java
- AI/Machine Learning Libraries: PyTorch, TensorFlow, Scikit-Learn, OpenCV, NumPy, Pandas