

MICHAEL O. SHIELDS

Contact Information

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EDUCATION

YORKTOWN HIGH SCHOOL, ARLINGTON, VA

Class of 2025

- GPA: 4.3
- PSAT (Fall 2023): 1480 (99th percentile)
- SAT (Spring 2024): 1560 (99th percentile)
- Honors: AP Scholar with Distinction, Commended National Merit Scholar
- Certified Biliterate in Spanish
- Nominated by Yorktown High School for UVA Jefferson Scholarship Competition
- AP Score average: 4.67 over 6 exams

COMPUTER SCIENCE & ENGINEERING EXPERIENCE

SOFTWARE

- Proficient in Python, coding for 6+ years

PROJECTS

GIMKIT BOT, *Algorithm developed using PyCharm software*

2022

- Created a program for Gimkit, an online game, that guessed and stored questions and answers and automatically answered previously stored answers; program also automatically advanced upgrades in the game
- Won by a factor of 10^9 in a game against real people

CONJUGUEMOS BOT, *Algorithm developed using PyCharm software*

2022

- Created a program to procedurally conjugate Spanish verbs, was able to interact with website and conjugate seven thousand verbs in five minutes

VEGETABLE PLANTING PROGRAM GUIDE, *Developed using PyCharm software*

2023

- Created a program to provide optimal planting and harvesting times based on the user's location within the contiguous United States and requested vegetables to plant
- Integrated relevant information and instructions for planting and maintaining vegetation to improve advice

POMODORO STUDY APP, *Mobile app developed using PyCharm software*

2023

- Developed an app, compatible with iPhone and Android, to aid studying that uses the Pomodoro method of working for a set duration (usually 25 minutes with a procedural progress-based animation) followed by a set duration of rest (~5 minutes); designed a customizable number of repetitions to complete in addition to a pause/resume feature

TEXT CROPPING ALGORITHM, *Algorithm developed using PyCharm software*

2024

- Created a program to automatically crop & center image text based on pixel color values, resulting in 500+ large pages in under 2 minutes of operation being cropped (able to procedurally exclude 95% of errors/marks on pages that aren't text)

QUADRUPEDAL ROBOT, *In-progress project similar to Spot by Boston Dynamics*

2024

- Building a quadrupedal robot from scratch, will be able to walk, see, and respond to commands.

ANT SIMULATION, *Teaching a simulated ant to hunt for food*

2024

- Used reinforcement learning + PyGame to teach an ant with limited information to search for food and return it to a given point

WEBSITE, *Portfolio website developed with React*

2025

- Created a website (michaelolivershields.com) to display achievements in an accessible format and location.

INKWELL, *In-progress desktop notetaking app*

2025

- Building a minimalist note-taking app in Tauri (React + Rust), focusing on ease of use, responsiveness, and design. Launched a corresponding website (inkwellnotes.com). Includes file handling, numerous React components, an SQLite note registry, context menus, user account creation/authentication/deployment, and a proprietary file type.

LEADERSHIP & PROFESSIONAL EXPERIENCE

TKD STUDIO, ARLINGTON, VA

2022 – 2025

Adaptive Helper/Mentor

- Taught students with special needs Taekwondo every Saturday and provided socialization lessons and exercise

2023

Advanced Assistant Instructor

- Helped with beginner and intermediate classes 3x per week as an advanced instructor, coaching the students in a way that improved memorization of curriculum, physical ability, and technical prowess. Worked with groups of 10+ students at a time
- Orchestrated administrative tasks such as opening and closing the studio, taking class attendance, and restocking gear to ensure efficient operations

ATHLETICS

TAEKWONDO, ARLINGTON, VA

2014 – 2025

- Achieved Black Belt in November 2024
- Trained 5 times a week individually and 3 times a week in class, demonstrating a commitment to excellence
- Developed discipline through intense physical training, improving strength from less than 20 pushups in 2023 to over 80 pushups in less than 2 minutes and flexibility and coordination
- Awarded “Most Improved Student” in 2019 based on reintegration into class after a severe injury in 2018

YORKTOWN ROWING, ARLINGTON, VA

2020 – 2021

- Competed on Yorktown Rowing team weekly with 7 other teammates coupled with multi-hour daily practices

AWARDS, SKILLS & INTERESTS

- **Languages:** English, Spanish I-IV
- **Skills:** coding proficiency, martial arts, videography
- **Awards:** “Most Creative Trailer” - 8th Grade Drama Oscars, 2021– voted on by the entire class at the end of the year for the year’s second-to-final project
- **Interests:** Engineering, weightlifting, exercise science, programming, mixed martial arts