

Aleksander Kurgan

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Education

Deep Run High School (DRHS) | GPA: 4.64

2022 – 2026

Center for Information Technology (CIT)

- **Relevant Coursework:** Dual Enrollment Discrete Mathematics, Honors Enterprise Architecture, Honors App Development, Honors Intro to Programming, Honors IT Proj. Management, AP Computer Science A, AP Computer Science Principles, AP Precalculus, AP Calculus BC, AP Statistics, AP Physics I, AP Human Geography, AP European History, AP US History, AP Government, AP Biology, Dual Enrollment English, AP English Language, AP Macroeconomics.
- **Memberships:** Computer Science Honor Society Council Member, Mu Alpha Theta Honor Society, STEM Honor Society, Science National Honor Society, Tri-M Music Honor Society, Rho Kappa Social Studies Honor Society.

George H. Moody Middle School | GPA: 4.0

2019 – 2022

International Baccalaureate (IB) Program

Polish School of the Embassy of the Republic of Poland in Washington D.C.

2014 – 2022

(Grades 1-8) | GPA (1-6 scale): 6.0

Polish Ambassador's Scholar for Academic Excellence

Internships, Projects & Publications

Academic Researcher in Human Computer Interaction | LSU ADHD Study

Sept. 2024 - Present

👉 Performed research with scholars from LSU, Rutgers, and the University of Zurich on a VR-based ADHD intervention study funded by National Institute of Mental Health (NIMH). Developed robust, scalable data pipelines to parse, analyze, and report complex and large user interaction data. Refactored and expanded codebase using feature-driven design patterns. Facilitated adding and completing novel research objectives.

- [Redacted], [Redacted], [Redacted], [Redacted], [Redacted], **Kurgan A**, [Redacted], [Redacted]. Towards Ecological Validity When Assessing ADHD Symptoms: Patterns in Automatically Collected, Real-World PC Activity Data. *International Journal of Human-Computer Studies*, original draft submitted Apr. 2025, revised draft submitted October 2025.

Citescore: 12.4; Impact Factor: 5.3; Q1 Journal;

- [Redacted], [Redacted], [Redacted], [Redacted], [Redacted], **Kurgan A**, [Redacted], [Redacted], and [Redacted]. Enhancing Academic Engagement in College Students with ADHD: A Randomized Controlled Trial of a Virtual Reality Study Aid. *Journal of Clinical Child & Adolescent Psychology*, original draft submitted October 2025.

Citescore: 10.5; Impact Factor: 4.4; Q1 Journal;

Project Lead | Woodland Cemetery Restoration Foundation

Jan. 2025 - May 2025

Led development team to improve mobile functionality and map hundreds of graves at the long-neglected Richmond Cemetery in Woodland, VA. Displayed graves on an interactive interface, showing burial records alongside 3-D grave scans and national Find-A-Grave records.

Team Captain | “Fintelligent” - Congressional App Challenge Winner

Aug. 2024 - Dec. 2024

Led team to win one of the most competitive districts for the 2024 Congressional App Challenge. Our winning entry was a mobile and desktop app, Fintelligent, which applies image processing and data science to distinguish healthy fish from those with pollution-induced disease. Showcased at the U.S. Capitol in Washington, D.C. in April 2025.

Mobile Developer | HCPS Transportation: Integrated Mobile Applications

Jan. 2024 - May 2024

Created a cross-platform mobile application connected to the Edulog transportation logistics platform, enabling Henrico County Public Schools students to scan their smartphones to verify boarding and disembarkation from the school bus.

Second Prize | Virginia Junior Academy of Science (VJAS) Symposium

2021

Combined physics, music, and computer science to analyze unique sound phenomena from the euphonium.

- Kurgan, A. Multiphonics on Euphonium: Solving the mystery of the third note. Presented at the Virginia Junior Academy of Science (VJAS) Symposium, Virginia, USA. [Link to Paper ↗](#), [Presentation ↗](#).

Awards & Recognitions

Academic Awards

- 👉 Deep Run High School English Department Award 2025
- Deep Run High School Academic Excellence Award 2025, 2024, 2023
 - For all A's in all classes each quarter.
- Deep Run High School Principal's Scholar 2025, 2024, 2023
 - For ranking in the 99th percentile on the PSAT.
- AP Scholar with Distinction 2025, 2024
- United States Presidential Diploma for Outstanding Academic Excellence 2022
- Polish Ambassador's Diploma for Exceptional Academic Achievement 2022, 2021, 2020, 2019, 2018
 - For a GPA of 5.5+ on a 6-point scale.

Programming & Cybersecurity Awards

- Finalist, Radford University RUSecure CTF Cybersecurity Competition 2025, 2024
- 👉 Winner of the National Congressional App Challenge 2025
- 👉 CyberPatriot National Platinum Division Semi-Finalist 2024
- CyberPatriot 99th Percentile State Platinum Division Qualifier 2024
- CyberPatriot 99th Percentile Gold Division Qualifier 2023
- Winner of the “Code Beats” summer programming competition, VCU 2022
 - Programmed hip-hop beat that won a competition against 40 submissions. Released as the opening track of the resulting Spotify album edited by DJ Harrison and Dr. Antonio García. [Click to listen](#) ↗

Music Awards

- 👉 Second Trombonist, Virginia State-wide Top Jazz Band Oct. 2025
 - Directed by Wycliffe Gordon, Grammy-winning trombonist & former member of the Jazz at Lincoln Center Orchestra.
- 👉 International Leonard Falcone Competition Semi-Finalist 2025
 - One of three high school semi-finalists among University music majors in one of the most prestigious Tuba & Euphonium competitions worldwide.
- 👉 Second Chair Euphonium, Virginia State-wide Concert Band Apr. 18–20, 2025
 - Directed by Dr. Danny Galyen, Director of Bands at the University of Northern Iowa.
- Woody Herman Jazz Award, Deep Run High School Outstanding Jazz musician 2025
- 👉 First Trombonist, Virginia State-wide Top Jazz Band Oct. 2024
 - Directed by Vincent Gardner, trombonist at the critically lauded Jazz at Lincoln Center Orchestra.
- 👉 First Prize, International Classical Music Stars Competition Oct. 2024
 - Ranked as a top performer among instrumentalists, ensembles, composers, and conductors by a panel of world-class musicians.
- Deep Run High School Band Outstanding Freshman & Sophomore Award 2025, 2024
- 👉 Deep Run High School Fine Arts Department Award 2025, 2024
- First Trombonist, Greater Richmond Youth Jazz Band 2025, 2024
- 👉 Second Chair Euphonium, Virginia State-wide Concert Band Apr. 18–20, 2024
 - Directed by Verena Mösenbichler-Bryant, Chair of the Music Department at Duke University.
- 👉 Second Chair Trombone, Virginia State-wide Top Jazz Band 2023
 - Directed by Alan Baylock, former USAF Airmen of Note Chief Arranger & director of UNT One O'Clock Lab Band.
- Fourth Chair Euphonium, Virginia State-wide Symphonic Band Apr. 27-29, 2023
 - Directed by Dr. Rodney Dorsey, Professor of Music at the Florida State University College of Music.
- Second Trombonist, Greater Richmond Youth Jazz Band 2024, 2023
- Second Prize, International Music Competition: “GCC Series – Music of America” 2021
- 👉 Finalist, International Tuba Euphonium Association VTEC Competition 2021
 - Finalist in the age 12–15 category of the solo Euphonium performance competition.
- All-District Band Euphonium Audition Winner and Participant 2025, 2024, 2023, 2022, 2020

Extracurricular Involvement

Programming & Cybersecurity Member of Computer Club at DRHS	<i>2022 – Present</i>
◦ Proficient in Python, JavaScript, HTML, CSS, TypeScript/React, and Java.	
◦ Experienced in Linux hardening skills (CyberPatriot competitions, 2023-Present).	
◦ Proficient in cryptography, hashing, reconnaissance, networking, Linux defensive security, and forensics utilized in “Capture the Flag” cybersecurity competitions (Radford RUSecure, picoCTF, PatriotCTF).	
Robotics Member of FRC #1086 Blue Cheese	<i>2022 – 2024</i>
◦ Developed 3D models of robots using (self-taught) professional CAD software (Onshape). Example models 	
◦ Used CAM software Fusion360 to facilitate the manufacturing of models	
◦ Fabricated robot parts for First Robotics Competition robots using in-shop machinery.	
Jazz Trombone Primary Teacher: Toby Whitaker	<i>2019 – Present</i>
◦ Principal trombone, Greater Richmond High School Jazz Band.	
◦ Selected early for advanced Jazz Band in Middle and High School, Grades 6-12.	
Classical Euphonium Primary Teacher: Prof. Ross A. Walter	<i>2015 – Present</i>
◦ Solo & chamber music performer; low brass section leader.	
◦ Selected early for the Advanced Wind Ensemble group in Middle and High School, Grades 6-12.	

Skills, Activities & Interests

Programming Languages: Python, Java, React.js, TypeScript, JavaScript, HTML, CSS, SQL, L^AT_EX

Software/Tools: Onshape, Fusion 360, VSCode, Git, Docker, EasyEDA

Languages: English (Native), Polish (Native), Spanish (Elementary–Intermediate)

Professional Interests:

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| ◦ Domain-Driven Design | ◦ Networking & Systems Design |
| ◦ SOLID Principles & Software Design Patterns | ◦ Mobile App Development (React Native, Flutter) |
| ◦ Full-Stack Web Development | ◦ Data Science (pandas, NumPy, matplotlib) |
| ◦ Linux Hardening & Bash Scripting | ◦ Jazz Improvisation & Music Theory |

Professional Performances

“Vocalise No. 10 - Andante Pastorale” by Marco Bordogni with Dr. Magdalena Adamek, piano.	<i>Nov. 12, 2025</i>
<i>Sonia Vlahcevic Concert Hall, James W. Black Music Center, Richmond, VA.</i>	
VCU Greater Richmond Youth Jazz Band directed by Dr. Taylor Barnett.	<i>May 2025</i>
<i>Sonia Vlahcevic Concert Hall, Singleton Center for the Performing Arts, Richmond, VA.</i>	
“Sonatine” by Hidenori Arai with Dr. Magdalena Adamek, piano.	<i>Apr. 10, 2025</i>
<i>Sonia Vlahcevic Concert Hall, Singleton Center for the Performing Arts, Richmond, VA.</i>	
Central Virginia Wind Symphony streamed on CBS Prime & VPM Music.	<i>May 14, 2024</i>
<i>Lead euphonium player, directed by Mike Goldberg (VPM music host).</i>	
VCU Greater Richmond Youth Jazz Band directed by Dr. Taylor Barnett.	<i>May 14, 2024</i>
<i>Carpenter Theatre at the Dominion Energy Center, Richmond, VA.</i>	
VCU Greater Richmond Youth Jazz Band directed by Dr. Taylor Barnett.	<i>May 4, 2024</i>
<i>Trinity Episcopal School Jazz Festival, Richmond, VA.</i>	
VCU Greater Richmond Youth Jazz Band directed by Prof. Toby Whitaker	<i>May 6, 2023</i>
<i>Sonia Vlahcevic Concert Hall, Singleton Center for the Performing Arts, Richmond, VA.</i>	
“Rhapsody” by James Curnow with Dr. Magdalena Adamek, piano.	<i>Nov. 9, 2022</i>
<i>Sonia Vlahcevic Concert Hall, Singleton Center for the Performing Arts, Richmond, VA.</i>	
“Concertino” by Ernst Sachse with Dr. Magdalena Adamek, piano.	<i>Dec. 1, 2021</i>
<i>Sonia Vlahcevic Concert Hall, Singleton Center for the Performing Arts, Richmond, VA.</i>	