

Abdullah Khaled

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Education

- Wakeland High School**, High School Diploma – Frisco, TX Aug 2023 – May 2027
- 4.0 unweighted GPA; 18 AP courses (completed/planned) by graduation
- Frisco ISD Career and Technical Education Center**, Project Lead The Way – Frisco, TX Aug 2023 – May 2027
- Frisco ISD CTE PLTW Nationally Distinguished Engineering Program
 - Courses: Introduction to Engineering Design, Principles of Engineering, Digital Electronics, Engineering Design and Development (grades 9–12)
 - Engineering portfolio: [akhaled247.github.io/pltw-engineering](https://github.com/akhaled247/pltw-engineering)

Projects

- OralVision (oral disease screening device) – Conrad Challenge; Diamond Challenge** Oct 2025 – present
- Privacy-preserving screening pipeline using centrally trained models and on-device inference without transmitting raw patient imagery; HIPAA-aligned design goal; author led imaging hardware end-to-end (partner focused on training/inference stack)
 - Designed, built, and programmed embedded imager (XIAO-ESP32-C6, OV5642 5 MP) with power-aware capture; bench-tested illumination and viewpoint; repeated sessions to confirm capture consistency; 3 PCB and 5 snap-fit enclosure revisions
 - Onshape CAD and 3D printing; USPTO patent application in progress
- WatchFall (fall-monitoring prototype) – Samsung Solve for Tomorrow** Sept 2025 – present
- On-device fall detection on Raspberry Pi Pico with TensorFlow Lite; lightweight motion model and alert path; hybrid public + custom-labeled data to reduce false positives
 - Resource-aware monochrome imaging (Arducam HM01B0, SPI) on Pico; planned validation on recorded motion/fall clips to tune thresholds before wider field testing

Technical Experience

- Chief Technical Advisor**, ITKAN Robotics (FRC 9128) – Plano, TX Aug 2025 – present
- Software architecture and process for multi-team FRC (~20 programmers); standardized repository layout; integrated autonomy and teleop with mechanical and electrical subsystems under tight iteration cycles
 - Reliability-focused autonomy/teleop with layered failsafes; post-incident recovery planning after near-complete vision dropout; documented debugging and match logging workflows
 - Lab-characterized mechanism performance (cycle time, accuracy, throughput); Mantik open WPILib/Java notes (mantik.netlify.app); mentored programmers; university and industry outreach
- Software Lead**, ITKAN Robotics (FRC 9128) – Plano, TX Dec 2024 – July 2025
- Primary Java/WPILib contributor (~80% of codebase) for ~50-member team; Git-based review; command-based autonomous and teleoperation modes
 - Vision-based pose with OpenCV and SolvePnP fused to drivetrain state via Kalman filtering; Bezier-based paths, finite-state autonomy, and PID tracking—~50% higher autonomous scoring per match (n=12) after vision integration
 - Match logging, simulation, and teleop handoff tooling; mentored newer programmers in WPILib and mechanism simulation
 - Reference codebase: [akhaled247.github.io/first/reefscape](https://github.com/akhaled247/first/reefscape)
- Programming Mentor**, ITKAN Robotics of ICF (FTC 26357, 28931) – Plano, TX Sept 2024 – Feb 2026
- State-estimation for FTC—wheel odometry, IMU, and vision fused with Kalman filtering; improved targeting and scoring efficiency ~35% (github.com/itkan-of-icf/ftc-26357-2526-v2)
 - Mentored rookie FTC teams through design reviews and integration; peak ~25 hrs/week during build season; FLL outreach for refugee students via OARobotics ([akhaled247.github.io/personal/oarobotics](https://github.com/akhaled247/personal/oarobotics))

Co-Founder, President, Wakeland High School Wolverine Robotics (FTC 33791) – Frisco, TX Aug 2024 – present

- Founded school FTC program; UIL State Championship finalist (3rd); scaled membership 0→50+ in year one; secured ~\$6k+ resources; first competition robot in under two weeks
- Taught recurring technical workshops (Java, Onshape, FTC simulation); maintained engineering notebook and onboarding materials; autonomous localization with wheel odometry and IMU fusion (PedroPathing, FTC SDK)

Math and Reading Instructor, Gideon Math and Reading Center – Frisco, TX June 2024 – present

- Instructed K–11 in mathematics (through Geometry), reading, and grammar in guided small groups (~4–12 students per day); used formative checkpoints to adjust pacing and difficulty
- Analyzed student work to target misconceptions and personalize practice; adapted reading passages to goal comprehension levels

Math and Reading Teaching Assistant, Gideon Math and Reading Center – Frisco, TX Jan 2022 – May 2024

- Graded K–11 mathematics including Algebra and Geometry; scaffolded in-class assignments
- Streamlined grading workflow (~50% time reduction) while preserving feedback quality

Skills

Software & Web: Python, Java, JavaScript, R, Git, GitHub, HTML, CSS, Jekyll, Google Sheets, Google Workspace, Microsoft Office

Robotics, ML & Vision: WPILib, FTC SDK, TensorFlow, TensorFlow Lite, TensorFlow Federated, OpenCV, SolvePnP, Kalman filtering, FSMs, mechanism simulation, control systems

CAD & Electronics: Fusion 360, Onshape, NI Multisim, KiCAD, EasyEDA, soldering

Leadership & Activities

Vice President, Mu Alpha Theta/Math National Honor Society – Wakeland High School, Frisco, TX Aug 2024 – present

- Vice President (100+ members); organized chapter presentations; expanded Math Lab peer tutoring (>20% participation)
- Directed annual middle school mathematics contest (~100 students, 3 schools, 35+ student volunteers)

Treasurer, Mu Alpha Theta/Math National Honor Society – Wakeland High School, Frisco, TX Aug 2023 – July 2024

- Launched Math Lab with faculty-aligned Algebra I peer tutoring; volunteer scheduling via Google Sites
- Treasurer—managed club budget for 100+ members

Co-Founder, Secretary, Muslim Student Association (MSA) – Wakeland High School, Frisco, TX Aug 2024 – present

- Co-founded; mission, recruitment, admin presentations; prayer room coordination; club promotional media

Tutoring Program Coordinator, Ma'ruf Dallas Refugee Organization (Project Taleem) – Dallas, TX Sept 2023 – present

- Co-lead after-school tutoring (~2 hr/week, school year); K–6 refugee learners in small groups with trained high-school volunteers; coordinated Ma'ruf and Gideon for materials; IXL diagnostics (math and reading)
- Ran pre-session briefings, age-banded grouping, and newcomer onboarding; trained tutors using methods informed by parallel Gideon instructor/TA experience
- ~15-point mean IXL SmartScore gain over four months (Nov–Feb, n=10); monthly robotics enrichment via OARobotics (akhaled247.github.io/personal/oarobotics)

Teaching Assistant, Islamic Center of Frisco (ICF) – Frisco, TX Sept 2023 – May 2024

- Supported elementary religious studies classes; assisted lead instructor with lesson delivery and student engagement

Honors & Awards

- (2025) Collegeboard: AP Scholar with Distinction; National Recognition Program School Recognition Award
- (2026) OralVision: Conrad Challenge Innovator; Diamond Challenge Semifinalist
- (2026) FTC 33791: Event Winner; Control Award (FIT-North Dallas Semi-Regional Championship, 25 teams); Control Award (FIT-North U-League Tournament)
- (2025) FRC 9128: FIRST® Leadership Award Semifinalist; Event Winner (FIRST® in Texas Victoria, 25 teams); Autonomous Award (FIT Plano, 31 teams); Creativity Award (FIT Amarillo, 36 teams)
- (2025) FTC 26357: Finalist Alliance Captain (FIT-North McKinney Qualifier, 19 teams)