

STORMING ROBOTS

<https://summer.stormingrobots.com>

(908) 595-1010

office@stormingrobots.com

SUMMER 2025

CHARACTERISTICS

SAVINGS

Overview Video

go to **Grade 8 to 12**

go to **Grade 5 to 8**

Computational Thinking

Empowering students to be competitive for high school internships in the dynamic field of AI.

AM & PM

(9-12 & 1-4)

Full-day(9-3)

Continuous growth with our progressive advancement program – allow reaching one's full potential.

Grade 5 to 8

Hands-on Robotics Projects for Novice to Advanced

COMPUTER SCIENCE for middle schoolers

Gain Competitive in HS Engineering Activities

Special FACE-OFF Robotics Weeks

(w/ prize)

Satellite Programming Competition

Gr.6-9

(by MIT/NASA) -TBA

Grade 8-12

CS with Computational Thinking—

Beyond just programming.

College Readiness and Beyond

Hands-on Robotics and Electronic Projects for Novice to Advanced Level

Adv. Weeks :
Computer Vision

(Bridge to Machine Learning)

Networking Control w/ Computer Visions



DAILY ROUTINE

Sample Daily Schedule

8:30	Check-in
9:00	Workshop Lab time
10:15	Break (<i>snack, play a short chess game, making friends</i>)
10:30	Workshop Lab time
12:00	Check-out for AM session only students Lunch for Full-day program students.
12:30	Check-in for PM sessions only
1:00	Workshop Lab Time
2:15	Break
2:30	Workshop Lab Time
3:00	Check-out for Full-day program students
4:00	Check-out for all students
**Until 6PM	Extended hours Care (Require min. 1 week prior notice.) Time to relax, play a board game. Reading a book, etc. (*Late Pickup: \$16/hr. Please note that any 15 minutes into an hour is counted as a full hour.)



SAVINGS

Early Registration

- by Feb 28th: **\$50 off.**
- by March 31st: **\$40 off.**
- by April 30th: **\$30 off.**
- by May 31st: **\$20 off.**

Special Discounts for Additional Sessions

\$60 off: both morning and afternoon classes in the same week.

\$40 off: for each additional session.

(i.e. Both AM and PM within the same week: **-\$100**)

Others

\$50 off: Refer your friend (subject to approval)

10% off: Sibling Discount (Apply to the lowest cost)

Samples of Savings

Scenario 1 Total Saving (100.00)

WEEK1: AM + PM -40 -60

Scenario 2 Total Saving

\$(140.00)

WEEK1: AM + PM -40 -60

WEEK2: AM -40

Scenario 3 Total Saving

\$(280.00)

WEEK1: AM + PM -40 -60

WEEK2: AM + PM -40 -40 -60

WEEK5: Full-Day -40

Plus: Early Bird Discount



COMPUTATIONAL
THINKING

ALL PROGRAMS STRESS ON

COMPUTATIONAL THINKING

WHY MATTERS!

In today's digital landscape, CS with Computational Thinking literacy stands as fundamental as the ABCs.

Computer science is often misunderstood as mere coding. It's far more than that—it's a mindset, a journey that cultivates proficiency and adaptability. Learning code solely for its sake doesn't inherently foster problem-solving abilities.



PROGRAMMING

Regrettably, grade school education frequently neglects this crucial aspect, resulting in a significant gap as students advance from middle school to high school and subsequently to college. At Storming Robots, we acknowledge this void—a gap that impedes students' progression.

You will find two groups of summer programs— for Gr.5-8 and Gr.8+. Both are centered on imparting concrete computer-centric knowledge along with programming with Computational Thinking skills, and Robotics engineering disciplines.



CRITICAL
THINKING

DIRECT BENEFITS:

Refined Problem-Solving: Sharpen analytical skills essential, creativity and innovative ability in tackling engineering challenges.

Increase their competitiveness: Gain a competitive edge in various contests, such as Advanced Placement in CS –A, ACSL, USACO. Equip them with the skills, knowledge, and confidence needed to secure High School Internship.








Schedule At-A-Glance

Grade 8



2025 Summer Enrichment Schedule At-A-Glance
<https://summer.stormingrobots.com>

AM: 9 to 12 PM only (M-F) or
 PM: 1 to 4 PM only (M-F) or
 Both AM+PM

	Wk1-4 6/23-27	7/7-12	7/14-18	7/21-25	Wk5-8 7/28-8/1	8/4-8	8/11-15	8/16-22	Week 1		Week 2		Week 3		Week 4		Week 5		Week 6		Week 7		Week 8	
									AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Grades 8-12																								
 Algorithms in C/C++ Levels Progression: B to I AM or PM or AM+PM	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
 Algorithms in C/C++ Levels Progression: II & III AM or PM or AM+PM	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
 Robotics and Electronic – Arduino Projects Levels Progression: B to I AM or PM or AM+PM	✓	✓	✓	✓	.	.	✓	✓	✓	✓	.	.	✓	✓	✓	✓	.	.	.	
 Computer Vision on Windows/Linux 2 Weeks of Full-Day Programs 9 AM to 3 PM, M-F	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2 Wks Full Day Program 9-3			
 Networking Control with Computer Vision 2 Weeks of Full-Day Programs 9 AM to 3 PM, M-F	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2 Wks Full Day Program 9-3			
Grades 9-12																								
 Advanced Placement Computer Science A - Beginner 2 Weeks of Full-Day Programs 9 AM to 3 PM, M-F	-	-	1 WK Full-Day	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1 WK Full-Day	-	-	-	-
 Advanced Placement Computer Science A - Advanced 2 Weeks of Full-Day Programs 9 AM to 3 PM, M-F	-	-	1 WK Full-Day	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1 WK Full-Day	-	-	-	-



PROGRAMMING WITH COMPUTATIONAL THINKING

Grade 8-12 | AM or PM | AM+PM

Levels Progression: B, I, II, & III

As always, our CS track goes beyond just programming languages – it focuses on cultivating problem-solving abilities through computational thinking (CT), preparing students for a technology-driven future.

We follow our proven successful Algorithms in C/C++ curriculum. If you are currently in our Algorithms in C/C++ program, you will continue well you leave off.



Characteristics:

- **Problem Solving with CT:** from Abstraction to Algorithmics Skills
- **Comparable to College Level:** Covers Freshman to junior year topics in CS, including data structures, algorithms, and complexity analysis.
- **Proven Effectiveness:** Excellent student records, empowering self-learning and independent projects.
- **Duration for Each Level:** Progress at your own pace, not confined to a single week.



Learning Objectives in each level

Level B & I: Fundamental programming structure to Linear Data Structure including basic OOPS.

Level II: Advanced topics such as memory pointers, string manipulation, recursion, etc. Sorting | Searching Algorithms.

Level III: Non-linear data structures, typically covered in the 2nd and 3rd year of college.

Level IV: Advanced Algorithms—available only during the school year.

PROGRAMMING WITH COMPUTATIONAL THINKING

Grade 8-12 | AM or PM | AM+PM

More details at <https://cspdf.stormingrobots.com>.



Direct Benefits:

- Elevate your problem-solving and development skills to tackle more sophisticated robotics and engineering.
- Gain true software development skills, not just programming. Improve performance in various contests such as AI-oriented competition, CS Competition.



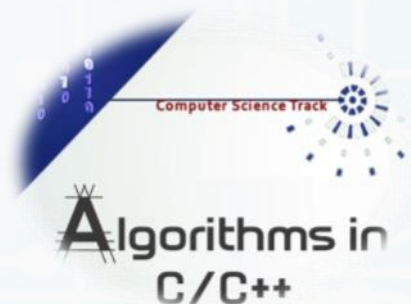
DEBUG

Level B & I:

- Excel in Adv. Placement CS-A studies. (Large majority of SR students score 5 in AP CS-A)

Level II & III:

- Gain competitive edge in students' own HS robotic activities. At SR, they can participate robotics and electronic group. Gain competitive edge for internships available for high school students.
- High proficiency students possess the adaptability to excel in diverse technologies and frequently achieve advanced in highly selective competitions such as the ACSL (high school levels) and USA Computing Olympiad (USACO).



Half-Day Sessions

AM: 9-12 PM: 1-4

Weeks: 6/23, 7/7, 7/14, 7/21, 8/11, 8/18. Choose only one week, or multiple weeks when students will continue to progress and advance to high levels at their own pace.

REGISTER
NOW

Computer Science Track
Advanced
Placement
COMPUTER SCIENCE A
and Beyond

ADVANCED PLACEMENT COMPUTER SCIENCE – A

Grade 9+ • Two weeks • M-F (9 to 3) • 7/7 & 8/4

Dive into College Board's Advanced Placement Computer Science and Beyond!

Two weeks of enriching workshop that bridges the gap for students with little prior experience, guiding them through the essential ideas of Computer Science AP CS–A. The advanced level delves beyond the basic concepts of AP CS–A to enrich students who already understand the fundamentals.



Direct Benefits:

AP Exam Excellence: Large majority of our students who achieve proficiency in program achieve top score of 5 in their AP Computer Science Exam.

Advanced Software Development Skills: hands-on practice in programming implementation, writing algorithms instead of relying solely on intrinsic libraries.



Learning Objectives:

- Cover complete list of concepts required by College Board Advanced Placement Computer Science–A such as String Class, Wrapper Classes, ArrayList, etc.
- Dive into Fundamental Search Algorithms: Binary Search, Quick Sort with Recursion—not just know how to use it, but creating them.
- Learn and take advantage of Bitwise operation
- Basic understanding of Inheritance, polymorphism.

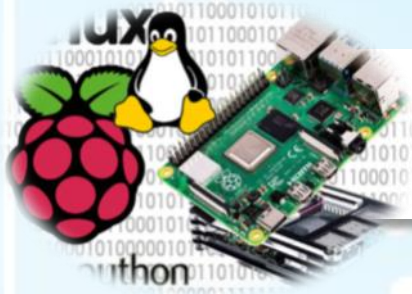
Software:

Utilize text editor so that students will gain more in-depth experience of the process from compiling to execution instead of using just a black-box IDE.



Two weeks Full-Day Sessions

Weeks: July 7 to 11 & to August 4-8. M-F: 9AM to 3PM Choose one, or both weeks.



COMPUTER VISION ON WINDOWS/LINUX

REGISTER
NOW

Grade 8+ • Two weeks • M-F • August 11-15, and 18-22




Bridge to Machine Learning

Ready to delve into the fascinating realm of Computer Vision technology? Join us for an immersive two-part workshop series designed to dive into the intricacies of Open Computer Vision technology, with a special emphasis on Raspberry Pi, Linux systems, and the formidable OpenCV library. Bridge to ML—Data Understanding: Lay the groundwork for diving into the complexities of Machine Learning. Vision enables machines to interpret and make decisions based on visual data.



Learning Objectives:

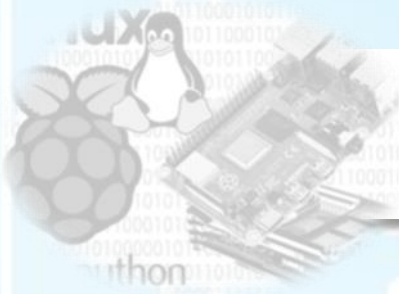
Part I – Raspberry Pi & Linux Fundamentals:

- **Linux on Raspberry Pi B+:** Linux stands as the stalwart workhorse of the computer science and technical community — embraced by professionals, academia, and enthusiasts alike. Mastering the essential functionality of the Linux environment provides a significant head-start for students entering college. In today's increasingly digital world, proficiency in Linux is not just advantageous but often essential for success in various academic and professional endeavors.
- **Python and essential Numpy library:** Harnessing the power of the robust Python Numpy Library. Master the basics of Python programming for effective programming.
-  **GPIO Utility:** (if time allows) Explore the basics of General-Purpose Input/Output for digital and analog devices.



Part II – OpenCV Mastery

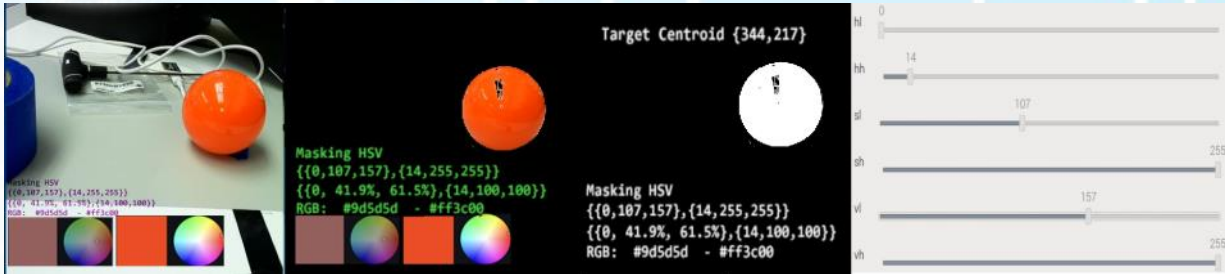
- **Open Source Computer Vision Control:** Delve into controlling OpenCV with both Python and C++ for flexibility, and performance.



REGISTER NOW

COMPUTER VISION ON WINDOWS/LINUX

Grade 8+ • Two weeks • M-F (9-3) • August 11-15 and 18-22

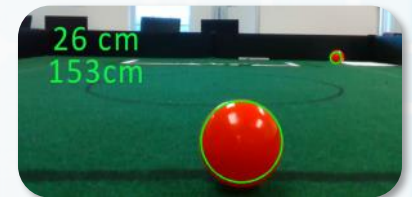


- Learn how to utilize Computer Vision control to prepare for future ML activities. Mastering the basics of image processing— Delving into advanced topics such as Canny Edge Detection and the KNN Algorithm.
- Utilizing OpenCV to identify objects in real-time scenario, and identify objects in real time.
- Utilize Numpy Library: Leverage indispensable tools for efficient data manipulation.



Hands-on with AI-Oriented Robotics Challenges:

- Maze Scenario Challenges: Navigating AI-oriented robotics challenges.
- Soccer Game Simulation: Experience the thrill of incorporating Computer Vision into a soccer game scenario.
- Hands-On Experience: Apply your knowledge through practical projects and real-world challenges.
- AI-Driven Competitions: Engage in exciting AI-oriented competitions for a comprehensive learning experience.



Prerequisites:

Programming Experience—Minimum in control structure and linear Data Structure.



2-week Series Full-Day Workshop

August 11-15, 18-22: 9AM to 3PM

Robotics and Arduino Projects

Grade 9-12 • AM or PM • AM + PM • 7/14-18, 7/21-25, 8/4-8, 8/11-15

Progressive Levels: B, I, II

Get ready for an immersive and hands-on workshop filled with Open-ended projects within well-structured scaffolding environment. It guides you through the basics of creating electronic projects and building your own robot using the renowned Arduino-based platform— an award-winning platform widely embraced in college engineering schools and various prototyping endeavors.

Learning Objectives

Foundations of Electronics and Programming:

- Introduction to Arduino: Familiarize yourself with the Arduino platform and its capabilities, such as basics analog/digital interfacing, serial communication to more complex I2C devices communication.
- IDE Mastery: Dive into the Arduino IDE for programming fundamentals.
- Electronic Prototyping: Begin building the foundation for your robotics project.
- Apply applied electronics concepts such as Ohm's law and voltage-current relationship.
- Modularity and Abstraction: Equip students with design principles to enhance robot control.

Design a smart robot

- Increase self-awareness with various sensing devices.
- Learn more advanced concepts to increase robust autonomy:
 - into utilizing multiplexing, deeper understanding of how to utilize I2C devices, feedback control, and writing a much larger scale project.
 - Feedback control technique;
 - Using Inertial Measurement Unit to increase great orientation
 - Design with state machines to enable a more robust intelligence

Robot Automation Challenges:

- **Path Complexity:** Progress through challenges, navigating from simple to more complex paths
- Obstacle avoidance, object recognition.

REGISTER
NOW

Robotics and Arduino Projects

Grade 9-12 • AM or PM • AM + PM • 7/14-18, 7/21-25, 8/4-8, 8/11-15



Direct Benefits:

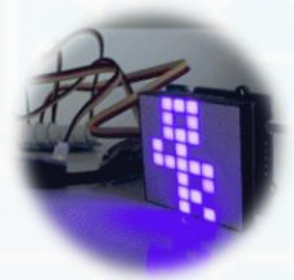
- Heighten competency in problem-solving, higher order of thinking, and solution development using both software and hardware.
- Preparation for high school-level AI-oriented robotics competitions involving electronic devices.
- Empower students to conduct independent robotics projects with a custom platform with expandability instead of a box-kit.



DEBUG

Learning Tools:

- Hardware:
 - Open-source controller – PICO (Arduino-compatible)
 - A multitude of Arduino-compatible electronic devices
- Software:
 - Arduino-C/C++
 - Abstracted libraries from Storming Robots for novice learners, progressing to native libraries for advanced students.



Prerequisites

Have fundamental programming concepts equivalent Robot to our Algorithms in C/C++ - Level I - see the Level I equivalence in our <https://cspdf.stormingrobots.com> for more details.



Half-Day Sessions

AM: 9-12 PM: 1-4

Weeks: 7/14, 7/21, 8/4, 8/11. Choose only one week, or multiple weeks when students will continue to progress and advance to high levels at their own pace.



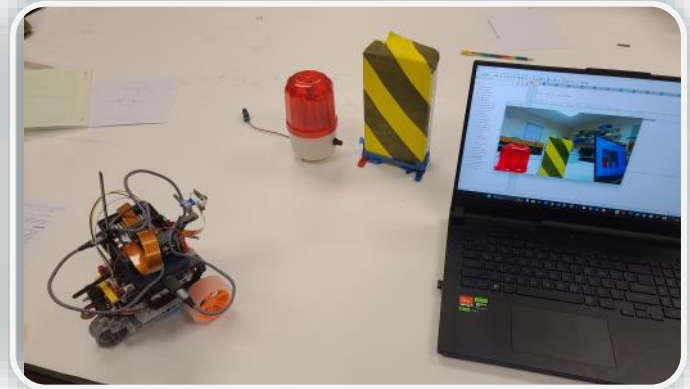
Adv. Networkworking control w/ Computer Vision

REGISTER
NOW

Grade 8+ • Two weeks • M-F (9-3) • August 11-15 and 18-22

TELE-ROBOT WORKSHOP SERIES— REMOTE VISUAL CONTROL ROVER

Think about the Mars Rover control from the NASA Station on earth, or the telepresence robots! Tele-op with autonomy robotics are increasingly valuable across various industries leveraging artificial intelligence with various industries, even health care. With the advent of high-speed internet and advanced devices, telepresence robots are becoming more intelligent and versatile.



Remote engine streams its vision to the controller; then the controller will work together to set out the perfect path and collect data.

From navigating tight spaces to avoiding potential hazards, the possibilities are endless when you harness the power of real-time visualization in remote engine control.

This workshop offers learning opportunity to gain a practical experience with insights into the capabilities and applications of tele-robot but with shared autonomy.



Learning Objectives

In this workshop, participants will gain hands-on experience in:

- Build and program your own controller embedded with IMU, and a remote wheeled robot with onboard sensors and camera.
- Remotely communicate using WIFI socket communication between two microcontrollers, uni-directionally, and bi-directionally.
- Send onboard sensing data from the remote engine to the controller to perform remote collaboration (like the NASA station controller Rovers on Mars).
- Enable the controller to real-time visualize the remote engine's path. You can control the remote engine through its video feed. You'll also program the remote engine to have the intelligence to navigate smartly.



Prerequisites

Have fundamental programming concepts equivalent Robot to our Algorithms in C/ C++ - Level I - see the Level I equivalence in our [CS syllabus](#).




Schedule At-A-Glance

Grade 5 to 8



2025 Summer Enrichment Schedule At-A-Glance

AM: 9 to 12 PM only (M-F) or
PM: 1 to 4 PM only (M-F) or
Both AM+PM

	Wk1-4	6/23-27	7/7-12	7/14-18	7/21-25	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8
	Wk5-8	7/28-8/1	8/4-8	8/11-15	8/16-22	AM	PM	AM	PM	AM	PM	AM	PM
Grades 5 to 8													
 Robotics Projects Levels Progression: B and up <i>AM or PM or AM+PM</i>						☑	☑	☑	☑	☑	☑	☑	☑
 Robotics FACE-OFF Contest Levels Progression: I and up <i>Two 1-Week of Full-Day Program</i> 9 AM to 3 PM, M-F <i>The two weeks will have different type of contest challenge.</i>						-	-	-	-	1 WK Full-Day	1 WK Full-Day	-	-
Grades 6 to 9													
 ZeroRobotics Competition Groups <i>4 Weeks Duration with 3-time slots, M-F</i> <i>In-person: 10 AM-12 PM & 1- 3 PM, Online 3:30 PM-5:30 PM</i>													

ISS Final. To see the latest update
- Visit the official
[Zerorobotics.mit.edu](https://zerorobotics.mit.edu)



Robotics Projects

REGISTER
NOW

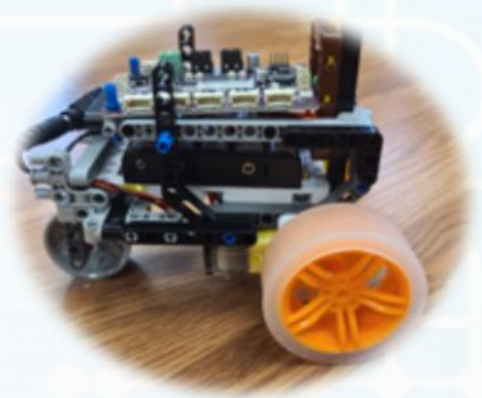
Grade 5 to 8 • AM or PM • AM+PM • M-F

PROGRESSIVE LEVELS B, I, II



Characteristics

- Hands-on Robotics Projects everyday
- Adhere to Robotics Engineering Disciplines. Cultivate the habit in building portfolio.
- Position mathematics as a thinking tool—from Algebra, Geometry to Trigonometry for upper levels
- Focus full automation in all levels—problem-solving everyday.
- Approximately 80% software development (text-based programming), 20% mechanical development.
- Engage in active learning and higher order of thinking.
- Dive in Application-based, Open-ended but Goal-oriented Challenges.
- Performance Report:
 - Online reporting system to reflect daily progress.
 - Weekly Progress Report with Recommendation .



Each week is filled with various fun robotics projects interlaced with various important robotics and programming concepts. Here shows a short list:

- ★ Don't Run Over the LEGO Man!
- ★ Whack-a-Mole!
- ★ RoboRacing!
- ★ Break The Secret Code!
- ★ Sumo Battle!
- ★ Tomb Raider!
- ★ Pop The Robot-ballon!
- ★ Maze Runner!
- ★ Treasure Hunt!
- ★ More ...



Direct Benefit:

- Experience with true engineering process, and computational thinking mindset.
- To gain competitive edge for any STEM hands-on activities, especially robotics engineering at school
- Level II students will join the pre-competition group in the Fall.



Robotics Projects

REGISTER
NOW

Grade 5 to 8 • AM or PM • AM+PM • M-F

Learning Objectives

Level B: Exploratory/Beginner Level

- Learn the rudimentary programming concepts
- Familiarize with an Open-source hardware platform (non LEGO)
- Hands-on learning and build engineering mind-set: the process of breaking simple complexity and abstraction into simple small sub-tasks. Design with Flowchart.

Level I:

- Work with more varieties of important sensors and motors.
- Exercise more complex semantics & apply two single levels of abstraction and control structure.
- Design and develop increasingly complex projects.

Level II:

- With more sophisticated sensors such as Inertia measurement unit, time-of-flight, multiple I2C sensors via multiplexer.
- Gain more advanced robotics and programming techniques such as simple feedback control, designing state machine, multiple levels of abstraction & control structures design.
- Work with complex challenges from external robotics competition.

Learning Tools:

- PICO—microcontroller
- Arduino programming IDE



Half-Day Sessions

AM: 9-12 PM: 1-4

Weeks: 6/23, 7/7, 7/14, 7/21, 8/4, 8/11, 8/18. Choose only one week, or multiple weeks when students will continue to progress and advance to high levels at their own pace.



ZeroRobotics Competition

REGISTER
NOW

Grade 6 to 9 • 10-12 or 1-3 or 3:30-5:30 • M-F • TBA

SATELLITE PROGRAMMING

COMPETITION (RUN BY MIT/NASA)

Zero Robotics / middle school program is a 4-week summer highly competitive programming competition in which middle school students program miniature satellites inside the International Space Station.



2023 FIRST PLACE Winning Team SR
Quark Charm Junior



What do students do in the competition meetings

- Develop Strategy development in the realm of Space Engineering. Write program to navigate the Astrobees satellites simulators to complete a mission developed based on NASA's current research.
- Develop program in C language using the online IDE provided thru MIT.
- Face off in the semi-finals in a national tournament.
- At the ISS FINAL, astronauts load student-developed code onto the satellites onboard the ISS. Astronauts then serve as referees in the FINAL. Event is streamed LIVE to student viewers on Earth.



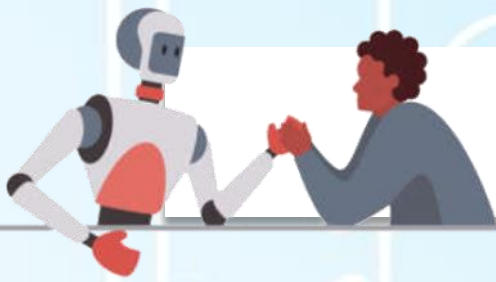
Learn More: <https://www.stormingrobots.com/prod/mitZero-ms.html>



To Be Announced:

To Be Announced. If this competition takes place, classes will be 4 weeks of 2-hr daily (M-F) sessions from Week 1 through 4.

More information will be shared when we get it.



REGISTER
NOW

Robotics FACE-OFF Weeks

Grade 6 to 9 • 9-3 • M-F • 7/7 & 8/4

Two Daily Winners earn prizes!

Embark on a daily adventure of discovery and innovation with our exciting programming and robotics challenges!

AM: Join us for a thrilling programming session where you will dive into the world of coding, encountering errors that await you to uncover and fix. *It's a journey filled with learning, collaboration, and problem-solving.*



PM: Brace yourself for the mystery of the secret robot challenge. Face a malfunctioning robot and unleash your creativity to unravel its mysteries. *Tackle the unexpected, think on your feet, and find innovative solutions to make the robot come to life.*



The thrill of competition awaits as you strive to be one of the two daily winners,

Are you ready to take on the challenge, elevate your programming skills, and become a master of robotics?

Join our daily sessions, and let the excitement unfold as you conquer the daily secrets that await you. Sign up now to unlock your potential and embrace the world of coding and robotics!



Two Weeks Full-Day Program

July 7 to 11 & August 4 to 8: 9AM to 3PM Choose one or both weeks.

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POLICY

PAYMENT AND CANCELLATION POLICY

All staff assignment and classes preparation work has been completed according to registration by May. This refund policy is put in place in order to conduct proper coordination of staff and classes management.

- Minimum Deposit: \$100 deposit is required to reserve a seat.
- \$50 from the deposit is *non-refundable* portion ; but \$100 fully applicable towards tuition.
- the remaining balance can be paid in full, or broken into monthly installments until one week before class .

Regarding Switching classes: No Workshop/Week Transfers are allowed within two weeks prior to your scheduled workshop.

Regarding withdrawal / Cancellation:

Notification Received	Refund Deadlines
Prior to May 15th	100 % minus \$50 non-refundable deposit.
May 15th to June 15th	50 % minus \$50 non-refundable deposit
After June 15th	No Refund*
<i>*The only Exception: "unforeseeable" medical reason. Letter of verification from your child's doctor is required.</i>	

Important NOTES:

- "No show" does not negate your obligation of payment.
- If a participant repeatedly violates the code of conduct or commits serious disciplinary offenses, participation will be terminated at the administration's discretion without refund.