

# Arya Salem

Email via website | Katy, TX | [github.com/aryasalem09](https://github.com/aryasalem09)

## EDUCATION

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| <b>Seven Lakes High School</b><br><i>STEM Endorsement   Katy, TX</i> <ul style="list-style-type: none"><li>• <b>Weighted GPA: 4.72/5.00</b></li><li>• <b>Intended fields:</b> Neuroscience, Computer Science, and Computational Engineering</li><li>• <b>AP exam scores:</b> <b>5</b> - Calculus BC, Statistics, Chemistry, Computer Science A, and English Language; <b>4</b> - U.S. History</li><li>• <b>Additional coursework:</b> AP Psychology, AP Seminar, Elements of Data Science, and AWS Cloud Computing</li></ul> | Expected May 2027 |
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## RESEARCH EXPERIENCE

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| <b>Texas A&amp;M University</b><br><i>CURES Research Volunteer, Lillvis Research Group</i> <ul style="list-style-type: none"><li>• Trace and segment neurons through <b>3D expansion-microscopy image stacks</b> in <b>WEBKNOSSOS</b>, following each structure across sequential slices.</li><li>• Review <b>XY, YZ, and XZ views</b> for gaps, spillover, and incorrect transitions; <b>flag uncertain boundaries</b> for lab review rather than guessing.</li><li>• Produce quality-controlled <b>ground-truth annotations</b> for neural-circuit reconstruction and future automated image analysis.</li></ul>                                                                                                                         | 2026 - Present     |
| <b>The University of Texas at Austin</b><br><i>Student Researcher, Pacific Coral Modeling</i> <ul style="list-style-type: none"><li>• Built and expanded a reproducible geospatial machine-learning pipeline ranking relative habitat suitability for <b>10 Pacific coral species</b> across <b>2,420 reef cells</b>.</li><li>• Prepared occurrence, taxonomy, reef, and environmental data; added <b>spatial cross-validation, source balancing, leakage safeguards, and negative controls</b>.</li><li>• Evaluated <b>74 predictors</b> across <b>4,970 model rows</b> with <b>131 automated tests</b>; reported <b>sampling provenance</b> as the main limitation and framed outputs as relative rankings, not probabilities.</li></ul> | Apr 2026 - Present |

## SELECTED STATISTICAL RESEARCH

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| <b>ASA South Florida Student Data Challenge</b><br><i>Independent Researcher, NHANES 2024</i> <ul style="list-style-type: none"><li>• Built <b>gradient-boosting and random-forest models</b> to predict HDL cholesterol from demographic, anthropometric, dietary, and behavioral variables.</li><li>• Used <b>5-fold cross-validation</b> to reduce <b>RMSE from 9.01 to 4.83 (about 46%)</b> and interpreted the strongest predictors in a biomedical context.</li><li>• Named the <b>sole recipient of the Excellence Award</b> and invited to present at the <b>2026 ASA Florida Chapter Annual Conference</b>.</li></ul> | 2026 |
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## LEADERSHIP & TEACHING EXPERIENCE

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| <b>MECC Labs</b><br><i>Co-Founder &amp; Lead Manager</i> <ul style="list-style-type: none"><li>• <b>Co-founded</b> a youth STEM education initiative; design hands-on programming, electronics, and engineering programs for <b>students ages 8-14</b>.</li><li>• Teach <b>microcontrollers, circuits, sensors, and logic</b>; manage outreach, curriculum, and workshop logistics.</li><li>• Helped raise <b>\$20,000+</b> and reach <b>100+ students</b> through community STEM programs.</li></ul>                     | May 2025 - Present |
| <b>Technology Student Association (TSA)</b><br><i>Secretary &amp; National Competitor</i> <ul style="list-style-type: none"><li>• <b>Elected secretary</b> after serving as treasurer (2025-2026); maintain chapter records and communications and previously managed a <b>\$10,000+ annual budget</b> for <b>200+ competitors</b>.</li><li>• Placed <b>4th nationally in Video Game Design</b> at the <b>2026 National TSA Conference</b>; also compete in Data Science, Webmasters, and Software Development.</li></ul> | Aug 2024 - Present |

## VOLUNTEERING

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### Competitive Math & School Tutoring

Summer 2023 - Present

*Volunteer Tutor*

- Completed **200+ hours** tutoring **Algebra I through Calculus AB** and **competitive UIL math**, focusing on why a method works rather than only the steps.

### Senior Home Recitals

Aug 2024 - Present

*Volunteer Violinist*

- Perform **quartet recitals at senior centers** and help coordinate **food donations** for local senior communities.

## HONORS & AWARDS

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- **4th Place, Video Game Design - National TSA Conference** (2026)
- **Excellence Award (Sole Recipient) - ASA South Florida Student Data Challenge** (2026)
- **American Invitational Mathematics Examination (AIME) Qualifier; score 6** (2026)
- **Top 25 Statewide - Texas TSA Video Game Design, Data Science, and Webmasters** (2025)
- **UIL Orchestra Regional Finalist** (2023-2026)

## SKILLS & CERTIFICATIONS

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- **Languages:** Python, Java, R, Rust, JavaScript, TypeScript, and C#
- **Tools & research:** PyTorch, pandas, NumPy, Jupyter, Git/GitHub, WEBKNOSSOS; statistical modeling, spatial validation, data cleaning, visualization, and 3D image annotation
- **Certifications:** Oracle Java SE Associate and Professional; Python Associate

## ADDITIONAL INVOLVEMENT

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- **STEM:** FIRST Robotics Team 4639, Mu Alpha Theta, Computer Science Honor Society, and Pumps & Pipes
- **Service:** National Honor Society and Student Council
- **Music:** Seven Lakes High School Orchestra and Tri-M Music Honor Society