Akhil Sadam

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| **UNIVERSITY OF TEXAS AT AUSTIN** | |  | | *In Progress* | | |
|  | **Research** \_\_\_ \_ | | | | | |
| **UTKL Group *–*** *PET Simulator* | | Spring 2020 – Present | | | |
| * Simulation of Positron Emission Tomography Detectors (PET) and similar gamma-matter interactions * Currently simulating a novel PET designed for whole-body scans which employs inexpensive plastic scintillators * Assisting with simulation of an extruded plastic wavelength shifter alternative for the LEGEND experiment * Using Geant4, ROOT and Python via CMake and the Linux environment (C++) * Meeting with Dr. Lang of UT Austin and others tri-weekly to discuss progress and refinements | | | | |  |
| **Phonon Momentum Group *–*** *Experiment Design, Theory & Analysis* | | Fall 2020 – Present | | | |
| * Initial experiment design and estimates of phonon angular momentum measurement via a high-Q double torsional oscillator and the Einstein-de Haas effect * Using Python to fit resonances and calculate forces from capacitive and fiber-optic-interferometry * Will present initial findings at the APS (American Physical Society) meeting in March 2021 * Meeting with Dr. Markert of UT Austin and others weekly to discuss progress and refinements | | | | |  |
| **Undergraduate** \_\_\_\_\_\_ | | | | | |
| **Computational Engineering** | | *In Progress* | | | |
| * M427L Advanced Calculus for Applications II (AP Honors) * EM319 Mechanics of Solids * COE301 Introduction to Computer Programming * UGS302 Meet Your Biological Clock | | | |  | |
| Overall GPA: 4.0 | | |  | | |
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| **SADAM HOMESCHOOL** | |  | | May 2020 | | |
|  | **Research**  \_ \_\_\_\_\_\_ | | | | | |
| **MIT Beaver Works Summer Institute** – *Autonomous Air Vehicle (Camp)* | | Summer 2018 | | | |
| * Worked as part of a 4-person software development team * Developed autonomy code in Python, via ROS, for an Intel RTF drone * 40 hours per week, 4 weeks | | | | |  |
| **Education**  \_\_\_ \_ | | | | | |
| **Audit: The University of Texas at Austin** | | May 2020 | | | |
| * PHY336K Classical Dynamics, PHY373 Quantum Physics : Foundations * PHY355 Modern Physics & Thermodynamics | | | |  | |
| **Dual Credit**: **Austin Community College** | | May 2020 | | | |
| * Calculus 1/MATH 2413, Calculus 2/MATH 2414, Calculus 3/MATH 2415, Differential Equations/MATH 2420, * Linear Algebra/MATH 2318, Discrete Math/MATH 2305 * Eng. Physics 1/PHYS 2425, Statics/ENGR 2301, Dynamics/ENGR 2302 * College Comp. I/ENGL 1301, College Comp. II/ENGL 1302, Macroeconomics/ECON 2301 * French I/FREN 1411, French II/FREN 1412, French III/FREN 2311 | | | |  | |
| **AP Courses with Exam** | | May 2020 | | | |
| * AP Biology, AP Calculus BC, AP Computer Science, AP Physics C Mech, AP Physics C E&M, AP Statistics, AP Chemistry | | | |  | |
| Overall GPA: 4.0 | | |  | | |

**TUTORING EXPERIENCE**

**Pennsylvania Homeschoolers *-*** *AP Computer Science TA* Fall 2018 – Spring 2020

* Graded the Java homework of 3-7 students
* Served as point-of-contact for the 3-7 student group
* Helped with student questions
* Worked one-on-one as a tutor if required

**Pennsylvania Homeschoolers *-*** *AP Physics I LA*  Fall 2018 – Spring 2019

* Helped students with their assignments

**Private Tutoring** *– Math and Physics Tutor* Fall 2019

* Tutored a student on the autism spectrum
* Math and Physics homework, and PSAT/SAT math prep

**LEADERSHIP EXPERIENCE AND ACTIVITIES**

**Austin Area Homeschool Science Team -** *Science Olympiad Committee Member* Fall 2017 - Spring 2018

* Communicated weekly with Science Olympiad Coach
* Organized Olympiad practice during weekly meetings
* Arranged databases for team members to input their event preferences before major competitions
* Determined members of A and B Teams (with Science Olympiad Coach)
* Determined events for each team member (with Science Olympiad Coach)
* Registered teams for invitationals, regional, and state competitions
* Ensured correct forms were collected for competitions
* Maintained and posted schedules for Olympiad competitions

**Austin Area Homeschool Science Team -** *Science Bowl Committee Member* Fall 2017 - Spring 2018

* Communicated weekly with Science Bowl Coach
* Conducted Bowl practices during weekly meetings
* Determined members of A and B Teams (with Science Bowl Coach)
* Determined captains of Bowl teams (with Science Bowl Coach)
* Organized outside-meeting practices
* Assisted with team registration
* Ensured correct forms were collected for competitions

**HONORS**

* University of Texas Bennett Competition – 4th place in Calculus Fall 2020
* OPhO (Online Physics Olympiad) 17th team out of 340 worldwide Summer 2020
* USAPhO (USA Physics Olympiad)
  + Qualifier (USAPhO not held due to COVID-19) Spring 2020
  + Bronze Medalist Spring 2019
* USNCO (USA Chemistry Olympiad)
  + Semifinalist Spring 2020
  + Semifinalist Spring 2019
* AAPT Physics Bowl 2nd place in Region Spring 2018
* AIME Qualifier Spring 2016, 18
* MIT Beaver Works Summer Institute: Autonomous Air Vehicle 3rd place (Team) Summer 2018
* AP Scholar with Distinction Spring 2019
* AP Scholar with Honors Spring 2019
* President's Honor Roll at Austin Community College (8 semesters) Fall 2016 – Spring 2020
* ACC (Austin Community College) Math Tournament (AMATYC SML)
  + 1st place Fall 2019
  + 1st place Spring 2019
  + 3rd place Spring 2018
  + 1st place Fall 2017
  + 2nd place Spring 2017
  + 2nd place Fall 2016
* University of Houston HS Math and Science Competition
  + 1st in Calculus Fall 2018
  + 1st in Physics Fall 2018
  + 2nd in Calculus Fall 2017
* Texas Regional Science Bowl (Team)
  + 3rd place Spring 2019
  + 5th/6th place Spring 2018
  + Top quartile Spring 2015, 16, 17
* Texas State Science Olympiad
  + 3rd place in Remote Sensing, 4th place in Thermodynamics, 5th place in Optics, 6th place in Hovercraft Spring 2018
  + 2nd place in Optics, 4th place in Hovercraft Spring 2017
* ABRSM Theory Grade 3 Certification with Distinction Fall 2018
* ADMTA
  + Jazz, Pop, and Rock Festival (Superior Rating) Fall 2017, 18
  + Baroque and Classical Festival (Superior Rating) Fall 2017

**ADDITIONAL INFORMATION**

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| **Computer Skills:** | | |
|  | * Java, C#, C++, Python, RUST, ROS, ROOT, Geant4, Mathematica, MATLAB, Fathom, CSS * Visual Studio & VSCode, Jupyter Notebook, Anaconda, CMake * Unity, Substance Painter, Designer, Alchemist, Quixel Bridge & Mixer, Blender, Cinema4D, Houdini, Meshroom * Blackmagic Design DaVinci Resolve, Fusion 9, GIMP, Krita, * FL Studio, Cakewalk, Kontakt, Reaktor * Ubuntu, Debian, MS Hypervisor, VirtualBox, VMWare Player, MS Word, Excel, PowerPoint. | |
| **Languages:** | | Limited Working Proficiency in French, Professional Working Proficiency in Telugu |
| **Interests:** | | Computational Physics, Computational Mathematics, Computational Biology, Data Analytics, Physics Simulations, Game Development, 3D Modeling & Photogrammetry, Cinematic & Electronic Music Production, Film Scoring, Piano, Literature, Swimming. |
| **Work Eligibility:** | | Eligible to work in the U.S. with no restrictions |