

AVNITH VIJAYRAM

avnith.v@gmail.com | (716) 465-2606 | [linkedin.com/avnithv](https://www.linkedin.com/in/avnithv) | github.com/avnithv

EDUCATION

- Carnegie Mellon University** (GPA: 4.0/4.0) May 2029
Bachelor of Science in Computational Biology, additional major in Artificial Intelligence
- Thomas Jefferson High School for Science and Technology (TJHSST)** Jun 2025
GPA: 4.56, SAT: 1580, ACT: 36/36/36/36, completed 13 college-level (AP/AV) courses in Math, Biology, and CS.

HONORS AND AWARDS

- **Citadel Discover Program:** attended invitation-only 2-day program at Citadel for underclassmen Apr 2026
- **ICPC Latin America Championship:** represented CMU; finished in 9th place Mar 2026
- **Putnam Mathematical Competition:** ranked 64th out of 4300+ (scored 60/120); **top scorer at CMU** Dec 2025
- **Codeforces:** reached 2203 rating (top 2000) on a competitive programming platform with 100K+ users Sep 2025
- **Regeneron Science Talent Search:** Named a Top 300 Scholar among 2,500 global candidates Jan 2025
- **Conrad Challenge:** Top 5 team finalist in global innovation pitching competition Apr 2024

PROJECTS

- Research in Cardiovascular Medicine with Dr. Jennifer Kwan at Yale School of Medicine** Mar 2024 - Present
Identifying Biomarkers of Cardiotoxicity Risk for Cancer Patients
- Built a pipeline in R to construct knowledge graph networks by applying gene coexpression inference on a large cardiac transcriptomic dataset with 11,386 genes and 23 kinase inhibitors (KI) as cancer treatments
 - Identified novel causes behind cardiotoxic side effects of KI treatment by designing novel Monte Carlo algorithms using game theoretic principles such as Nash equilibria to predict gene expression strategies
- Multi-Omics Factor Analysis of Myocarditis disease in Heart Cells*
- Identified disease-linked biological pathways in myocarditis-affected cardiac cells by analyzing scRNA-seq and CyTOF data to extract latent factors and genes; co-authored manuscript currently awaiting publication
- GlioGrade - ML diagnostic tool for gliomas** May 2024 - Jun 2025
- Achieved 93% accuracy at diagnosing gliomas from MRI images by training 3D Convolutional Neural Network models using Keras; used by neuropathologists at 3 clinics; advised by Dr. Kimno Hatanpaa at UT Southwestern
- Data Intern (Volunteer) at NOVA ScriptsCentral, a non-profit for healthcare equity** Jan 2024 - Jun 2025
- Cleaned and transformed 15 years of NSC's medication records using a Python pipeline with Pandas
 - Created a [data visualization](#) dashboard using Tableau to enable NSC to demonstrate community impact through storytelling and identify geographical areas and medication types for future expansion of patient aid

EXPERIENCE

- USA Computing Olympiad Coach** Oct 2025 - Present
- Proposed, selected, and prepared problems for monthly USACO contests with 5000+ participants
- AlphaStar Academy, Teacher (USACO Silver, Curriculum Development)** Jun 2025 - Present
- Taught students and developed curriculum for USACO Silver-level algorithms and data structures concepts
- TJHSST Computer Team Captain and Bioinformatics Society Curriculum Officer** Jun 2023 - Jun 2025
- Led two clubs with 100+ students each; Organized annual club-hosted TJIOI and BioCode competitions

TECHNICAL SKILLS

- **Languages & Tools:** Python, C++, Java, R, LaTeX, Git, Linux, Jupyter, Tableau, Power BI
- **ML / AI:** PyTorch, TensorFlow, Keras, Numpy, Pandas, SciPy, CNNs, GANs, Graph Neural Networks, Deep Learning
- **Domain & Theory:** scRNA-seq, CyTOF, multi-omics, graphs, algorithms, data structures, competitive programming