Akshat Garg

Junior @ Lynbrook High School, San Jose, CA

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Education

High School Graduation: June 2026, **GPA:** 4.0, **SAT** 1550, **PSAT** 1520, **AP** 5.0

- **STEM Coursework**
  - College level courses
    - 2023: AP Calculus AB/BC, AP Computer Science Principles
    - 2024: AP Computer Science Applications, AP Statistics, AP Physics C: Mechanics
    - 2025: AP Physics: Electricity & Magnetism, AP Macroeconomics
  - College courses
    - 2024: Multivariable Calculus, Linear Algebra
    - 2025: Graph Theory, Differential Equations
- **School Activities**
  - **French Honors Society:** Senior Officer, Director of Activities (Junior year)
  - **Viking Table Tennis Club:** Vice President and Co-founder (since Freshman year)
  - **Legislative Council**: Class representative (since Freshman year)
  - **Sports**: Varsity Football (Sophomore) and Junior Varsity Wrestling (Freshman) teams

Skills

- **Languages** - Python (PyTorch, TensorFlow, NumPy, scikit-learn, Pandas), MATLAB, Java, JavaScript, HTML/CSS
- **Tools & Technologies** - Jupyter Notebook, Falstad Circuit Simulator, Raspberry Pi (GPIO), HAM Radio Amateur and General Licensee (KN6DWV), GIT, Mathematical modeling using MS Excel.

Projects and Volunteer activities

- **Greywater filtration system -** I showcased my project at the 2022 Synopsys Science Fair in Santa Clara, CA. Physicochemical methods were used to eliminate micelle structures (surfactants) using Ocimum sanctum and Ceramic filters.
- **Non-profit organization** - CEO and Co-founder of 'The Human Tech Project.' Organized and conducted Raspberry Pi programming and HAM Radio License classes for the community youth at local libraries.
- **Tech Challenge Competitions -** The Tech, San Jose, CA, organized engineering challenges involve students forming teams and building a device to solve a real-world problem.
- **Cupertino Amateur Radio Emergency Services (CARES)** - Amateur Radio operator and Disaster Service Worker for my city since 2019, responsible for communication services during a natural disaster.
- **Fremont Union High School District (FUHSD)** - Member of the Sustainability Commission in the Legislative Council, member of the FUHSD Climate Collective. I ideate regularly with district administration to drive positive and sustainable change on campus.

Notable Certifications & Honors

- 2024 ML Specialization, Fundamentals of ML in Healthcare, Stanford University MOOC.
- 2024 Biomimicry Institute: Certified Biomimicry Practitioner. Received a $1000 scholarship.
- 2023 USA Computing Olympiad: Silver Division. Top 10,000 internationally.
- 2022 and 2023 French Le Grand Concours Gold medalist. 95th percentile.
- 2022 Synopsys Science Fair: Lemelson Foundation Early Inventor Award and $100 Scholarship.
- MOOC: Business and Financial Modeling (2020, UPenn), Game Theory (2020, Stanford University), Introduction to Git and GitHub (2021, Google).
- 2018 Tech Challenge: The Judges' Choice 'Simple Innovative Design' and 'Outstanding Engineering Journal' awards for the 'Drop & Dash' challenge. Among 22 finalists. The only team to win two awards.

Hobbies

- Photography, Pyrography, Numismatics, Hiking, MOOC.

Recent AI/ML/Mining hobby projects

- **Pneumonia Image classificatio**n (2024) - Built a deep learning pipeline with PyTorch to classify chest X-rays, achieving 89.4% accuracy on Kaggle's test dataset.
  - Used Hugging Face's ResNet18, DenseNet, and Vision Transformer (ViT) Image Classification models with transfer learning to enhance feature extraction and resulting accuracy.
  - Applied preprocessing techniques like TorchVision's RandomRotation and balanced sampling to improve generalization and address any possible dataset bias.
  - Created a training framework with batch processing and appropriate hyperparameter tuning, leveraging the ADAM optimizer for faster gradient descent convergence.
  - Deployed the model on my NVIDIA RTX 4060 GPU to employ CUDA vectorization.
  - Evaluated the performance of all models using ROC curves and Youden's J to determine the ideal image classifier. Visualized resulting model predictions with Matplotlib to refine results.
  - https://github.com/akshat-git/Pneumonia-Image-Classifier-Supervised-Learning
  - https://akshat-git.github.io/images/pneugraphs.pdf

- **AIClub.world's 5-day OpenAI workshop** (2023)
  - Fundamentals of LLMs, ChatGPT, RAG
  - Hands-on Python App development to use the OpenAI APIs for Semantic Comparison and Sentiment Analysis.
  - Used Github Codespaces, Pinecone for vector storage, Streamlit for UI.
  - https://github.com/akshat-git/AI-Club-Projects

- **Cryptocurrency Mining Profit Maximization** (2021)
  - Implemented a profit maximization algorithm for my HiveOS Pool for managing my mining rigs.
  - The algorithm dynamically configured hash rates for my NVIDIA RTX GPUs based on the current cryptocurrency price, my house's PG&E power costs, and system temperature.
  - I shared my software with my friends and helped them set up their mining rigs as well.