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# Giacomo Pugliese

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## EDUCATION

Bergen County Academies, Academy of Medical Science and Technology

4.0 UW GPA // 1560 SAT

**Coursework:** AP Biology, AP Chemistry, Anatomy and Physiology, Pharmacology, Epidemiology, Nanotechnology, Bioethics, Neuroscience, Microscopy, Biotechnology, Surgical Techniques

## ACHIEVEMENTS

- 1st place in New Jersey, International Semifinalist for HOSA Medical Innovation
- Gold Division in United States Computing Olympiad
- Research accepted for presentation at SIAM, iSCB, and ISMB/ECCB 2023 international conferences
- 4th place for Anatomy & Physiology and 6th place for Cellular Biology at the Brown Science Olympiad
- PVSA Gold Award for work with Leadership Initiatives

## EXTRACURRICULARS

### Emergency Medical Technician (NREMT certified)

- Completed 190 hours of coursework at Bergen County EMS Training Center involving cardiac, airway, medical and traumatic emergencies
- Volunteer 5 hours weekly at Glen Rock Volunteer Ambulance Corps; employ skills in patient assessment, resuscitation, oxygenation, drug administration, splinting, and more

### Founder of SmartChart

- Founded and led an 8-person development team to create SmartChart, a web application built for EMTs conducting patient documentation
- Won HOSA NJ Medical Innovation Competition and gained media attention from [Yahoo News](#)
- Utilized AI and computer vision to enhance EMT decision-making and reduce medical errors

### Team Lead and Head Automation Engineer at Leadership Initiatives

- Led a public health campaign in Bauchi, Nigeria addressing COVID-19 education and vaccination, and a comprehensive cybersecurity plan for BioDesign Innovation Labs in Bengaluru, India
- Developed a set of internal tools to automate 500+ hours of work within the organization using machine learning and artificial intelligence techniques

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### **Surgical Intern at Englewood Dept. of Vascular Surgery**

- Operated on live rats and successfully performed procedures including a splenectomy and carotid cannulation using microligation, suturing, and oral gavage techniques
- Authored a paper on establishment of a successful experimental model to study the effects of postoperative ileus, evaluated on metrics of gastric emptying and intestinal transit data

### **Bioinformatics Intern in Dantas Lab at Washington University**

- Optimizing the implementation of PARFuMS, a computationally based pipeline for the assembly of short-read sequence data from functional selections
- Working to utilize the model in a high-throughput functional metagenomic approach to characterize exchange of antibiotic resistance genes between environmental bacteria and clinical pathogens

### **Bioinformatics Intern in Augert Lab at Yale School of Medicine**

- Developing a pipeline for genetic analysis to explore the transcriptional and epigenetic factors contributing to cancer growth and influencing responses to targeted and immunotherapy treatments
- Utilize tools like FASTQC, Hisat2, and HTSeq for data preparation and analysis

### **Project Lead at Provita Pharmaceuticals**

- Project lead of Scaffold Aid at Provita Pharmaceuticals, the only student run pharmaceutical company in the world
- Designed a functional matrix capable of three dimensional culture and differentiation of preosteoblasts for in vivo bone tissue engineering techniques; presented work to the FDA

### **Scientist and Lead Developer at Luluble**

- Lead developer of a patent pending machine learning-driven methodology for customizing cosmetics and biohacking solutions
- Conducted research in dermatology and molecular chemistry for new product development

### **Hospital Volunteer and Medical Shadowing**

- Shadowed healthcare professionals at Hackensack Meridian Health Emergency Department, Kayal Orthopedics, and Glen Rock Dental
- Volunteered at Holy Name Hospital assisting in patient care and equipment sterilization

### **Lead Developer at Code for Charity**

- Lead developer for a team of 20+ developers; created websites for clubs and non-profits such as Upstanders and Haitian Alliance for Community Action
- Coached new members through workshops involving introductory coverage of HTML, CSS, and JavaScript to design web applications