Giacomo Pugliese

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EDUCATION

Bergen County Academies, Academy of Medical Science and Technology

4.0 Unweighted GPA // 1560 SAT

ACHIEVEMENTS

- 1st place in New Jersey, International Semifinalist for HOSA Medical Innovation Competition
- Research accepted for presentation at the International Conference on Intelligent Systems for Molecular Biology (ISMB 2023) and the International Conference on Intelligent Biology and Medicine (ICIBM 2023)
- Platinum Division in the United States Computing Olympiad
- Gold President's Volunteer Service Award for work with Leadership Initiatives
- 1st out of 113 participants in the East Coast Hackathon; $300 cash prize
- 4th place for Anatomy & Physiology and 6th place for Cellular Biology at Brown University Science Olympiad

EXTRACURRICULARS

Assistant Director & Team Lead, Leadership Initiatives 501(c)(3)

- Interned under Dr. James Giordano of the Georgetown University Medical Center; led a team of 7 researchers to author a paper on the role of tau proteins in the varying progression rates of Alzheimer's Disease
- Designed a public health campaign to educate 200 locals on COVID-19 prevention and helped distribute $200,000 in medical funding for underserved communities in Bauchi, Nigeria
- Created curriculum for and led the Leadership Initiatives "Jumpstart" program; introduced 40 middle schoolers to careers in medicine/technology through guest presentations and hands-on projects
- Led a team of 8 to develop cybersecurity solutions for low-cost medical devices produced by Biodesign Innovation Labs in Bengaluru, India; gained a $2000 sponsorship for implementation from Amazon

Emergency Medical Technician (NREMT certified), Glen Rock Volunteer Ambulance Corps.

- Completed 190 hours of coursework at Bergen County EMS Training Center covering cardiac, airway, medical, and traumatic emergencies
- Responded to 50+ calls at Glen Rock Volunteer Ambulance Corps; employed skills in patient assessment, resuscitation, oxygenation, drug administration, splinting, and more

Founder and CTO, SmartChart EMS

- Founded and led a 5-person development team to create SmartChart, a provisionally patented web application built for EMTs conducting patient documentation
- Won HOSA NJ Medical Innovation Competition and gained media attention from Yahoo News
- Collaborated with EMTs across 37 U.S. cities with over 250 users; utilized AI and computer vision to enhance EMT decision-making and reduce medical errors

Bioinformatics Intern, Dantas Lab at Washington University School of Medicine
- Used a high-throughput metagenomic approach to characterize the exchange of antibiotic resistance genes between environmental bacteria and clinical pathogens
- Optimized the implementation of PARFuMS, a computationally based pipeline for the assembly of short-read sequence data from functional selections, using Perl, Bash, and Python languages

Researcher, Augert Lab at Yale School of Medicine
- Conducted transcriptomic analysis of small-cell lung cancer, revealing distinct molecular subtypes and potential therapeutic targets
- Investigated gene expression differences in SCLC to enhance understanding of its complexity and inform personalized treatment approaches

Project Lead & Webmaster, Provita Pharmaceuticals
- Served as Project Lead for a team of 6 student researchers to design a novel hydrogel capable of three-dimensional culture and differentiation of preosteoblasts for use in bone tissue engineering
- Presented preclinical research to a board of 12 scientists and regulatory officials at the FDA

Hospital Volunteer and Medical Shadowing
- Shadowed healthcare professionals for a combined 150 hours at Hackensack Meridian Health Emergency Department, Kayal Orthopedics, and Glen Rock Dental
- Volunteered 240 hours at Holy Name Hospital; assisted in patient care, communication, and transport

Surgical Intern, Englewood Hospital Vascular Surgery Lab
- Operated on live rats and successfully performed procedures including a splenectomy and carotid cannulation using micro-ligation and suturing techniques
- Authored a paper on establishment of a successful murine model to study the effects of postoperative ileus, evaluated on metrics of gastric emptying and intestinal transit data

Chemist and Computer Scientist, Luluble Cosmetic Studio
- Led the development of a patent-pending machine learning-driven methodology for personalized cosmetics and hygiene products used by 1,100+ customers
- Conducted research in molecular chemistry and dermatology to engineer novel, eco-friendly formulations

Lead Developer, Code for Charity Club
- Directed a team of 15 web developers; created websites for volunteer-based 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

Chorister, Bergen County Academies Choir
- Member of a vocal ensemble that rehearses regularly and performs at concerts and special venues, including Carnegie Hall and the Pearl Harbor Memorial