

ABOUT ME

Aspiring physician and student researcher interested in how small biological signals can inform meaningful clinical decisions. At Hofstra University, I researched seizure patterns in EEG signals and arrhythmia detection using ECG data in R. Shadowing in oncology and nephrology has deepened my understanding of physician-patient communication and clinical reasoning. I also serve patients and families through RotaCare NY, Ronald McDonald House, and North Shore University Hospital. Leading my school's Muslim Student Association, serving as Medical Club secretary, and competing in baseball and volleyball have strengthened my teamwork and discipline.

SKILLS

- R Programming
- EEG Signal Analysis (FFT, filtering)
- ECG Analysis & Arrhythmia Detection
- Classification & Model Evaluation
- Scientific Research & Poster Presentation
- Data Analysis & Visualization
- Patient & Visitor Communication
- Presentation Design
- Google Suite (Docs, Sheets, Slides, Forms)
- Collaborative Teamwork

Akif Khan

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EXPERIENCE

August 2026 – Present

Physician Shadowing, Suffolk Nephrology Associates | Bay Shore, New York

- Shadowed Dr. Max Pommier, D.O., observing outpatient nephrology consultations involving chronic kidney disease, hypertension, diabetes, and heart failure.
- Observed how laboratory results, medications, blood pressure, and patient symptoms inform clinical decisions and follow-up care.
- Documented observations of physician-patient communication, including discussions of medication safety, dietary changes, and chronic disease management.

July 2026 – Present

Volunteer, RotaCare NY Free Clinic | Hempstead, New York

- Support a free clinic delivering primary and specialty care to uninsured and low-income patients across Nassau County
- Assist with patient intake, registration, and navigation during clinic sessions
- Adhere to strict patient confidentiality, safety, and health protocols
- Collaborate with volunteer physicians, nurses, and staff in a direct patient-care environment

Summer 2026

Research, Hofstra University | Hempstead, New York

- Built an arrhythmia (irregular heartbeat) detection program in R using the MIT-BIH Arrhythmia Database of real, cardiologist-labeled patient ECG recordings
- Measured the timing between heartbeats to teach the program to tell normal rhythms apart from abnormal ones
- Uncovered a key evaluation pitfall: accuracy appeared 97.3% under standard testing but was 79.6% when tested on patients it had never seen—a 17.7-point gap showing a tool must generalize to new patients to be useful in a hospital
- Presented findings at a research poster session (August 2026); mentored by Dr. Antonios Marsellos

July 2026

Physician Shadowing, LMG Cancer & Infusion Center | Loudoun County, Virginia

- Shadowed Dr. Syed Salman Ali, board-certified oncologist and hematologist, during a one-week intensive observership
- Observed 35+ patient consultations spanning breast, lung, colon, pancreatic, prostate, and bladder cancers plus blood disorders including CML, CLL, lymphoma, multiple myeloma, and polycythemia vera
- Studied treatment planning across chemotherapy, immunotherapy, antibody-drug conjugates, hormone therapy, and tyrosine kinase inhibitors in an outpatient infusion center
- Kept a daily reflection journal on physician communication and clinical decision-making, including how difficult diagnoses are delivered with a concrete next step
- Invited to return each summer to continue the observership and build a multi-year clinical mentorship

November 2025 – Present

Volunteer & Youth Ambassador, Ronald McDonald House | Queens, New York

- Selected for the Youth Ambassador Program (September 2026 – June 2027), a year-long leadership cohort supporting fundraising, advocacy, and community outreach
- Provided compassionate support to families of hospitalized children while adhering to confidentiality, safety, and health guidelines
- Assisted with daily operations including front desk support and guest check-ins
- Prepared and served meals for resident families
- Supported fundraising events and community outreach efforts

July 2025 – October 2025

Research, Hofstra University | Hempstead, New York

- Conducted EEG seizure detection research through Hofstra University's Summer Science Research Program (HUSSRP)
- Analyzed brainwave data in R using FFT and filtering to study seizure patterns
- Designed and presented a research poster on EEG signal preprocessing and clarity
- Mentored by Dr. Antonios Marsellos and featured in the Hofstra University newspaper for research achievement

EXPERIENCE (CONTINUED)

November 2024 – July 2025

Jr. Volunteer, North Shore University Hospital | Manhasset, New York

- Greeted visitors and patients with a warm, professional demeanor, ensuring a positive first impression
- Supported front desk operations by helping with check-ins and managing visitor logs
- Organized hospital supplies and maintained an organized, welcoming lobby environment
- Enhanced communication skills through regular interaction with a diverse range of visitors

July 2023 – August 2023

CAMP Invention Student Counselor, National Inventors Hall of Fame | Merrick, New York

- Taught students from kindergarten through sixth grade the fundamentals of wiring circuits
- Assisted in building robots during interactive STEM workshops, promoting hands-on learning and problem-solving
- Strengthened self-awareness and leadership skills through feedback from adult mentors

EDUCATION

Expected June 2027

Sanford H. Calhoun High School | Merrick, New York

- Courses: AP Biology, AP Physics 1, AP Research, AP Seminar, AP English Language, AP World & US History, Chemistry Honors, Algebra 2 Honors, Foundations of Engineering
- Weighted GPA: 99.5%
- AP Exam Scores: AP Seminar (5), AP English Language and Composition (5), AP World History (5), AP Biology (4), AP Physics 1 (4), AP United States History (4), AP Research (4)

CLUBS & ACTIVITIES

Muslim Student Association (MSA) — President & Co-Founder | Sanford H. Calhoun HS

- Co-founded the school's MSA chapter and now lead it as President after serving as Vice President
- Organized a "Chai and Chat" event (November 2025) educating Muslim students on navigating life in America
- Coordinated a food drive (February 2025) raising over $400 worth of food donations

Medical Club — Secretary | Sanford H. Calhoun HS

- Serve as club Secretary, managing meeting records, communications, and event coordination
- Participated in multiple bake sale fundraisers supporting cancer research, raising approximately $300

Project FurGood Non-Profit

- Helped organize a bake sale fundraiser (November 2025) raising approximately $500
- Assisted in building the organization's website to increase outreach and visibility

School Events — Volunteer

- Volunteered at College Night (September 2025); served as welcomer and assisted with event setup
- Volunteered at Career Night (September 2024); supported setup and coordination of event logistics

CERTIFICATIONS

- CPR and First Aid

ATHLETICS

- High School Volleyball
- High School Baseball
- Ghost Travel Baseball

AKIF KHAN

CLASS OF 2027