

Spotlight: Nihal Satyadev

Graduating medical student, MSTAR alum,
and co-founder of the Youth Movement
Against Alzheimer's

UC San Diego

Center for Healthy Aging
Stein Institute for
Research on Aging

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Meet Nihal Satydev



Nihal Satyadev is a medical student, computational neuroscience researcher, social entrepreneur, and Alzheimer's advocate.

In 2015, Nihal realized that Alzheimer's disease is one of the largest impending healthcare crises and noticing the lack of youth advocacy, he founded the Youth Movement Against Alzheimer's (YMAA) - 501(c)3.

YMAA now has 29 chapters and is the national leader in providing opportunities for college and high school students to advocate, research, and provide care for those with the disease. YMAA has also provided over 10,000 hours of respite care and raised \$10,000 for undergraduate research scholarships. Nihal also led a statewide campaign in California to start the first-ever "Americorps for caregiving" program, which has now been listed as a state priority by the California Alzheimer's task force. His work has been featured in the New York Times, Forbes, the Today Show, TEDMED, ABC, and several other news outlets. Nihal was named an Aspen Institute Health Scholar and a 40 under 40 senior living leader.

Nihal is also a published researcher with a primary interest in artificial intelligence and dementia. He is currently finishing his final year of medical school at the University of Medicine and Health Sciences while concurrently pursuing a Masters in Computer Science at the Georgia Institute of Technology. Nihal holds an MPH from George Washington University and a BA in Computer Science from the University of Redlands. He will be starting his neurology residency this July at Mayo Clinic Florida. Nihal's hobbies include fitness, backpacking, and biking. He is an avid fan of Liverpool football club and the Los Angeles Lakers.

How did participating in the Medical Student Training in Aging Research (MSTAR) in 2021 influence you and your career thus far?

For me, the MSTAR program was a tremendous opportunity to supplement my medical education with a summer conducting research at one of the foremost neurological institutions in the world, UC San Diego. In the summer of 2021, I was partnered with Dr. Subhojit Roy's neuropathology laboratory. The group is working on a number of projects including the validation of their CRISPR-Cas9 technology in reducing amyloid plaques in-vivo. In essence, they are looking to prove that they can cure Alzheimer's in mice using gene editing technology. My project that summer involved using a technique known as proximity ligation assay to determine whether or not two proteins, amyloid precursor protein and beta secretase, are interacting. Their interaction is a key step in the amyloid hypothesis, one of the highly cited theories for the development of Alzheimer's. In addition, I supplemented the benchwork by writing MATLAB code for high-throughput histopathological analysis.

My time with the MSTAR program helped me better understand the complexity of science that is undergone before any therapeutic makes it to the market. It also helped me recognize how to ask better scientific questions and the importance of a multi-disciplinary team when tackling challenging health-related or scientific problems. Finally, this summer cemented my interest in pursuing a future career as a physician-scientist, and I'm very grateful to all of the members of the MSTAR team and Dr. Roy's lab for helping me find this direction.

What are your future plans and goals for Neurology?

At the moment, I envision my future career as a physician-scientist. I would hope to leverage my Neurology training to see patients who have neurological conditions while simultaneously utilizing my artificial intelligence and clinical research training to help identify therapeutics for these conditions. As we await the development of these therapeutics, I plan to remain a staunch advocate for policies that create an American society that is better incentivized to assist the prevention of neurological disease.

About Youth Movement Against Alzheimer's and it's inspiration:



Having seen my grandmother's decline with Alzheimer's disease and recognizing the trends in our aging population, I was on a mission to rally fellow students to source solutions by highlighting dementia as the public health crisis of our generation. This was the impetus to found The Youth Movement Against Alzheimer's (YMAA), which has grown over the past seven years into the leading national nonprofit in providing opportunities for students to advocate and volunteer in the fight against the disease.

What has been a major professional challenge you've had in medical school?

In my first year of medical school, I received a grant to advance an "Americorps-for-caregiving" model that simultaneously improved the workforce for our aging population, decreased rates of caregiver depression, addressed social isolation, and reduced Medicaid spending. Our team met with over 50 senators and congress members and created state-level bills; however, we

have not to date been able to pass our dream service legislation. Efforts on this project were an important reminder that the great challenges in healthcare need a lifetime of dedication and relentless collaboration.

Why I ultimately chose Neurology:

On my neurology rotation, I felt intellectually invigorated. I was fascinated as I watched attendings wield their physical exam as a wand of localization. While advanced technology was helpful in confirming a diagnosis, it was ultimately the penlight and reflex hammer that justified starting treatment. I began to appreciate that there was no routine patient, and this diversity of presentations kept me captivated in both inpatient and outpatient settings. As I watched attendings deliver difficult diagnoses to patients, I remembered the challenging yet rewarding conversations I had with caregivers during my time with YMAA. As neurology residents educated family members about the new shifts in their paradigm, I realized that nearly all neurological conditions require extensive caregiving. And during didactics, I noticed that neurological ailments needed further research to generate more optimal therapies. The complexity of the nervous system aligned with my scientific curiosity, and the repercussions that are produced by these diseases ignited my passion for addressing social determinants of health.

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