**Use the space provided to explain why you want to go to medical school. \* (5300 word limit)**Why have you selected the field of medicine?  
What motivates you to learn more about medicine?   
What do you want medical schools to know about you that hasn't been disclosed in another section of the application?

In addition, you may wish to include information such as:

Special hardships, challenges or obstacles that may have influenced your educational pursuits  
Commentary on significant fluctuations in your academic record which are not explained elsewhere in your application.  
  
$7112 grants (~21)  
$2,350 scholarships (~7)

$ 34,462 total

Why have you selected the field of medicine?

From an early age my life was deeply impacted by medicine multiple times, ranging from experiencing the loss of my best friend at an early age, correctly obtaining a diagnosis of Focal segmental glomerulosclerosis (FSGS) and treatment for my younger brother Jerry, to helping take care of my mother as she went through chemotherapy, These instances left a strong and lasting impression and I wish to   
  
as I grew older. My main reason to select medicine as a future medical student to have the opportunity to help patients in need but also perform medical research translating bench discoveries into future therapies, I feel would be the most gratifying endeavor.

What motivates you to learn more about medicine?

What do you want medical schools to know about you that hasn't been disclosed in another section of the application?

My non-traditional journey to medical school has encountered many   
I come from a first generation immigrant family that faced many hardships growing up. These experiences have first handedly shown me what racisim, poverty,   
  
In addition, you may wish to include information such as:

Special hardships, challenges or obstacles that may have influenced your educational pursuits  
Commentary on significant fluctuations in your academic record which are not explained elsewhere in your application.

I am the eldest son of an immigrant family. Our entire family was poor, uneducated, lacked access to healthcare, and my dad was a violent alcoholic; despite these challenges and more, I became exposed to medicine and saw the importance medical teams play in positively impacting families' lives. From birth my brother Jerry had a distinct poofy appearance, which my parents believed would go away with time. By Jerry’s 5th birthday his condition had worsened, there was fluid buildup in his legs, and his skin became a jaundiced yellow. One day as my brother Jerry was playing out in the yard he started crying from pain. We had to rush him to the hospital and got a front row seat to watch various doctors, nurses and medical staff work tirelessly to figure out what my brother had and how to keep Jerry alive. We got referred from one doctor to another as the doctors tried multiple diagnostic tests. We faced a language barrier, and oftentimes we had no interpreter present and I had to step up and interpret for my mother.   
 birthdays and I would often accompany my parents as my parents did not speak english I translated to tbe best of my abilities. Jerry’s condition slowly improved and we obtained a diagnosis of focal segmental glomerulosclerosis (FSGS) explaining the kidney failure followed by treatment. With so much time spent with doctors, I began asking questions and interacting directly with doctors. This initially sparked my interest in medicine and left me with the desire to pursue medicine as I saw first hand how life changing it was.

I solidified my choice in medicine following one particular overseas deployment in Honduras with the United States Army serving as a surgical technologist and translator. Prior to enlisting in the military I had very little knowledge on how much physicians are patient advocates, engaged in the community and push for positive changes in their communities they serve. In providing disaster relief, humanitarian assistance and medical services to the deployed personnel. Over the length of my deployment I had participated in over five hundred and fifty general surgery cases; ranging from general surgery, trauma, orthopedics, OBGYN, reconstructive surgery, neurology and got to perform a handful of intubations. as a medical translator and offering lunch breaks to the surgical staff who were operating in two main OR suites. It was there that I got to meet and work with Dr. Novack and his team were performing a gender reassignment surgery on a 7 year old. The surgical technologist assigned to Dr. Novack’s team was sick and needed to be relieved, I came in and relieved him for the remainder of the surgery, (little did I know how long the surgery would be).

As a physician, I plan to return to the military and pursue either neurosurgery or internal medicine and provide the best care for military personnel. Humanatarian missions are a large part of my motivation   
This is in part of my experiences in the military deployed overseas working in austere environments left a lasting impression to continue my service to the nation.

I am the son of an immigrant family. Our entire family was poor, uneducated, lacked access to healthcare, and my dad was a violent alcoholic, despite these numerous challenges; I was able to stay out of trouble and finish my studies although my grades were not stellar, and I struggled in the beginning, I became the first in my family to graduate from university.

My brother Jerry was born with an undiagnosed medical condition. Jerry had a distinct poofy appearance, at the time my parents believed would go away with time. By Jerry’s 5th birthday his condition had worsened to include fluid buildup in his legs, and his skin became a jaundiced yellow. We had a first row seat to watch all the doctors, nurses and medical staff work tirelessly to keep my brother alive.. We finally obtained a diagnosis of focal segmental glomersclerosis and untreated kidney failure and an immediate admittance to the Intensive Medical Care (ICU). This translated to my mom and I visiting Jerry when he was between 6 -8 years old. With so much time spent with doctors, I began to ask questions and interact directly with doctors which impressed me with the idea to pursue medicine.

. We later learned that Jerry had Focal segmental glomerulosclerosis (FSGS)

Initially I had reservations for medicine following the sudden death of my best friend Philip during middle school. I felt very hopeless at not being able to directly help Philip, who suffered blunt force trauma to his neck and head while riding a bicycle and was in a medically induced coma. These feelings changed once I found out how the dedicated nurses, doctors, medical staff tried feverishly to ressusicate Philip. Watching the staff work their hardest to treat Philip left a lasting positive impression and left me with a deep motivation to help people suffering set my path towards pursuing medicine.

I found my calling for medicine following one particular overseas deployment in Honduras with the United States Army serving as a surgical technologist and translator.

During my military career as a surgical technologist, I obtained valuable life experiences while maturing into a highly motivated, independent, creative problem solver, organized, dependable team member, with determination to excel in any situation that carries over to my student career. As a physician, I plan to return to the military and pursue either neuroscience, anesthesia or internal medicine and provide the best care for military personnel. This is in part of my experiences in the military deployed overseas working in austere environments left a lasting impression to continue my service to the nation.

My main motivation for wanting to become a physician is experiencing the loss of my best friend Philip Devine when I was in the eighth grade. Philip suffered blunt force trauma to the back of his head riding his bike home by a garbage truck and was taken to the hospital where he passed away. I remember myself as a thirteen year old asking my parents what we could do and not getting any answers, and feeling hopeless because I was unable to help my friend Philip.. When Philip was buried I attended the funeral and when I saw Philip I still kept asking myself what I could have done to help him out. That was the moment I decided to become a physician to help people in need, vowing never to feel as hopeless as I did then. I enlisted in the U.S. Army in 2008 to serve in the medical corps, I attended boot camp in Oklahoma, and I received advanced individual training in San Antonio, Texas and graduated in Fort Carson, Colorado. I graduated as a Surgical Technologist/ Central material specialist and served for 8 years.

In 2012 I had the opportunity to deploy to Honduras on a humanitarian mission with the U.S. Army to provide medical services to the underserved Honduran population while providing medical services to the deployed personnel. Over the length of my deployment I had participated in over five hundred and fifty general surgery cases; ranging from general surgery, trauma, orthopedics, OBGYN, and got to perform a handful of intubations.

In one of the missions while deployed I served as a medical liaison, translator, and surgical technologist to a small unit deploying from San Antonio to perform a MEDRETE (Medical Readiness Training Exercise) in the main capital Tegucigalpa. We operated in Hospital Escuela and received over sixty five patients ranging from general surgery, trauma, cases to Obstetrics and Gynecology to Reconstructive Urology. I was serving as a medical translator and offering lunch breaks to the surgical staff who were operating in two main OR suites. Dr. Novack and his team performed a gender reassignment surgery on a 7 year old. The surgical technologist assigned to Dr. Novack’s team was sick and needed to be relieved. I came in and relieved him for the remainder of the surgery, (little did I know how long the surgery would be).

We then preformed a secondary MEDRETE to Choluteca to setup a mobile operating room and received over 30 patients for general surgery. I was a dedicated team member in the mobile surgical team (MST) as an interpreter between the Honduran physicians and our own surgeons, as well as working as the surgical technologist before, during and after the surgery.

I have a few memorable experiences from my deployment. My first experience begins after we took over the mission in Honduras and relieved the U.S. Air Force personnel.

To give context and backstory: Our humanitarian mission had a mobile surgical team which packed medical material, instruments, medications, and staff into a 15-passenger van and then drove to the impoverished local hospitals to perform surgeries with our host nation counterpart. We visited two hospitals, one in La Paz and Comayagua.

We had just finished our first case in Comayagua when a ER nurse came into the OR and immediately requested the Honduran surgeon to come to the ER bay. Our American Surgeon is requested by the Honduran surgeon to come with as well. As our American Surgeon didn’t speak Spanish and so I volunteered to come with to serve as an interpreter. When we went into the ER the crowded hallway was flanked by multiple police officers brandishing their MP-7 and AK-47’s. The patient is a fellow police officer that was shot during an early morning raid at 06:00. the patient was a male police officer that had been shot in his head by a AK47[MV1] 7.62x39mm round. The entry wound was approximately 1.5 cm in diameter and the exit wound was multiple centimeters wide, evident that a bullet had tumbled in his skull. Once we entered the room the doctor who had been ventilating immediately signaled for me to take his place. I took over ventilation duties while translating for Honduran police chief and our surgeon. I saw the faint purple dura matter pulsate with each heartbeat, as I inched into a closer position some of his dark blood was trickling into the floor and splashed on top of my boot-covered shoes. His eyes were dilated and were rolled into the back of his head.

When we saw the Honduran Police Officer it was approximately 09:30, this means that he was brain dead immediately after the bullet exited his skull and it was a miracle that he survived that long. I translated while providing mechanical breathing and coordinated a MEVAC transport with our Blackhawk helicopter from our aviation unit to an appropriate hospital. To this day I will always remember mechanically ventilating the patient and obtaining a positive sense of directly contributing to his life.

My second memorable event: scrubbing into a gender reassignment surgery ( I will add more here) during the course of my deployment I had the opportunity to serve as a translator / relief surgical technologist to a rotating army / airforce group from Texas.

Third Memorable experience: receiving a 7-year old male patient that had an AK-47 bullet fragment enter his anus (creating a fistula) and eviscerated his large intestines causing a life-threatening sepsis. I had little time to remain shocked; we had to act quickly to save his life by resecting the dead and necropsied small/large intestine and clean out his abdomen with antibiotics. The patient then received a colonoscopy for two months. The next time we saw him, he had moderately lost a few pounds but was healthy overall. We performed the colostomy takedown and reattached his colon to the rectum. He survived and made a full recovery which greatly made the whole team extremely happy to be a part of.

During my spare time, I became interested in the local population. With the help of the military volunteers we created a community outreach program working with the Scouts of Honduras and our whole military base. We taught the Scouts skills ranging from First aid, survival escape and evade, STD awareness, CPR, navigation, swimming, bike riding and emphasizing teamwork exercises. This was a great opportunity for

My PhD area of research is focused on developing the next generation of functionalized carbon nanotubes (f-CNT) as a drug delivery vector and exploring strategies to mitigate f-CNT cytotoxicity. Nanotechnology offers promise as a multifaceted system in which novel treatments to combat cancer, perform epigenetic modifications, grow iPSC into neurons, and to study diseases *in vitro*. I am extremely interested in regenerative medicine because it allows for future physicians to mitigate host immune system rejection which would help patients who lost limbs, organs, suffer burns, to traumatic brain injuries.

I am a first-generation Hispanic student who returned to school after serving in the military. In addition, my mother was diagnosed with breast cancer in 2015 and began treatment and successfully entered remission in 2016. This coincided with me finishing my transfer coursework at my community college under much stress. I am a determined non-traditional college student that may not have the perfect 4.0 GPA, however I bring to the table unique life experiences that are not reproducible in the classroom, that will set me aside from other candidates.

Being selected for the HSU CIRM Scholar Program, will give me valuable research experience that will greatly improve my chances for highly competitive medical school admission and graduate programs. In addition, I will learn new protocols and obtain experience with lab equipment and other resources not present at Humboldt State University. Lastly, the high-quality work performed at CIRM campuses will build upon the foundation I established at Humboldt State University.

My previous research experience begins in 2013 attending Oxnard Community College under Professor Michael Nicholson. We sequenced fish DNA caught off the coast of Alaska for documenting of new species into the Barcode of Life database. I then transferred into Humboldt State University in Fall 2016. In Fall 2017, I began undergraduate research in Physics under Professor Ruth Saunders; the research conducted included a literature review on carbon and zinc oxide nanotubes. Due to our remote location, and budget constraints at Humboldt State University we faced challenges in trying to get Professor Saunders’s research laboratory operational. As a substitute, I wrote Python code simulating the theoretical maximum dimension length for carbon nanotube length diffusion at the phospholipid bi-layer via Monty Carlo random walk simulation. In the same semester in Dr. John Steele’s Cell Biology lab class, we performed a CRISPR/dCas9 inhibition and activation experiment for genes involved in neurological diseases.

This Spring Semester at Humboldt State University I am concurrently conducting research in Dr. Steele’s biology wet lab developing biological tools to study tauopathies and RNA guided Cas13 endonuclease tools. I am also continuing my Python code simulation to simulate functionalized carbon nanotube diffusing through the phospholipid bilayer and their theoretical diffusion profiles. I am enrolled in Professor Amy Sprowles Stem Cell Biology examining murine embryonic stem cells (mES) and their morphology when stimulated to differentiate. Lastly, I am enrolled in Dr. Jacob Varkey’s Genetics Lab class conducting research to examine where the transcription factor cJun binds in relation to Oct3/4 via chromatin immunoprecipitation analysis (CHiP). I believe that I am a strong candidate and possess the qualities you seek. All I ask is for the opportunity to prove myself to the interview committee.

Respectfully,

Miguel Villa