"Taking Research From Labs and Conferences To People" *Sai Siddartha Maram*

"Never expected this COVID-19 birthday to turn out this great and so close to my family" were the words of Mrs. Devi just after talking to her family through Robots, we developed at Invento Robotics. The smile on Mrs. Devi's face after celebrating her birthday with her grandchildren through Robots to whose development I was the pivot, reinforced my decision to delve further and streamline my energies and skills in bringing technology to augment interactive experiences. My **Research Internships** at **GeorgiaTech, IISc, IIM-A,** and Invento shaped me as a researcher with empathy towards pursuing research but in a nebulous manner. To contribute better solutions I believe in developing better aptitude and stronger research methodology. Columbia's representation at conference venues I have published reflects how Columbia is aligned my goals of creating impact in an intersection of Deep Learning, Information Retrieval, and HRI and makes it a great destination for my Graduate School (MSCS)

"**Paper** Notification **ACM Multimedia 2020**" was the subject of the email which reflected that walking the extra mile to pursue independent research proactively at home during the lockdown was fruitful. Having papers accepted at top venues like **IEEE GLOBECOM 2020, ACM Multimedia** I was confident my direction of research in encouraging people to interact with Deep Learning was a domain with great potential. At GLOBECOM-20, my paper worked on developing strategies to annotate sports broadcasts into temporal granular events. The ML framework I developed established a new state of the art result with an accuracy of 97.3% (40% more accurate results than previous methods) for event segmentation from sports broadcast in the field of cricket. At ACMMM I went one step ahead by using Data Mining techniques to extract visual information from segmented events and construct graphs of the live events based on data. Storing cricketing information as graphs allowed us to perform temporal queries on segmented events. This allowed users to query particular events associated with their favorite player across any timeline and club and retrieving video clips as the result.

At Invento Research, I developed autonomous navigation algorithms for asynchronous wheels (in review IROS 2021). This work allowed us to reduce the cost required to perform autonomous navigation by nearly 50% since synchronous wheels are expensive. Cumulatively 15 robots across India, USA and Australia have clocked over 4000km in autonomous navigation. I was promoted from a Research Intern to Research Fellow by the famous Mr. Balaji Viswanathan. I shared my paper at **IEEE ICACCP-19 (Best Paper)** with Prof.Tsai, who then offered me a Research Scholar Position at GeorgiaTech, Atlanta. One of my novel research outcomes as a result of this internship was that I managed to develop a 3D LiDAR querying framework using a data structure called KD-Tree. This work lead to enhanced performance compared to existing work on huge LiDAR point clouds. By thresholding the LiDAR point clouds retro intensity values, I was able to accurately estimate the health of all traffic signs over the entire length of any interstate. My contributions at GTech helped Dr.Tsai's lab bag the high impact research award at AASHTO.

Columbia is a place where research meets empathy and compassion and has impacted millions of lives around the globe. Being the co-founder of Edu-Social Community 'Grow' I have had multiple discussions over interesting research problems with students and professors. These conversations and my research experiences in academia with Dr.Tsai(GeorgiaTech), Dr. Yogesh (IISc) and Dr. Anil Gupta(IIM-A) motivates me to be part of academia in the future. The MSCS program offers me the perfect platform to organize and improve skills and develop the required aptitude for a Ph.D. Having spent my childhood in Switzerland and with research experiences in the USA and India, I feel apart from academic diversity I will also contribute to cultural diversity and leadership at Columbia. As a Master's student and a Doctoral Student in the future I look forward to making research more tangible and take it from Labs and Conferences to People.