Statement of Purpose: Viterbi Scholars Program

“Engineering is about using science to find creative, practical solutions,” a quote I often return to as a source of inspiration, encapsulates my drive to make a tangible difference through technology.Throughout my academic journey and practical experiences, I have been driven by a singular vision: **to harness the power of Artificial Intelligence to transform healthcare and enhance human well-being**. Currently a **third-year undergraduate** with a focus on AI and Machine Learning, I am pursuing my dream by immersing myself in projects, leadership, and research opportunities. This journey has led me to apply for the Viterbi Scholars Program at the University of Southern California—**a program that aligns seamlessly with my academic goals,** providing the ideal platform for me to deepen my expertise and make a meaningful impact.

I’ve worked hard to build a solid foundation, both academically and practically. During my **internship as a Python Intern at CodSoft**, I worked on optimizing data pipelines. It wasn’t easy—handling large datasets on limited resources meant I had to rethink and streamline the process. That experience taught me the importance of efficiency and adaptability, qualities that proved valuable in my next role as an **ML Intern at Rycoon Technologies**. Here, I’m building a customer service chatbot that relies on OCR data instead of API-trained models. This project required creating custom data-preprocessing techniques to make the model more accurate, pushing me to think creatively and make the best use of what I had.

Leading the **Google Developer Group** on my campus has also been a rewarding part of my journey. Through GDG I’ve organized workshops, mentored fellow students, and led a team that’s as committed to tech as I am. This role has not only strengthened my leadership skills but also highlighted how much can be achieved when a group of passionate individuals comes together with a shared goal.

Hackathons have been another critical part of my growth. In the **ONDC Build for Bharat Hackathon**, my team developed a personalized chatbot that tailors responses based on user interactions. We faced challenges with response times, so we implemented a caching system to improve performance—an experience that taught me to tackle issues head-on and improve user experience. In the **Bank of Baroda Hackathon,** where we build a financial advisory platform. Data scarcity posed a real problem, but we used data augmentation techniques to make it work. Hackathons like these, along with experiences at **IISER’s Berhampur Sci-kit-thon** and **HackWars at Chandigarh University**, have reinforced my desire to use AI to create solutions that make a tangible difference.

Looking ahead, I’m particularly interested in **AI-powered adaptive therapies for cognitive rehabilitation.** I envision using reinforcement learning to personalize and adjust treatment plans based on a patient’s progress, creating a therapy model that adapts to individual needs. I also want to **explore transfer learning and longitudinal data analysis** to overcome the

challenge of limited healthcare data, which could provide insights into patient recovery patterns and better inform treatment.

What excites me about the Viterbi School is the opportunity to learn from faculty whose work aligns with my own goals. **Professor Ruishan Liu's** research on **Longitudinal Mental Health Analysis and Reinforcement Learning for Precision Medicine resonates** with my aspirations in adaptive therapy. The focus on making models interpretable and trustworthy is vital for clinical applications, and I'd be honored to contribute to this work. I'm also inspired by **Professor Souti Rini's** research on **AI-powered coding assistants**, as her approach to streamlining workflows through AI mirrors my own interest in building efficient healthcare tools.

The Viterbi Scholars Program offers an environment where I can truly thrive and push my work to the next level. With guidance from USC's faculty and access to cutting-edge resources, I am excited to dive deeper into AI research and contribute to the future of healthcare. Thank you for considering my application.

Sincerely,
Unnati Pal