Research Statement

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The paramount step in creating Artificial Intelligence is to teach computers to understand our world as intuitively as humans do. This dream is rapidly transforming into reality with the advancements in Computer Vision (CV), Machine Learning (ML), Natural Language Processing (NLP) and Computer Graphics, and in some cases outperforming human capabilities. It is my dream to be an integral part of this change.

I am passionate about building intelligent machines that can reason and understand the natural world and create products that work, are built on novel techniques (for some people this may be indistinguishable from magic) and aids artists and novice users in their creative endeavors. I want to develop products that make the world a better place and bring joy to the users. This includes building recommendation systems that use vision based techniques to better understand images and videos and extract meaningful information to using geometric deep learning, especially graph neural networks.

My interests lie in the intersection of **Computer Vision, Computer Graphics and Deep Learning**.

• I wish to tackle problems on the theoretical realm specifically generative models (primarily GANs), unsupervised learning (specifically disentangled representation learning), geometric deep learning, learning shape and texture representation of 3d data, discrete differential geometry

• and in the applied realm specifically building parametric models for shape estimation, 3D reconstruction, differentiable rendering, neural rendering, PBR, image-based modelling and rendering, style transfer, vision as inverse graphics and AI for creative content.

In the past I worked on problems in 3D reconstruction of geometry and appearance from image(s), ranging from using interactive methods backed up by classical constrained optimization techniques to using differentiable path tracing to estimate shape and SVBRDF.

I believe Netflix is the right place for me to pursue my dreams. I am also excited to be part of a collaborative environment where researchers, engineers, designers and artists from various backgrounds work together to solve challenging problems.

It would be an honour for me to be able to work with a team at Netflix for the Summer of 2021. My experience and skill set developed over the years (*detailed in my resume*) makes me confident to take up this challenge.