Cover Letter

Vikas Thamizharasan

Position: *AI Engineering Intern*

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.

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 [3], learning shape and texture representation of 3d data, discrete differential geometry [1]

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

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 (primarily in the visual domain). I want to develop products that make the world a better place and bring joy to the users.

The domain of human motion capture (MoCap), rigging, simulation and its application in VR / AR is of great interest to me. Some of the seminal work done by Prof. Michael Black's team at MPI [2], who was a former professor at Brown University where I am currently pursuing a Masters degree, has got me excited about the future of this field.

Having seen the opportunities offered by Deepmotion for a summer internship, it would be an honour for me to be able to work with your team on the state of the art technology. My experience and skill set developed over the years (*detailed in my resume*) makes me confident to take up this challenge.

References:

1. "*A Glimpse into DiscreteDifferential Geometry*" Keenan Crane and Max Wardetzky, 2018.
2. MPI - Parametric Human Models
3. Geometric Deep Learning