

# VIGNESH JAGADEESH

DIRECTOR, MACHINE LEARNING @ APPLE, [VIGNESHJ.COM](http://VIGNESHJ.COM)

## PROFILE

Experienced Engineering Leader with a proven track record of delivering ML powered customer experiences that ship to more than a billion users. Passionate about (a) AI/ML backed product strategy, (b) disciplined execution of large x-func applied research efforts, (c) building highly performant teams & mentoring leaders

## EXPERIENCE

### *HEAD OF VISUAL GENERATION, CONTENT EMBEDDINGS & SAFETY [2023-NOW]*

My teams lead and oversee several intelligence initiatives at Apple, namely the Apple Diffusion Model, the Apple Embedding Model & Apple Intelligence Safety Mitigations. I scaled all my teams from the ground up, and have established excellent in delivering innovations in ML model quality/performance and building experiences with high user engagement. *Visual Generation* - Pre-training, post-training, adaptation, safety, internationalization, infrastructure and optimization. Our visual generation workflow runs completely on device is among the best in class in its compute category *System Search* - Training and alignment of multimodal unified embeddings. This model jointly embeds text, images, video and audio. It is foundational to how indexing is done across the operating system *Safety Mitigations* - Alignment, optimization and deployment of system guardrails (for pixels and text)

### *ML RESEARCH MANAGER [2015-2023]*

In charge of Scene Understanding and AI Safety at Apple Software. Founded the Scene UNderstanding (SUN) team in 2016, and built it into a world class applied research organization that seamlessly interacts with hardware, software, design and services. SUN's impact is best captured through the user experiences it impacts: iPhone Cameras Semantics / Imaging, Photos Discovery / Curation, Messages, Notes, Spotlight Search, Siri Search, Maps, FinalCut/Pro Apps, System experiences, 3rd party APIs. I oversaw projects that have multi year trajectories, and have a solid track record in consistently leading the execution of diverse ML powered user experiences.

## PRODUCT HIGHLIGHTS@APPLE

**2024/25 User Experiences:** International Expansion, Wallpapers / Mixmoji, Visual Intelligence, Generative Shortcuts

**Core Technologies:** Multimodal Foundational Models, On-Device Diffusion, Safety Alignment

**2023/24 User Experiences:** Genmoji, System Search, Image Playground, Image Wand, Apple Intelligence Safety

**Core Technologies:** On-Device Diffusion, On-Device Embeddings, Safety Alignment

**2022/23 User Experiences:** Video Segmentation/Stickers, Communication Safety in Video, Copy/Paste Edits

**Core Technologies:** Video Segmentation, Video Safety, Motion Estimation, Im2Im Translation

**2021/22 User Experiences:** Subject Lift, iOS Lock Screen, Visual Lookup, Memories

**Core Technologies:** ImLang Foundation Model for iOS/macOS, System Image Safety, Segmentation

**2021-20 User Experiences:** Live Text, Visual Lookup, Captioning, RT Autofocus, QR/AppClip Scanning, Document Scanner

**Core Technologies:** Pixel Semantics, Private Learning, FG Recognition, Color Normalization, Visual Tracking, Memes

**Developer API:** Document Segmentation, CreateML Object Detection, Image Tagging, Image Similarity, Saliency

## SELECTED CONTRIBUTIONS

Transformers on the Apple Neural Engine [Apple ML Blog], Multi Task Neural Architecture for On Device Scene Analysis [Apple ML Blog], Panoptic Segmentation in Camera [Apple ML Blog], Document Extraction in Vision [WWDC 21], On Device Image Captioning [iOS 14], Scene Analysis in Vision [WWDC 19], Segmentation in Camera [WWDC 19], Custom Classification [WWDC 18], Face Analysis in Vision [WWDC 17]