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# VIGNESH JAGADEESH

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

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## 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

**20214-20** *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]