TAPOS DATTA

 github@tapos-datta linkedin@tapos-datta taposdatta2013@gmail.com
 Dhaka, Bangladesh +880 1723 760042

TECHNICAL SKILLS

Languages:	Swift, Kotlin, Java, **C++**, Python, GLSL, C
iOS Stack:	SwiftUI, UIKit, AVFoundation, CoreML, Vision Framework, Combine, Swift Concurrency
CV & ML:	OpenCV, OpenGL-ES, PyTorch, ONNX, Model Quantization
Architecture:	MVVM, Clean Architecture, Reactive Programming, RESTful APIs, Android SDK/NDK

PROFESSIONAL EXPERIENCE

Senior Software Engineer II (iOS)   *Nov 2022 - Present*
BrainCraft Ltd., Dhaka, Bangladesh

- **Led a 6-member team** to architect a 4K video editing suite using **SwiftUI** and **Clean Architecture**, implementing a robust **Networking** layer for cloud-asset sync and a reactive UI that scales across devices.
- **Engineered a custom AVFoundation engine** integrated with **CoreML/ONNX** models, enabling real-time multi-layer rendering and hardware-accelerated alpha matting via optimized pixel buffer mapping.
- **Modernized media pipelines** using **Swift Concurrency (Async/Await/Actors)**, utilizing **Instruments** to eliminate 95% of data-race conditions and 17% lower crash rates.
- **Fortified project persistence** and background synchronization using **Core Data** and **BackgroundTasks**, ensuring 99.9% data integrity and optimized memory management during heavy export cycles.

Software Engineer II (Android)   *July 2019 - Oct 2022*
BrainCraft Ltd., Dhaka, Bangladesh

- **Architected the core A/V engine** for "Add Music to Video" (500K+ users), utilizing **multi-threading** and **MVVM** to manage complex state transitions and sub-millisecond multi-track synchronization.
- **Streamlined API integration** by implementing a reactive networking layer with **Retrofit** and **Room**, enabling seamless cloud-asset fetching and local metadata persistence for user projects.
- **Optimized export throughput by 37%** via a foreground **Service-based** export module, integrating multi-point time-domain algorithms and **MediaCodec** for efficient background processing.
- **Engineered modular UI components** using custom views and **OpenGL-ES**, ensuring high-performance real-time filtering and 60fps preview across a fragmented device landscape.

Software Engineer (Computer Vision)   *Oct 2017 - May 2019*
iHealthScreen Bangladesh Ltd., Dhaka, Bangladesh

- Developed C++/Qt5 medical desktop systems for retinal pathology detection using **OpenCV** and machine learning, reducing human error in clinical diagnostics.
- Implemented **Dijkstra's algorithm** for OCT layer boundary detection and created semi-automatic vessel segmentation tools for retinal fundus image analysis.

KEY PROJECTS

- **Video Editor (iOS):** Accomplished **real-time video editing** with **25% lower CPU overhead** by architecting a custom rendering pipeline using AVFoundation and modern Swift Concurrency.
- **WaSticker - Sticker Maker:** Achieved **93.3% segmentation accuracy** on mobile devices by deploying quantized deep learning models and custom **tensor-to-image** post-processing libraries.
- **Vintage Camera & Retro Filters:** Implemented efficient **Metal**-based preview pipelines for Camera feed, ensuring fluid UI responsiveness during real-time filtering and image processing.

HIGHLIGHTS & RESEARCH

- **Machine Learning:** Authored **one** scholarly article and **four** conference proceedings on ML/CV. Publications found on Google Scholar.
- **Open Source:** Contributor to *Mp4Composer-android* and *LiTr*.
- **Algorithms:** Solved **700+ programming problems** on uHunt and LightOJ (Competitive Programming).

EDUCATION

Shahjalal University of Science & Technology, Sylhet, Bangladesh   *Jan 2013 - Sep 2017*
B.Sc. in Computer Science & Engineering   *CGPA: 3.54*