I'm a Technical Leader & Researcher with 25 years of professional experience and a highly specialized skill set for research/production AI/ML, simulation, real-time rendering, HPC/GPGPU, & game/video streaming, among other things.

Ani Balasubramaniam

Senior Director of AI, **nucleus**

github.com/aniongithub

linkedin.com/in/anibalasubramaniam

www.anionline.me

Founder & Chief Scientist, text2motion.ai

Jan 2024 - present

Founded a GenAI startup delivering fast, reliable text-to-3D animation for 15K+ users via custom AI models and scalable, fast CPU inference—all on the Google Cloud.

C/C++ Python Pytorch Lightning Typescript Docker, Github Actions C# Google Cloud

Senior Director of AI, nucleus

Apr 2025 - present

Tapped to lead AI & architecture at a funded AI agent startup (Fibernetics.ca subsidiary), rebuilding core systems to run custom models, cut latency, and scale for GTM.

Python Pytorch C/C++ Typescript Docker Kubernetes OpenStack C# Google Cloud

Principal Research Engineer, Microsoft

March 2020 – Jan 2024

Research: Led research team on differentiable simulation graphs, AI/ML workload optimizations, and forward-looking projects such as autonomous drone and robot navigation.
Bonsai: Led Engineering team and developed Moab, an open-source deep learning robotic platform for industrial processes

Python Pytorch C/C++ OpenCV PyTorch Docker OpenCV WebRTC Memgraph Omniverse UE4 Azure

Senior Research Engineer, amazon

Nov 2013 – March 2020

Grand Challenge: R&D and device prototyping in CV, Deep Learning, video streaming & h/w interfacing.
Amazon Game Studios: R&D of cloud-based streaming features for *The Grand Tour Game*.
Twitch: Built a prototype for ultra-low latency RTC streaming.
AWS Appstream: Designed a framework for connection, KVM, and session management.

C/C++ C# Python CUDA PyTorch OpenCV Lumberyard AWS WebRTC HLS Docker H.264 OpenCL DirectX

AIR Worldwide

Sep 2012 – Nov 2013

Prototyped and proved large speedups over AIR's existing distributed stochastic Modeling platform using GPGPU. Built a team and helped architect AIR's NextGen Modeling platform using heterogeneous, distributed stream computing.

C# C++ .NET CUDA OpenCL OpenGL EC2 Cassandra HDF

Starkey Laboratories

Nov 2010 – Oct 2012

Redesigned acoustic simulation model for hearing aids, optimizing SIMD performance and ensuring cross-platform support (Windows, Linux, macOS). Prototyped I2C-based programmer on an ARM Linux device, enabling remote audiology workflows.

C# .NET Mono C++ OpenCL

Vital Images

Sep 2009 – Nov 2010

Worked on research/features of the core volume renderer and background volume pre-processor using cutting-edge rendering/registration algorithms, hardware and compute/shader technology alongside R&D team

C++ OpenGL OpenCL

MSL Technologies (Mansoft Solutions)

Jan 2007 – Aug 2009

Prototyped, built and led a team to develop a real-time, fully data-driven renderer for 3D television graphics using C#/.NET. This was the core renderer for MSL's next-gen Agile3g platform.

C# .NET DirectX OpenGL C++ C

Eigen Systems

Apr 2006 – Jan 2007

Prototyped and enhanced performance and modularity of Eigen's primary DSA offering by moving all compute onto the GPU and developed modular GPGPU effect system

C# C++ DirectShow DirectX HLSL

Sobha Renaissance IT

Jun 2003 – Apr 2006

Led a team to develop an interactive, real-time 2D/3D DICOM medical viewer with transfer functions, MPR views, ray-casted volume rendering, isosurfaces, lighting and 4D animated volume support

C# C++ DirectX Cg DICOM

Agni Software

Oct 2001 – Jun 2003

I developed a printing CAD system with interactive 3D folding/cutting and auto-pagination of versions

Delphi OpenGL VCL

Education

Apr 2001

B.E. Computer Science, S.C.S.V.M.V. University, India