

TASLIM R. ANUPOM, Ph.D.

Lubbock, TX • (713) 355-7542 • anupom458@gmail.com • linkedin.com/in/anupom458 • anupom458.github.io

PROFESSIONAL SUMMARY

Multidisciplinary engineering leader and entrepreneur with a Ph.D. in Electrical Engineering and 8+ years of experience spanning microfluidics, lab automation, full-stack software development, and IoT product design. Proven track record of architecting scalable platforms for high-throughput *C. elegans* phenotyping, leading cross-functional R&D teams, and delivering NASA/ESA spaceflight payloads. Founded Dynera Labs, designing and manufacturing a hardware-software product from concept through production. Combines deep expertise in embedded systems, web application development, and data visualization with strong project management and IP generation capabilities. Published researcher with 105+ citations (h-index: 5), 7 peer-reviewed publications, and 3 patents (1 granted).

TECHNICAL SKILLS

Engineering: Microfluidics, MEMS Fabrication, Lab Automation, Platform Architecture, Hardware-Software Integration, PCB Design (Eagle, LTspice), Lithography, 3D Printing, Embedded Systems, IoT

Software: Python, JavaScript, React, Flask, MATLAB, SQL, HTML/CSS, Tailwind CSS, Alpine.js, MUI, REST APIs, Git, Docker, CI/CD, Linux

Data & Visualization: Plotly.js, Chart.js, Framer Motion, Image Processing, Data Pipelines, WebSocket, MATLAB Image Analysis

Domain: *C. elegans* Phenotyping, Healthspan/Lifespan Assays, Space Biology, NASA/ESA ISS Payloads, Bioassay Development

Leadership: Cross-Functional Team Management, Project Management, Budget Oversight, Agile Development, Stakeholder Communication, Product Design & Manufacturing

PROFESSIONAL EXPERIENCE

Dynera Labs | Lubbock, TX

Founder

2026 – Present

- **Product Development:** Founded a hardware-software company designing and manufacturing the "Prestige Wall" — a collectible card price tracking display system featuring 25 OLED screens, Raspberry Pi, and ESP32 microcontrollers.
- **Embedded Systems:** Engineered the full embedded stack: ESP32 firmware (serial JSON protocol), I2C multiplexer control (TCA9548A), SSD1306 OLED drivers, and a Flask-based web server with real-time price scraping from PriceCharting, TCGPlayer, eBay, and JustTCG.
- **Full-Stack Web Development:** Built and deployed the Dynera Labs e-commerce website (dyneralabs.com) using Flask, Tailwind CSS, Alpine.js, and SQLite — featuring Stripe Checkout, eBay marketplace integration (OAuth 2.0), blog CMS, user authentication with 2FA, and analytics dashboards.
- **IoT Architecture:** Designed a bidirectional device sync architecture between Pi units and the cloud platform, including Cloudflare tunnel-based remote access, HMAC-authenticated webhooks, heartbeat telemetry, and OTA update delivery.
- **Manufacturing & QA:** Created an end-to-end manufacturing pipeline with automated QA validation (20+ checks), product key provisioning, Cloudflare tunnel setup, and printable key card generation — enabling repeatable, ship-ready production.
- **DevOps & Testing:** Containerized the platform with Docker Compose (Flask/Gunicorn + Nginx + Cloudflared) and deployed on a NAS, maintaining 518+ passing tests across the codebase.

NemaLife Inc. | Lubbock, TX

Lead Platform Developer

Jan 2023 – Present

- **Platform Architecture:** Architected and deployed a scalable microfluidics-integrated platform for automated *C. elegans* assays, supporting phenotyping, screening, and healthspan/lifespan analyses across multiple product lines.
- **Software Platform (NemaStudio.ai):** Led a complete 10-phase redesign of NemaStudio.ai, the company's data analysis web platform, using React 18, MUI v5, Framer Motion, and Plotly.js — delivering interactive data visualization, WebSocket-driven real-time updates, and performance optimization (lazy loading, data caching, memoization).
- **Team Leadership:** Managed and mentored a 14-member cross-functional team (6 R&D engineers, 8 data analysts), driving delivery of high-quality products on schedule and within budget.
- **Project Management:** Oversaw end-to-end project execution for platform-related initiatives, identifying risks early and implementing mitigation strategies that ensured on-time delivery.
- **Cross-Functional Collaboration:** Partnered with biology teams, data scientists, and external stakeholders to align platform development with research goals, including spaceflight payload requirements.
- **Technical Issue Resolution:** Spearheaded troubleshooting protocols that reduced platform downtime, enabling the team to resolve system-level issues 40% faster.
- **Business Development:** Managed client engagements and developed business plans focused on market opportunities, competition analysis, and customer acquisition strategies.

NemaLife Inc. | Lubbock, TX

Microsystems Engineer

Mar 2022 – Dec 2022

- **Technology Scale-Up:** Led the development, automation, and scale-up of microsystem technologies for the screening platform, managing procurement, installation, and commissioning end to end.
- **Fabrication & Integration:** Established a lithography and 3D printing facility with comprehensive SOPs; collaborated with software and data analysis teams to deploy multiple integrated software modules.
- **Client Deployment & Training:** Installed screening platforms at client sites and delivered hands-on training, achieving successful implementation and high user adoption rates.

Texas Tech University | Lubbock, TX

Research Assistant

Jan 2017 – Feb 2022

- **Microfluidics Development:** Designed and built three microfluidic systems from concept to journal publication, including a high-throughput platform that improved assay execution time by over 90% compared to traditional methods.
- **Automated Image Analysis:** Developed MATLAB-based image processing software capable of analyzing 6+ million images for automated nematode phenotyping.
- **NASA Spaceflight Hardware:** Collaborated with NASA Space Biology on testing, validation, and hardware development for ISS-deployed payloads measuring *C. elegans* muscle strength in microgravity.
- **ESA Space Research:** Partnered with NASA and the European Space Agency to study aging-like physiological decline in space-flown *C. elegans* treated with resveratrol aboard the ISS.
- **Microfabrication & PCB Design:** Designed and fabricated microfluidic devices using lithography-based microfabrication; created PCB designs in Eagle and LTspice for integrated sensing systems.
- **Patent & Startup Formation:** Filed a patent for an automated microfluidics system developed during Ph.D. research, which directly led to the founding of NemaLife Inc. in 2018.

Texas Tech University | Lubbock, TX

Graduate Teaching Assistant

Jan 2017 – May 2017

- Developed and delivered course content for senior-level students in Project Lab IV, including lectures, discussions, and hands-on guidance through complex engineering concepts.
- Provided individualized mentoring and feedback on class projects, covering both theoretical foundations and technical methods.

Texas Tech University | Lubbock, TX

Undergraduate Research Assistant

Jan 2016 – Dec 2016

- **NASA ISS Collaboration:** Designed a stimulated delivery reagent system and automated worm culture system for the International Space Station in collaboration with NASA.

EDUCATION

Ph.D., Electrical Engineering

May 2022

Texas Tech University, Lubbock, TX

Dissertation: "Development of Integrated Microfluidic Platforms for Phenotyping Studies in the Model Organism *C. elegans*"

Advisor: Siva A. Vanapalli

M.S., Electrical Engineering

May 2020

Texas Tech University, Lubbock, TX

B.S., Electrical Engineering

Dec 2016

Texas Tech University, Lubbock, TX

SELECTED PUBLICATIONS

Google Scholar: 105+ citations | h-index: 5 | i10-index: 4

Ellwood, R.A.; Hewitt, J.E.; Torregrossa, R.; Philp, A.M.; et al. "Mitochondrial hydrogen sulfide supplementation improves health in the *C. elegans* Duchenne muscular dystrophy model." *Proc. Natl. Acad. Sci.*, vol. 118, no. 9, 2021. [47 citations]

Vintila, A.R.; Slade, L.; Cooke, M.; et al. "Mitochondrial sulfide promotes lifespan and health span through distinct mechanisms in developing versus adult treated *C. elegans*." *Proc. Natl. Acad. Sci.*, Vol. 120, No. 32, 2023. [20 citations]

Soni, P.; Anupom, T.; Lesanzezhki, L.; Rahman, M.; et al. "Microfluidics-integrated spaceflight hardware for measuring muscle strength of *C. elegans* on the ISS." *npj Microgravity*, vol. 8, no. 1, 2022. [11 citations]

Soni, P.; Edwards, H.; Anupom, T.; Rahman, M.; et al. "Spaceflight induces strength decline in *Caenorhabditis elegans*." *Cells*, vol. 12, no. 20, 2023. [10 citations]

Anupom, T.; Vanapalli, S.A. "A compact imaging platform for conducting *C. elegans* phenotypic assays on Earth and in spaceflight." *Life*, Vol. 13, no. 1, 2023. [5 citations]

Zonari, A.; Brace, L.E.; Al-Katib, K.Z.; et al. "Senotherapeutic peptide reduces skin biological age and improves skin health markers." *bioRxiv*, 2020. [5 citations]

PATENTS

Automated Microfluidic System for Lifespan and Healthspan Analysis in Nematodes, US Patent 12,529,693, United States Patent and Trademark Office, 2026 (granted)

A Rapid Microfluidic in-vivo Bioassay for Screening Functional Ingredients for Improving Gut Health, 2023 (pending)

Smart Multi-Display System for Dynamic Trading Card Presentation, Provisional, Filed November 2025 (pending)

HONORS & AWARDS

Ground Validation Studies for Testing Loss of Muscle Strength in *C. elegans* on ISS (NASA)

TechConnect World Innovation Award, 2018

American Society for Gravitational and Space Research (ASGSR), 2018

The Duke of Edinburgh Award Program

Dean's Scholarship, Texas Tech University

CERTIFICATIONS

Engineer In Training (EIT)
Responsible Conduct of Research for Engineers

LANGUAGES

English (Native) | Bengali (Native) | Hindi (Professional Working) | Urdu (Limited Working)