Amira Malik

amiramalik.com ◆ amiramalik33@gmail.com

Education

MIT *BS, Aerospace Engineering* ***2017-2021***
Class of '21, Grad '23 b/c spent 1.5 yrs at Beta Tech
National Test Pilot School *Operation / Test Management* ***2026***

Manned Flight Test








Lighter Than Air, *Senior Flight Test Engineer* ***Feb 2026 – Now***

- Just started! Wanting to leave because the team is less "start-up" and more "demo squadron"

REGENT, *I was the only Flight Test Engineer* ***May 2023 – Jan 2026***

- "Right Size" Process Development
  - "Right Size Processes" meaning **"go as fast as possible without compromising *human* safety"**
  - Developed: Test Plan Working Groups, Vehicle Limits, Readiness Reviews, T-Minus, Go/No-Go's, Test/Ops Hazard Analysis, Safety Review, Emergency Response, System Safety, Configuration Control
- Test & Procedure Planning
  - **Requirements-based objectives**, despite few existing requirements
  - **Defined *and enforced*** roles, areas, "playbooks", ground support, checklists, cards, etc…
- Test Director
  - Ran events of the Aircraft, 2 Chase Boats, & Control Room
  - **Encountered multiple Terminates, KIOs, & emergency responses** – lots of lessons learned
- Training Officer
  - Trained & managed pool of 3 test conductors & 20+ control room engineers
  - **Ran training**, rehearsals, and simulator events with 4+ test pilots
- Responsible Engineer
  - **Prioritize schedule, vehicle readiness, available assets, and program risk**
  - Internal reporting (ran reviews, briefs/debriefs, & deliverables)
  - **External reporting** (for certification, commercial, defense & media teams)
- On-board Engineer
  - Evaluated altitude sensors over water and <50', >90 kts, and <30° roll
  - **Survived helicopter crash** - NTSB #ERA24LA171 – happy to talk about it!

Xwing, *Flight Test Intern* ***May 2022 – Sep 2022***

- Test Director for *creating* an STC for asymmetric wing pods; worked with DERs
- On-board test engineer for autonomous landing & take-off tuning

Aurora Flight Sciences, *Flight Test Intern* ***Dec 2021 – Feb 2022***

- Control room FTE & turned flight test data into a spec sheet for custom-built actuators

UAV Test Pilot

REGENT Craft, *400 lb 10' span WIG* ***May 2023 – Jan 2026***
MIT, *flew <55 lb drones for various labs* ***Sep 2021 – Apr 2023***
Beta Technologies, *55 lb 8' span eVTOL* ***June 2020 – Sep 2021***

UAV Flight Test


Beta Technologies, *Subscale Test Manager* ***June 2020 – Sep 2021***

- **Managed a team of 4 engineers**, including reviews and transferring people off the team
- Managed a contract manufacturer that created composite molds from our design
- Test Conductor for >200 eVTOL transitions in 450 days (autopilot integration, control law eval., & more)
- **Managed fleet**'s delivery, integration, and maintenance
  - Published the CAD, BOM, assembly, and maintenance manuals: the fleet is still flying!

MIT, *Flight Test Consultant* ***Sep 2021 – May 2023***

- **Consulted for various research labs** (autonomy, swarming, payload delivery)
- Designed & built UAVs for the AIAA DBF competition: **placed top ten (100+ teams) in multiple years**

DESIGN, PERFORMANCE, & OPTIMIZATION

REGENT Craft

Lead Instrumentation Engineer *10-month project*

- **Made a system with 60+ sensors that reports 5000+ parameters at ~20 Hz between multiple vehicles**
- **Managed ~6 engineers** and maintained knowledge transfer in an evolving team
- Built a system while requirements were developed, and managed feature requests during flight test
  - Worked w/system leads, then architected the flight test instrumentation system
- **Led embedded system efforts** & wrote software for telemetry of: analog, serial, and fiber optic sensors
- Designed, built, tested, and installed flight-approved wire harnesses and sensors
- Built an automated post-test data pipeline: hard drives → on-site database → web-based visualizer
- Managed contract with SaaS providers on data management functions

Simulation, Modeling, Controls *2-year project*

- **Wrote monte carlos & multivariate tests for performance prediction for all flight test activities**
- **Wrote and ran Simulink tests** and assessments for requirements validation & CI/CD baselines
- side project: designed multi-effector low-speed control for a blown-wing aircraft (patent pending)

MIT Flight Vehicle Development ***Sep 2022 – May 2023***

Performance Lead, Chief Engineer

- Designed the configuration and modeled the performance of a 72’ and 12’ wingspan solar electric seaplane
  - **Developed a 3-DOF takeoff simulator, then ran 8-dimension performance sensitivity analysis**
- Optimized airfoils for low-speed takeoff vs endurance & planform for aero efficiency vs solar efficiency

Beta Technologies ***July 2020 – Sep 2021***

Airframe Project Manager

- Managed 4 engineers to design & manufacture 100+ unique parts for a fleet of 8’ 55lb eVTOLs
  - **Rough OML to aero re-surfacing to final structure to molds to manufacture freeze in 10 months**
- Published the CAD, BOM, assembly, and maintenance manuals: fleet grew & flew for years after I left!

MIT Design / Build / Fly ***Dec 2017 – May 2020***

Performance Lead, Test Pilot, VP, Advisor

- Designed & built UAVs for the AIAA DBF competition: **placed top ten (100+ teams) in multiple years**
- Analyzed the competitive viability of dozens of aircraft designs over the years through MDO / simulation

I can teach a class on…

- **Simulation:** Finite Element, Trajectory Modeling, CFD (Panel Method, RANS)
- **Numerical Analysis:** Optimization, Sensitivity, Response Surface, Gradient Descent
- **Composites:** Laminate Theory, Shells/Plates, 3D Parametric Surface Modeling, Continuity
- **Fabrication:** CNC Manufacturing & Processing, DFM / DFA / DFSC
- **Software:** MATLAB, Python, Simulink, NX / Onshape, Bash / Shell / CLI, Nominal / IADS

Hobbies :)