

Amira Malik

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Education

MIT *B.S. Aerospace Engineering*

National Test Pilot School *Short Courses: Operation / Test Management, Fixed Wing Performance*

Novel Aircraft Development

Lighter Than Air

Feb 2026 – Now

Senior Test Engineer

- Leading flight sciences testing to define an operating envelope for the world's largest aircraft
- Defining the test strategy for situational autopilot modes (e.g. landing, station-keeping, low-energy floating)
 - Establishing framework for requirements V&V (bench/unit test vs simulation, ground, or flight test)
- Scaled real-time analysis tools to enable faster control room decisions (alerting system, real-time weight-and-balance)

REGENT Craft

May 2023 – Jan 2026

Responsible Engineer – Instrumentation

- Led development for aircraft instrumentation of analog, serial, and fiber-optic sensors
 - Supported ~6 engineers, knowledge transfer, hiring, and daily tasking including bringing up new hires
 - Aligned team's schedule and scope against vehicle design, system integration, and company milestones
 - Drove external contracts with data management vendors (hard drives → database → visualizer)
 - Managed feature requests during year-long sea trials, adding sensors & releasing software periodically
- Delivered a system with 60+ sensors that reports 5000+ parameters at ~20 Hz between multiple vehicles
 - Architected and oversaw the build and integration of airworthy wire harnesses (200+ endpoints, >1 mile)
 - Established requirements from feature requests and a fault-tree-informed measurement list
 - Owned sensor pedigree, system eBOM & SWaP-C, inventory tracking, and supplier procurement + NDAs

Responsible Engineer – Flight Test

- Debriefed and adjusted “right size” processes over a year to tune the balance of speed & risk mitigation
 - Processes from scratch: Configuration Control, Go/No-Go's, Hazard Analysis, Approvals
- Test Director: led events of the aircraft, 2 chase boats, & control room (28+ people per event)
 - Trained & managed pool of 3 test conductors, 20+ control room engineers, and rehearsed with 4+ pilots
 - Managed multiple test emergencies and led an engineering report for a vehicle break-up near takeoff
 - Defined playbooks for on-water events to enforce a reliable schedule and strong deliverables to engineering
 - Owned internal reporting (readiness reviews, briefs, quick-looks) & external reporting (certification, media)
- Balanced schedule, vehicle readiness, available assets, and program risk throughout a year-long sea trial

Simulation Model Verification

- Owned multivariate test suites to create a vehicle performance baseline for engineering simulation software releases
 - Determined optimal test scenarios using response surface analysis (e.g. best wind + wave state for first flight)
 - Instituted CI/CD pipelines and unit testing of idealized, nonlinear, and linear system models
- Supported system identification and real-time assessment of stability margin and control power
- Designed, simulated, and tested multi-effector low-speed control for a blown-wing aircraft (patent pending)

Beta Technologies

June 2020 – Sep 2021

Subscale Airframe Project Manager

- Managed 4 engineers to design & manufacture 100+ unique parts for a fleet of 8' 55lb eVTOLs
 - Drove a 10-month cycle from rough concept to delivering drawings to machine shops
 - Managed daily tasking, project timeline, and contract manufacturers
- Allocated resources for all ground testing including:
 - Determination of vehicle inertias via pendulum testing for flight dynamics model verification
 - Static load tests on the wing, tail, landing gear, and lift motor attachments
 - Source-victim EMI testing and antenna power verification
 - Planned a ground vibration test setup and data reduction
 - “Wind tunnel” testing via a truck mount for pitot-static system calibration
- Test Conductor for >200 eVTOL transitions in 450 days (autopilot integration, control law eval., & more)
- Standardized training, manufacturing, and maintenance manuals: fleet grew & flew for years after I left

Flight Test

Flight Test Consultant, *Various*

Sep 2021 – Now

- Consulted for various MIT research labs (autonomy, swarming, payload delivery)
- Optimized aircraft configurations using parametric simulation and response surface analysis
- **Remote pilot-in-command of novel vehicles**
 - REGENT Craft's 400 lb 10' wingspan WIG
 - Autonomous boat-launched UAV swarm supporting a stealth startup
 - Beta Technologies' 54 lb eVTOL

Xwing, *Flight Test Intern*

May 2022 – Sep 2022

- Test Director for *creating* an STC for asymmetric wing pods; worked with a DER – Structural Engineering
- On-board test engineer for autonomous landing, take-off tuning, & auto-taxi localization

Aurora Flight Sciences, *Flight Test Intern*

Dec 2021 – Feb 2022

- Control room FTE; converted flight test data into a spec sheet for custom-built actuators

Key Skills

- **Simulation:** Trajectory modeling, Potential Flow for lifting surfaces, RANS solvers for complex bodies
- **Numerical Analysis:** MDO, Response Surface: sensitivity analysis and gradient search
- **Composites:** Shell/Plate theory, 3D Parametric Surface Modeling, SolidWorks / Onshape
- **Fabrication:** CNC Manufacturing & Processing, DFM / DFA / DFSC, GD&T
- **Software:** MATLAB, Python, Simulink, C++, Shell, Docker, Nominal / IADS

Outdoor Interests

