

# Amira Malik

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**Flight Test Hours:** >90 (On-Board), >60 (Control Room), >350 (UAVs)

## EDUCATION

MIT BS, Aerospace Engineering

2017-2023

*Spent 2020-2021 gap years as a full-time Flight Test Engineer*

National Test Pilot School Short Course, Intro to FW P&FQ

March 2024

Survival Systems Aviation Underwater Evacuation & Survival Training

February 2025

## FLIGHT TEST CAMPAIGNS

### REGENT Craft – 12 Passenger Wing-in-Ground-Effect

May 2023 - Present



#### Flight Test Engineer

- **Planning** – everything from program definition to nitty-gritty requirements-based objectives review with system owners
- **Process Development** – “best fit” / “right size” processes for Test Planning Groups, Hazard analysis, Test & Safety Reviews, Config. Control ...
- **Standard Ops** – roles, areas, “playbooks”, ground support ...

#### Test Director

- Ran events of the test asset, 2-4 Chase Boats, & the Control Room
- Trained and managed test conductors & control room engineers

#### Responsible Engineer

- Prioritize schedule, vehicle readiness, available assets, and program risk
- Internal reporting (ran reviews, briefs, debriefs, deliverables)
- External reporting (certification, commercial, defense & other stakeholders)



### Helicopter Sensor Testbed + Crash

Sep 2023 - Apr 2024



#### Airborne FTE

- Evaluated altitude sensors over water and <50', >90 kts, and <30° roll
- Survived helicopter crash - NTSB #ERA24LA171

### Xwing – Full Autonomy

May 2022 – Sep 2022



#### Airborne & Control Room FTE

- Airborne & control room engineer for auto-landing & auto-taxi

#### Airborne Test Director

- Authored a test plan to *create* an STC for wing-mounted pods with a DER

### Aurora Flight Sciences – Optionally Piloted

Dec 2021 – Feb 2022



#### Control Room FTE

- Operated instrumentation from control room
- Turned flight test data into a spec sheet for custom-built actuators

### Beta Technologies – eVTOL

June 2020 – Sep 2021



#### Subscale FTE

- Test Conductor for >200 eVTOL transitions in 450 days
- Managed fleet's delivery, integration, and maintenance
- Tests covered performance, handling qualities, autopilot, and post-MX
- 10+ fleet served as airborne iron birds / R&D for the full scale eVTOL
- Authored operating handbook, checklists, crew training

## DRONE TEST PILOT

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**REGENT Craft**, 400 lb 10' wingspan Wing-in-Ground Effect Craft

May 2023 – Present

**Stealth Start-Up**, autonomous UAVs launched from boat

Aug 2024 – Oct 2024

**MIT**, various research labs including autonomy, swarming, and payload delivery

Sep 2021 – Apr 2023

## MANAGEMENT

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**REGENT Craft**, Responsible Engineer for Instrumentation team

May 2023 – Apr 2025

- **Project Management** – timelines both internal to the team and in the context of the full vehicle integration
- **People Mentoring** – “enabled” 5+ engineers by shielding them from volatile requirements & expectations

**MIT Aerospace Capstone**, Chief Engineer for a year-long UAV design & build

Sep 2022 – May 2023

- **People Management** – balancing needs for the team & what people wanted to do
- **People Mentoring** – 20+ students had diverse backgrounds that need individualized instruction & guidance

**Beta Technologies**, UAV Design + Build

July 2020 – Sep 2021

- **People Management** – daily tasking & project timeline of 5+ mechanical engineers
- **Managed Contract Manufacturer** – defined inspection & acceptance criteria of UAV airframes

## DESIGN, PERFORMANCE, & OPTIMIZATION

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### REGENT Craft

Test Instrumentation Engineer

May 2023 – Apr 2025

- Defined requirements w/system leads, then architected the flight test instrumentation system
- Wrote software for data acquisition and 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

Simulation, Modeling, Controls

Jan 2023 – Dec 2024

- Wrote monte carlos & multivariate tests for performance prediction
- Designed autonomous waypoint following and multi-effector low-speed control for a blown-wing aircraft
- Wrote and ran Simulink tests and assessments for requirements validation & CI/CD baselines

### 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-dimension 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 5+ engineers to design & manufacture 100+ unique parts for a fleet of 10' 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

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

### Technion University Aerospace Faculty

May 2019 – Aug 2019

Aeroelasticity Researcher

- Developed, led, and analyzed ground vibration & structural testing of a 10' 3D printed flexible flying wing

## SUBJECTS MATTER EXPERTISE

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I define “expertise” as “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
- **Software:** MATLAB, Python, Simulink, SolidWorks / Onshape, Bash / Shell, Nominal, IADS