Zouhair Mahboubi

zouhair.mahboubi@gmail.com
California, USA

Summary

Accomplished technical, business, and people's leader with proven expertise in:

- Simulation, Estimation, and Control Theory
- Optimization, Probabilistic Models, Reinforcement Learning, and Data Visualization
- Extensive programming experience with Python, C/C++ , and Matlab/Simulink
- Business planning and go-to-market strategy, product management, partnerships, and operations

Work Experience

Sabbatical — Indian Ocean
Marine Biology & Sailing Volunteer — July 2018 - May 2019

- Volunteered for marine conservation foundation - Built data visualization website
- Crewed on 60ft/42-ton sailboat - Diagnosed and fixed autopilot, cooling pump, and anchor winch

Head of Product — California
Kitty Hawk - Cora — June 2016 - July 2018

- Responsible for setting the product vision and technical requirements
- Advised Executive team on business plans and go-to-market strategies
- Led negotiations with business partners and aviation regulatory agencies
- Setup operations in new country (export control, equipment shipment, business licenses, etc.)

Aerospace Engineer & Team Lead — California
Kitty Hawk - Zee.Aero — June 2010 - June 2016

as Guidance Navigation & Controls Engineer (2012 - 2016)

- Designed, implemented, and flight-tested different algorithms for Simulation, Estimation, and Controls
- Developed and patented optimization based control allocation scheme for over-actuated aircraft
- Identified linearized model shortcomings and improved non-linear simulation
- Designed and built pilot simulator used for handling qualities evaluation

as Software & Avionics Team Lead (2010 - 2012)

- Interviewed, hired, and managed founding software and avionics team
- Designed avionics architecture, autopilot software, and Ground Control Station for UAV

Research Assistant — California
NASA Ames Research Center — Sept. 2009 - May 2010

- Performed aerodynamics and stability analysis of a foot-launched hang-glider being converted to an electric UAV and contributed to the design of the avionics architecture (*Intelligent Systems Division*)
- Implemented weight, power, communication, and trajectory modules for rapid analysis and design of conceptual satellite missions (*Mission Design Center*)

Education

Stanford University, California
Ph.D. Aeronautics and Astronautics (CGPA: 4.00/4.00) — 2012 - 2016

Thesis: *Automated Air-Traffic Control for Non-Towered Airports*

- Modeled behavior of aircraft in the airport pattern as a hidden Markov Model (HMM) and learned model parameters using Bayesian Inference
- Modeled collisions as partially observable Markov decision process (POMDP) and obtained optimal advisories using Reinforcement Learning

M.Sc. Aeronautics and Astronautics (CGPA: 4.00/4.00) — 2008 - 2010

- Set world altitude record for autonomous electrical UAV under 5kg
- Collaborated on camera-based localization for autonomous UAVs flying in formation flight

McGill University, Canada
B.Eng Mechanical Engineering with Minor in Computer Science (CGPA: 3.99/4.00) — 2004 - 2008

Thesis: *Viscous Drag Minimization via Control Theory at Low Mach Numbers*

Publications, Patents, and Awards

Wrote 5 publications and 1 patent including:

- Z. Mahboubi et. al., "Online Optimization Based Flight Control System". *US Patent 20190202546*, July 2019.
- Z. Mahboubi and M.J. Kochenderfer, "Learning Traffic Patterns at Small Airports from Flight Tracks", in *Journal of Intelligent Transportation Systems*, April 2017.
- Z. Mahboubi, Z. Kolter, T. Wang, G. Bower, and Andrew Ng, "Camera Based Localization for Autonomous UAV Formation Flight", in *AIAA@ Infotech Conference*, 2011. [Best student paper award].

Received 10 awards and scholarships including:

- NSERC CGS M and FQRNT A8 scholarships for Doctoral studies in Aeronautics
- Nicholas J. Hoff Award for Outstanding Master's Degree Student
- British Association Medal & Dean's Honour list for Bacherlor studies