



SELÇUK BAYRAKTAR

Chairman of the Board and Chief Technology Officer, Baykar

The architect of Türkiye's first indigenous (armed) unmanned aerial vehicles and first indigenous unmanned fighter jet *Bayraktar KIZILELMA*, Selçuk Bayraktar serves as Chairman of the Board at Baykar Technologies and Chairman of the Board of Trustees at the T3 Foundation.

Bayraktar completed his primary education at Sariyer Elementary School and graduated from the prestigious Robert College. Having pursued an undergraduate degree at Istanbul Technical University's Department of Electronic and Communication Engineering in 1997-2002, he joined UPenn's GRASP Laboratory as an intern and attended the graduate program in Electrical Engineering at UPenn in 2002-2004 by receiving a scholarship during his internship. As part of his research, Bayraktar conducted unprecedented experiments on UAV formation flight, the coordination of aerial and ground robot teams, and flight control and guidance systems – which have since been discussed in scientific publications.

Upon receiving his master's degree from UPenn, Bayraktar received an offer from the Massachusetts Institute of Technology (MIT) to pursue graduate and doctoral degrees with a full scholarship and proceeded to work on automatic flight control algorithms that would enable unmanned helicopter systems to perform aggressive maneuvers. He received his second master's degree from MIT's Department of Aerospace Engineering in 2006 and, despite having enrolled in

the PhD program at Georgia Tech, returned to Türkiye to oversee Baykar's efforts to develop indigenous and original unmanned aerial vehicles – which the company launched in 2003.

His current work focuses on the architecture of the avionic systems of indigenous and original UAV systems, the development of flight control and cruise algorithms, system kinematics and dynamics, and the development of electronic equipment and embedded software.

His most prominent works include the Bayraktar Mini UAV, Türkiye's first indigenous unmanned aerial vehicle, the Bayraktar TB2 (armed) UAV, widely considered the world's best aircraft in its class, that joined the Turkish military inventory in 2014, has been exported to 31 countries (as of Sept. 2023) and completed over 700,000 flight hours. Selçuk Bayraktar and his team also developed the Bayraktar AKINCI UCAV, Türkiye's first combat unmanned aerial vehicle with a maximum takeoff weight of 6 tons, and delivered it to the Turkish Armed Forces in 2021. The Bayraktar AKINCI UCAV has been exported to eight countries (as of Sept. 2023).

Developing indigenous and original technology outside the defense industry as well, Bayraktar oversees the team developing CEZERI, Türkiye's first flying car prototype. He currently leads the development projects for the Bayraktar TB3 armed UAV, which will be able to land on and take off from short-runway carriers, and the Bayraktar KIZILELMA unmanned combat aircraft, Türkiye's first unmanned fighter jet.

KIZILELMA completed its maiden flight on 14 December 2022 – ahead of the target date of 2023. As part of its development efforts, led by Selçuk Bayraktar, it completed formation flights – a first in global aviation history. AKINCI UCAV and KIZILELMA, unmanned combat aerial vehicles, successfully conducted multiple close formation flights, which were unprecedented in global aviation history.

Bayraktar also works on space through the technology initiative Fergani. At Fergani Space Technologies, he leads projects for the development of low-orbit satellite clusters and orbital transfer vehicles.

Bayraktar played a lead role in Türkiye's fight against the Coronavirus pandemic, which impacted the world in December 2019, and worked on indigenous intensive care ventilators. As a result of that effort, BIOSYS, BAYKAR, ASELSAN AND ARÇELİK built an indigenous ventilator that Türkiye exported or gifted to countries around the globe. Bayraktar continues his efforts in healthcare through the Canan Bayraktar Public Health Foundation (CANSAGLIĞI Foundation), which he founded and where he serves as Chairman of the Board of Trustees. The CANSAGLIĞI Foundation supports research projects by scientists working on psychology, psychiatry, genetics, immunology, oncology and rare diseases, and aims to promote individual and public health.

Selçuk Bayraktar received the Order of Karabakh from the Republic of Azerbaijan in recognition of the contributions of the Bayraktar TB2, Baykar's indigenous and original product, to Karabakh's liberation from Armenian occupation. Having presented the medal to Bayraktar at a ceremony in Baku on 1 April 2021, President Ilham Aliyev announced that Bayraktar deserved

recognition for “strengthening the fraternal relationship between Azerbaijan and Türkiye in line with the principle of one nation-two states, further developing bilateral cooperation, and his contributions to ensuring the territorial integrity and sovereignty of Azerbaijan.”

Bayraktar was also awarded the State Order of Merit by Ukrainian President Volodymyr Zelensky in 2022. His medal was presented by Andriy Yermak, Head of the Office of the President of Ukraine, during his visit to Türkiye on 2 October 2022.

Selçuk Bayraktar continues to encourage talented young people and individuals of all ages to participate in technology development processes at the Türkiye Technology Team (T3) Foundation which he founded.

The T3 Foundation promotes the development of strategically-important products, systems and components, whose indigenous and original production represents a priority due to global competition, and supports enterprises and R&D projects. To make Türkiye’s National Technology Initiative vision a reality, Bayraktar leads the Foundation’s scientific work as Chairman of the Board of Trustees.

For the purpose of spreading his passion for aerospace, which he deems crucial to the National Technology Initiative, to the entire society, Bayraktar hosts TEKNOFEST, Türkiye’s first and only aerospace festival, with his team and partner institutions. TEKNOFEST, whose impact exceeds national borders, took place in Azerbaijan in 2022.

Selçuk Bayraktar and Sümeyye Erdoğan Bayraktar, who married in 2016, have a daughter. Selçuk Bayraktar holds a private pilot license.

Patents

- Automatic Landing and Takeoff System for Aerial Vehicles (Turkish Patent and Trademark Office 2015/07928)
- Electromechanical Servo Motor Actuator Capable of Detecting Changing Operational Conditions and Control Method (Turkish Patent and Trademark Office 2015/14111)
- Triple-Redundant Flight Control System (Turkish Patent and Trademark Office Ref: PT2015-00693)
- ECG Device (Turkish Patent and Trademark Office Ref: PT2015-00693)

Scientific Publications

Scientific Papers (scholar.google)	Year
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Experimental Cooperative Control of Fixed-Wing Unmanned Aerial Vehicles S Bayraktar, GE Fainekos, GJ Pappas Decision and Control, 2004. CDC. 43rd IEEE Conference on 4, 4292-4298	2004
Synergies in Feature Localization by Air-Ground Robot Teams B Grocholsky, S Bayraktar, V Kumar, CJ Taylor, G Pappas Experimental Robotics IX, 352-361	2006
Flight Modeling and Experimental Autonomous Hover Control of a Fixed Wing Mini- UAV at High Angle of Attack HD Blauwe, S Bayraktar, E Feron, F Lokumcu AIAA Guidance, Navigation and Control Conference and Exhibit, 6818	2007
UAV and UGV Collaboration for Active Ground Feature Search and Localization B Grocholsky, S Bayraktar, V Kumar, G Pappas Proc. of the AIAA 3rd" Unmanned Unlimited" Technical Conference	2004
Experiments With Small Helicopter Automated Landings at Unusual Attitudes S Bayraktar, E Feron arXiv preprint arXiv:0709.1744	2007
Experiments With Small Unmanned Helicopter Nose-Up Landings S Bayraktar, E Feron Journal of Guidance, Control, and Dynamics 32 (1), 332-337	2009
Hybrid Modeling and Experimental Cooperative Control of Multiple Unmanned Aerial Vehicles S Bayraktar, G Fainekos, GJ Pappas Technical Report, Department of CIS, University of Pennsylvania	2004
Aggressive Landing Maneuvers for Unmanned Aerial Vehicles S Bayraktar Massachusetts Institute of Technology	2006
Hybrid Modeling and Experimental Cooperative Control of Multiple Unmanned Aerial Vehicles S Bayraktar, GE Fainekos, GJ Pappas	2004
Aggressive Landing Maneuvers for 3-DOF Helicopter UAV	

S Bayraktar, E Feron AIAA Guidance, Navigation and Control, Keystone, Colo	2006
A Novel Mosaic Quality Measurement Method for UAV Surveillance and Remote Sensing T Buyukyazi, S Bayraktar, I Lazoglu ISPRS-International Archives of the Photogrammetry, Remote Sensing and ...	2013
Real-Time Image Stabilization and Mosaicking by Using Ground Station CPU in UAV Surveillance T Buyukyazi, S Bayraktar, I Lazoglu Proceedings of the IEEE 6th International Conference on Recent Advances in ...	2013
Real-Time, Hardware Independent Stabilization and Mosaicing in Low Altitude UAV Surveillance Tolga Büyükyazi, Selçuk Bayraktar, Prof. Dr. İsmail Lazoğlu; Journal of Field Robotics: Special Issue on Low Altitude UAV Flight	2013
Multiple Unmanned Aerial Vehicle Systems Technology: Design and Development Studies Ömer İnak, Haluk Bayraktar, Selçuk Bayraktar, SAVTEK 2006, ODTÜ	2006
Design Features of Bayraktar Mini Unmanned Aerial Vehicle Haluk Bayraktar, Selçuk Bayraktar, Prof. Dr. Ünver Kaynak, SAVTEK 2006, ODTÜ	2006
Bayraktar Mini Unmanned Aerial Vehicle System Components and Performance Analysis Haluk Bayraktar, Selçuk Bayraktar, HASEM 06, Kayseri	2006
An Unmanned Aircraft Project from Ideal to Reality Selçuk Bayraktar, Haluk Bayraktar; HITEK 2004 Symposium, Air Force Academy	2004