



2023 Design, Build, Fly Competition Summary



TEXTRON AVIATION



The 2022-23 AIAA/Textron Aviation/Raytheon Missiles & Defense Design, Build, Fly Competition Flyoff was held at the Tucson International Modelplex Park Association on the weekend of April 13-16, 2023. This was the 27th year for the competition. Of the 135 proposals submitted and judged, 110 teams were invited to submit a formal report for the next phase of the competition. 99 teams submitted design reports to be judged, and 82 teams attended the flyoff (17 international), including one team who had not entered this year's competition but wanted to experience DBF in person in preparation for next year (for the second year in a row!). About 870 students, faculty, and guests were present. Of the 82 teams in attendance, 74 successfully completed tech inspection. The weather was windy on Friday and just about perfect on Saturday and Sunday, which allowed for non-stop flying all weekend. Of the 203 official flight attempts, 124 resulted in a successful score with 54 teams achieving at least one successful flight score and 22 teams successfully completing all four missions (one ground and three flight). The quality of the teams, their readiness to compete, and the execution of the flights was exceptional. Added this year to the scoring formula was a participation score to recognize those teams who attended and worked hard to get to the fly-off but may not have achieved a successful mission over the weekend.

The contest theme this year was Electronic Warfare. The aircraft, payloads and all tools required to assemble the aircraft had to fit in a shipping box that complied with airline checked baggage limits on size and weight. The aircraft were required to complete three flight missions, each taking off within 60 feet. The first mission was a Staging Flight with no payload for three laps within five minutes. The second mission was a Surveillance Flight with an electronics package with the score based on the weight of the payload times the number of laps flown in 10 minutes. The final mission was a Jamming Flight with a wing tip vertical antenna with the score based on the length of the antenna times the time to fly three laps. Teams were also required to complete a ground mission demonstrating structural capability of the aircraft wing attachment. The total score is the product of the total mission score and design report score plus participation score. More details on the mission requirements can be found at the competition website: <http://www.aiaadb.org>.

First Place went to RWTH Aachen University, Second Place went to University of Ljubljana and Third Place went to Embry-Riddle Aeronautical University – Daytona Beach. A full listing of the results is included below. The Best Paper Award, sponsored by the Design Engineering TC for the highest report score, went to the University of Washington Seattle with a score of 91.42.

We owe our thanks for the success of the DBF competition to the efforts of many volunteers from Textron Aviation, Raytheon Missiles & Defense, and the AIAA sponsoring technical committees: Applied Aerodynamics, Aircraft Design, Flight Test, and Design Engineering. These volunteers collectively set the rules, judge the proposals and reports, and execute the flyoff. Thanks also to the Premier Sponsors: Textron Aviation and Raytheon Missiles & Defense, and to the AIAA Foundation for their financial support as well as our Gold sponsors this year – AeroVironment, General Atomics Aeronautical and Mathworks. Special thanks go to Raytheon Missiles & Defense for hosting the flyoff this year.

Finally, this event would not be nearly as successful without the hard work and enthusiasm from all the students and advisors. If it weren't for you, we wouldn't keep doing it!!

DBF Organizing Committee



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2023 Design/Build/Fly Competition Final Results

Rank	Flight Order	University	Part Score	Mission Scores					Report Score	2023 DBF SCORE
				GM	M1	M2	M3	Total		
1	21	RWTH Aachen University	3	0.80	1.00	2.00	3.00	6.80	83.03	567.51
2	7	University of Ljubljana	3	0.85	1.00	1.21	3.00	6.06	87.93	535.66
3	2	Embry-Riddle Aeronautical University, Daytona Beach	3	0.17	1.00	1.67	2.99	5.82	90.83	532.02
4	3	Virginia Polytechnic Institute and State University	3	0.50	1.00	1.23	2.70	5.42	90.67	494.79
5	1	University of Washington Seattle	3	0.12	1.00	1.48	2.77	5.38	91.42	494.55
6	19	The Ohio State University	3	0.31	1.00	1.33	2.74	5.38	83.47	451.90
7	22	Embry-Riddle Aeronautical University: Prescott	3	0.06	1.00	1.43	2.87	5.35	83.00	447.39
8	9	University of Florida	3	0.00	1.00	1.34	2.48	4.81	87.73	425.20
9	14	The University of California, Irvine	3	0.10	1.00	1.21	2.48	4.80	86.27	416.73
10	18	University of Michigan	3	0.15	1.00	1.22	2.51	4.89	84.53	416.37
11	29	San Diego State University	3	0.47	1.00	1.23	2.40	5.10	80.75	415.13
12	4	University of Maryland College Park	3	0.13	1.00	1.05	2.34	4.53	90.62	413.22
13	11	University of Kansas	3	0.07	1.00	1.21	2.34	4.62	86.88	404.09
14	25	Universidad Pontificia Bolivariana	3	0.06	1.00	1.44	2.39	4.89	81.57	401.48
15	24	University of California, Los Angeles	3	0.20	1.00	1.14	2.44	4.78	82.42	397.20
16	6	Missouri University of Science and Technology	3	0.19	1.00	1.06	2.14	4.40	88.50	392.05
17	43	The University of Texas at Austin	3	0.18	1.00	1.36	2.54	5.08	76.63	391.96
18	31	The University of Sydney	3	0.14	1.00	1.17	2.46	4.77	80.53	386.92
19	10	Massachusetts Institute of Technology	3	0.06	1.00	1.13	2.19	4.38	86.97	383.58
20	47	University of Tennessee, Knoxville	3	0.09	1.00	1.29	2.47	4.85	75.40	368.36
21	40	Stanford University	3	0.08	1.00	1.17	2.31	4.56	78.00	358.76
22	54	West Virginia University	3	0.07	1.00	1.16	2.44	4.67	71.53	337.31
23	8	Georgia Institute of Technology	3	1.00	1.00	1.48	0.00	3.48	87.83	308.82
24	70	University of Massachusetts Amherst	3	0.04	1.00	1.04	2.07	4.15	64.35	269.80
25	13	The University of Akron	3	0.00	1.00	1.54	0.00	2.54	86.33	222.62
26	65	San Jose State University	3	0.56	1.00	1.29	0.00	2.85	66.58	192.54
27	30	The Hong Kong University of Science and Technology	3	0.10	1.00	1.13	0.00	2.23	80.60	182.42
28	60	The Pennsylvania State University	3	0.13	1.00	1.51	0.00	2.64	67.23	180.60
29	16	Washington University in St. Louis	3	0.00	1.00	1.07	0.00	2.07	85.58	180.48
30	72	Florida Institute of Technology	3	0.47	1.00	1.12	0.00	2.59	64.00	168.50
31	52	California State Polytechnic University, Pomona	3	0.00	1.00	1.17	0.00	2.17	73.25	162.15
32	64	The University of Adelaide	3	0.05	1.00	1.21	0.00	2.26	66.63	153.51
33	81	California Polytechnic State University San Luis Obispo	3	0.03	1.00	1.16	0.00	2.19	52.17	117.18
34	90	The University of Memphis	3	0.12	1.00	1.12	0.00	2.23	44.75	102.95
35	87	University of California, Merced	3	0.00	1.00	1.02	0.00	2.02	46.83	97.81
36	42	University of Notre Dame	3	0.20	1.00	0.00	0.00	1.20	77.00	95.64
37	37	ISAE-SUPAERO - Institut supérieur de l'aéronautique et de l'espace	3	0.16	1.00	0.00	0.00	1.16	78.55	94.47
38	15	National University of Singapore	3	0.05	1.00	0.00	0.00	1.05	86.05	93.60
39	12	Rutgers University - New Brunswick	3	0.04	1.00	0.00	0.00	1.04	86.67	93.56
40	5	FH JOANNEUM University of Applied Sciences	3	0.00	1.00	0.00	0.00	1.00	90.03	93.03
41	27	Texas A&M University	3	0.11	1.00	0.00	0.00	1.11	81.03	92.56
42	36	University of Central Florida	3	0.10	1.00	0.00	0.00	1.10	78.77	89.72
43	20	University of Southern California	3	0.00	1.00	0.00	0.00	1.00	83.40	86.40
44	46	Worcester Polytechnic Institute	3	0.05	1.00	0.00	0.00	1.05	76.28	83.39
45	48	The George Washington University	3	0.07	1.00	0.00	0.00	1.07	75.08	83.31
46	49	Purdue University - Main Campus	3	0.07	1.00	0.00	0.00	1.07	74.75	82.71
47	53	Illinois Institute of Technology	3	0.10	1.00	0.00	0.00	1.10	71.67	82.04
48	38	The University of Oklahoma	3	0.00	1.00	0.00	0.00	1.00	78.53	81.53
49	44	University of Maribor	3	0.00	1.00	0.00	0.00	1.00	76.57	79.57
50	45	Texas Tech University	3	0.00	1.00	0.00	0.00	1.00	76.50	79.50



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First Place – RWTH Aachen University



Second Place – University of Ljubljana





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Third Place – Embry-Riddle Aeronautical University – Daytona Beach





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Past Winners

Year	Team
2023	RWTH Aachen University
2022	Georgia Institute of Technology
2021	Dayananda Sagar College of Engineering
2020	University of Southern California
2019	University of Ljubljana
2018	Clarkson University
2017	University of Southern California
2016	San Jose State University
2015	University of Ljubljana
2014	University of Southern California
2013	University of California, Irvine
2012	San Jose State University
2011	Georgia Institute of Technology
2010	Oklahoma State University Team Orange
2009	Oklahoma State University Team Black
2008	Oklahoma State University Team Black
2007	Massachusetts Institute of Technology
2006	Oklahoma State University Team Black
2005	Oklahoma State University Team Black
2004	Oklahoma State University Team Black
2003	San Diego State University
2002	University of California San Diego
2001	Oklahoma State University Team Orange
2000	Utah State University
1999	Utah State University
1998	University of Southern California
1997	University of Illinois at Urbana-Champaign

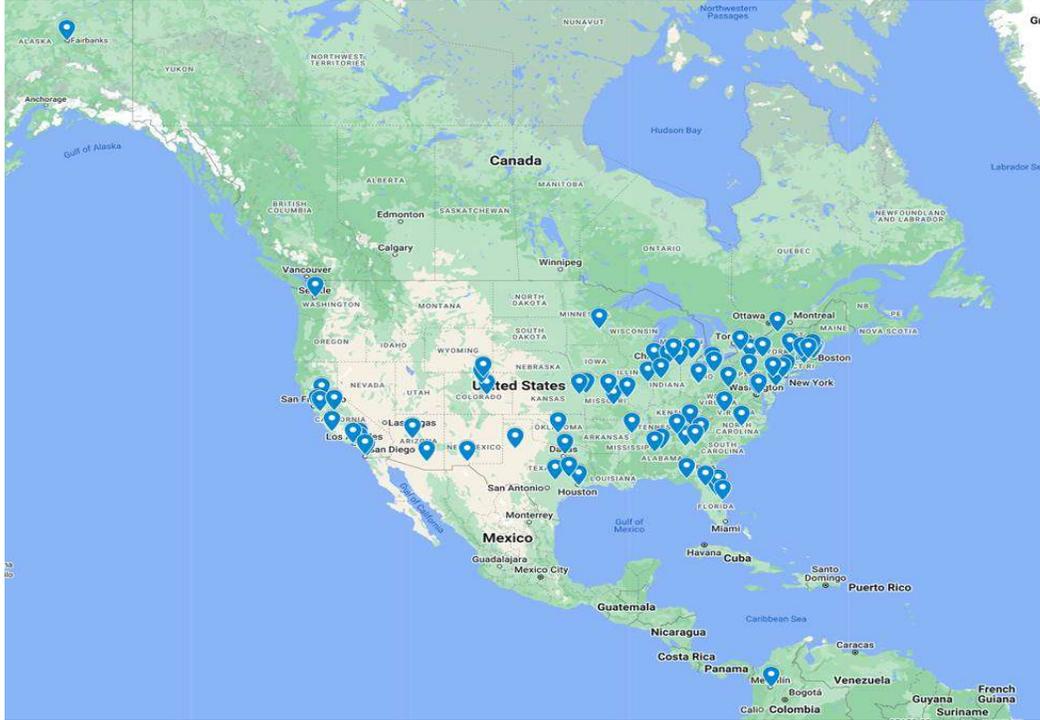


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Team Locations

The Americas



International

