



Textron Aviation
Raytheon Missile Systems
AIAA Foundation

The 2017 AIAA/Textron Aviation/Raytheon Missile Systems Design/Build/Fly Competition Flyoff was held at TIMPA Field in Tucson, AZ on the weekend of April 20-23, 2017. This was the 21st year for the competition. A total of 138 entries were received with a new requirement this year to submit a proposal with the entry. The 138 proposals were judged and 104 teams were invited to submit a formal report for the next phase of the competition. 95 teams submitted design reports to be judged, and 73 teams attended the flyoff (14 international). About 750 students, faculty, and guests were present. The weather was hot but allowed for non-stop flying. Of the record 310 official flight attempts, 153 resulted in a successful score with 52 teams achieving a successful flight score and 34 teams successfully completing all three missions. The quality of the teams, their readiness to compete, and the execution of the flights continues to improve each year.

The contest theme this year was a Tube Launched UAV. The UAV had to fit inside a launch tube and be removed with all flight surfaces and features moved to the locked, flight condition in less than 5 minutes. The first mission was a Demonstration Flight with no payload for three laps. Prior to attempting the second mission, each team was required to successfully complete the first mission and a ground mission. The ground mission consisted of three drops from 12 inches with the UAV stored inside the launch tube. The tube and airplane must survive the drops without damage and the UAV must be capable of flight. The second mission was a Speed Flight with a payload consisting of 3 regulation hockey pucks with the time to fly three laps as the score. The third mission was a Range Flight where each team determined the number of hockey pucks to carry as payload with the score being the product of the number of pucks carried times the number of laps flown in 5 minutes. As usual, the total score is the product of the total flight score and design report score. More details on the mission requirements can be found at the competition website: <http://www.aiaadb.org> .

First Place went to the University of Southern California, Second Place went to Georgia Institute of Technology and Third Place went to the University of Ljubljana. 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 Veermata Jijabai Technological Institute with a score of 96.03.

We owe our thanks for the success of the DBF competition to the efforts of many volunteers from Textron Aviation, Raytheon Missile Systems, and the AIAA sponsoring technical committees: Applied Aerodynamics, Aircraft Design, Flight Test, and Design Engineering. These volunteers collectively set the rules for the contest, publicize the event, gather entries, judge the written reports, and organize the flyoff. Thanks also go to the Premier Sponsors: Raytheon Missile Systems and Textron Aviation, and also to the AIAA Foundation for their financial support as well as our Gold sponsors this year - Aurora Flight Sciences, Esteco, General Atomics, Lockheed Martin, Northrop Grumman and SpaceX. Special thanks go to Raytheon Missile Systems 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.

Russ Althof
For the DBF Organizing Committee

2017 Design/Build/Fly Competition Final Results

Rank	Team		Report	Mission Scores				RAC	2017 DBF Score
	Queue #	Name		Demo	Speed	Range	Total		
1	2	University of Southern California	93.40	1.00	1.63	3.14	5.77	57.75	9.34
2	17	Georgia Institute of Technology	85.40	1.00	1.04	2.76	4.80	44.21	9.27
3	27	University of Ljubljana, Faculty of Mechanical Engineering	84.47	1.00	2.00	2.95	5.95	57.70	8.71
4	18	Massachusetts Institute of Technology	85.33	1.00	1.34	2.57	4.91	58.55	7.15
5	35	Oregon State University	80.66	1.00	0.90	2.76	4.66	55.02	6.83
6	19	University of Oklahoma	85.25	1.00	1.03	2.38	4.41	67.93	5.53
7	1	Veerмата Jijabai Technological Institute	96.03	1.00	1.26	2.95	5.21	93.23	5.37
8	13	Embry-Riddle Aeronautical University Daytona Beach	86.60	1.00	1.75	3.33	6.08	116.26	4.53
9	8	California Polytechnic State University	88.83	1.00	0.97	0.00	1.97	52.99	3.30
10	20	San Jose State University	85.17	1.00	1.27	3.90	6.18	167.03	3.15
11	5	FH Joanneum	90.63	1.00	1.09	0.00	2.09	68.11	2.79
12	83	Washington University in St. Louis	57.00	1.00	0.96	2.38	4.34	102.51	2.42
13	15	Cornell University	86.00	1.00	1.70	3.33	6.04	263.18	1.97
14	64	Clarkson University	68.67	1.00	1.62	3.33	5.95	248.88	1.64
15	3	Ohio State University	92.70	1.00	1.15	2.76	4.91	338.20	1.35
16	22	Sapienza Università di Roma	84.98	1.00	1.29	2.51	4.79	309.25	1.32
17	37	The Hong Kong University of Science and Technology	79.83	1.00	1.59	4.29	6.88	424.48	1.29
18	21	Saint Louis University	85.00	1.00	0.94	2.76	4.70	314.65	1.27
19	9	University of Massachusetts Lowell	88.60	1.00	1.28	2.19	4.47	322.92	1.23
20	25	Uludag University	84.67	1.00	1.46	2.76	5.22	394.40	1.12
21	28	University of Glasgow	84.00	1.00	0.97	2.19	4.16	318.34	1.10
22	4	University of Florida	91.47	1.00	0.00	0.00	1.00	93.20	0.98
23	34	West Virginia University	80.66	1.00	1.42	3.14	5.56	466.45	0.96
24	7	Auburn University	88.98	1.00	1.14	2.19	4.33	407.50	0.94
25	41	Western Michigan University	79.00	1.00	1.28	3.27	5.55	475.12	0.92
26	14	The University of Texas at Austin	86.20	1.00	0.00	0.00	1.00	93.94	0.92
27	29	PES University	83.90	1.00	1.01	2.57	4.58	444.60	0.86
28	49	University of California San Diego	74.92	1.00	1.93	2.76	5.70	516.04	0.83
29	16	National University of Singapore	85.83	1.00	1.17	3.33	5.50	719.55	0.66
30	45	Rutgers University - New Brunswick	75.43	1.00	0.97	3.14	5.11	607.22	0.63
31	24	University of Illinois at Urbana-Champaign	84.67	1.00	1.24	2.57	4.81	649.82	0.63
32	31	Arizona State University	82.83	1.00	1.18	0.00	2.18	304.97	0.59
33	23	San Diego State University	84.92	1.00	0.00	0.00	1.00	146.63	0.58
34	26	University at Buffalo	84.50	1.00	1.30	3.14	5.44	885.09	0.52
35	75	University of Washington	64.50	1.00	1.22	2.38	4.60	614.25	0.48
36	63	University of Tennessee, Knoxville	68.67	1.00	0.00	0.00	1.00	156.77	0.44
37	88	The Pennsylvania State University	52.67	1.00	1.67	4.29	6.95	847.00	0.43
38	39	Stanford University	79.52	1.00	0.00	0.00	1.00	251.11	0.32
39	57	University of Pennsylvania	72.42	1.00	1.09	5.05	7.14	1904.32	0.27
40	36	University of Turkish Aeronautical Association	80.63	1.00	0.00	0.00	1.00	342.62	0.24
41	6	Rose-Hulman Institute of Technology	90.00	1.00	0.00	0.00	1.00	398.19	0.23
42	52	New Mexico State University	73.58	1.00	0.95	2.76	4.71	1536.11	0.23
43	46	University of Michigan	75.35	1.00	1.23	2.76	4.99	1808.91	0.21
44	12	University of Nebraska-Lincoln	86.77	1.00	0.00	0.00	1.00	431.61	0.20
45	84	Utah State University	54.22	1.00	0.00	0.00	1.00	387.36	0.14
46	40	The University of Notre Dame	79.32	1.00	0.00	0.00	1.00	631.90	0.13
47	86	University of Maryland College Park	52.92	1.00	1.43	6.00	8.43	4010.81	0.11
48	65	Rochester Institute of Technology	68.00	1.00	1.02	0.00	2.02	1622.08	0.08
49	87	Colorado State University	52.90	1.00	1.20	0.00	2.20	2374.36	0.05
50	60	Johns Hopkins University	70.90	1.00	0.00	0.00	1.00	1953.90	0.04
51	48	SRM University	75.33	1.00	0.00	0.00	1.00	2506.35	0.03
52	67	The University of Illinois at Chicago	65.87	1.00	0.00	0.00	1.00	2286.38	0.03

2017 Design/Build Fly Competition Final Results (cont)

Rank	Team		Report	Mission Scores				RAC	2017 DBF Score	
	Queue #	Name		Demo	Speed	Range	Total			
53	33	Yildiz Technical University	81.27	0.00	0.00	0.00	0.00	0.00	Passed Tech Inspectioni	
54	38	Virginia Polytechnic Institute and State University	79.62	0.00	0.00	0.00	0.00	0.00		
55	44	Ghulam Ishaq Khan Institute of Engineering Sciences & Technology	77.07	0.00	0.00	0.00	0.00	0.00		
56	53	Trine University	73.33	0.00	0.00	0.00	0.00	0.00		
57	54	Iowa State University	73.22	0.00	0.00	0.00	0.00	0.00		
58	55	Washington and Lee University	72.88	0.00	0.00	0.00	0.00	0.00		
59	58	University of Toledo	71.55	0.00	0.00	0.00	0.00	0.00		
60	61	University of California, Davis	70.70	0.00	0.00	0.00	0.00	0.00		
61	62	Texas A&M University	69.67	0.00	0.00	0.00	0.00	0.00		
62	66	University of Miami	67.17	0.00	0.00	0.00	0.00	0.00		
63	69	Rensselaer Polytechnic Institute	65.80	0.00	0.00	0.00	0.00	0.00		
64	74	University of Alaska Fairbanks	64.53	0.00	0.00	0.00	0.00	0.00		
65	76	University of California, Merced	64.33	0.00	0.00	0.00	0.00	0.00		
66	81	University of Kentucky Paducah	59.03	0.00	0.00	0.00	0.00	0.00		
67	85	North Dakota State University	53.67	0.00	0.00	0.00	0.00	0.00		
68	90	MilitaryTechnical College	45.92	0.00	0.00	0.00	0.00	0.00		
69	91	Manhattan College	44.67	0.00	0.00	0.00	0.00	0.00		
70	10	Colorado School of Mines	88.13	0.00	0.00	0.00	0.00	0.00		At Flyoff
71	72	Florida Institute of Technology	65.00	0.00	0.00	0.00	0.00	0.00		
72	77	Case Western Reserve University	64.33	0.00	0.00	0.00	0.00	0.00		
73	78	The George Washington University	63.47	0.00	0.00	0.00	0.00	0.00		
74	11	Wichita State University	87.83	0.00	0.00	0.00	0.00	0.00	Submitted Report	
75	30	Michigan State University	83.33	0.00	0.00	0.00	0.00	0.00		
76	32	Korea Advanced Institute of Science and Technology(KAIST)	82.33	0.00	0.00	0.00	0.00	0.00		
77	42	Worcester Polytechnic Institute	78.67	0.00	0.00	0.00	0.00	0.00		
78	43	Rhodes College	78.00	0.00	0.00	0.00	0.00	0.00		
79	47	University of Minnesota	75.33	0.00	0.00	0.00	0.00	0.00		
80	50	University of South Carolina	74.33	0.00	0.00	0.00	0.00	0.00		
81	51	Embry-Riddle Aeronautical University - Prescott	73.93	0.00	0.00	0.00	0.00	0.00		
82	56	University of Central Florida	72.77	0.00	0.00	0.00	0.00	0.00		
83	59	University of California - Los Angeles	71.53	0.00	0.00	0.00	0.00	0.00		
84	68	Monroe Community College	65.83	0.00	0.00	0.00	0.00	0.00		
85	70	University of Arizona	65.67	0.00	0.00	0.00	0.00	0.00		
86	71	Tuskegee University	65.17	0.00	0.00	0.00	0.00	0.00		
87	73	University of Arkansas	64.67	0.00	0.00	0.00	0.00	0.00		
88	79	Washington State University North Puget Sound at Everett	61.33	0.00	0.00	0.00	0.00	0.00		
89	80	California State University, Long Beach	60.77	0.00	0.00	0.00	0.00	0.00		
90	82	NC State University	58.00	0.00	0.00	0.00	0.00	0.00		
91	89	Purdue University	47.92	0.00	0.00	0.00	0.00	0.00		
92	92	University of Wisconsin-Madison	38.00	0.00	0.00	0.00	0.00	0.00		
93	93	Lehigh University	37.00	0.00	0.00	0.00	0.00	0.00		
94	94	Indiana University Purdue University Indianapolis	13.83	0.00	0.00	0.00	0.00	0.00		
95	95	Istanbul Aydin University	0.00	0.00	0.00	0.00	0.00	0.00		

First Place – University of Southern California



Second Place – Georgia Tech



Third Place – University of Ljubljana



Past Winners

Year	Team
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 Tech University
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