



Newsletter

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Microsoft Flight Simulator: The Engineering Behind the Game

Speaker: Mike Zyskowski, Microsoft Software Engineer



Microsoft Flight Simulator is the most popular flight simulation software in the world today, used in settings from family dens to military training facilities. Certificated pilots use it to stay current, and teenagers use it to shoot down the bad guys and avoid homework for another night.

The most recent release of this versatile software includes real-time interactive Air Traffic Control and stunning visual effects. The user can fly anything from a B747-400 to a Bell Jet Ranger to a Lake Amphibian. Its sister product, Combat Flight Simulator, is a realistic WWII aerial experience, complete with propeller-driven fighter aircraft and ground targets.

But what goes into the making of such software? This presentation will discuss the history and current capabilities of Flight Simulator and delve into the technical aspects of the flight dynamics, ground reaction, propulsion, and systems modeling. Damage modeling for Combat Flight Simulator will also be discussed. A Q&A session and door prize drawing will follow.

Note the new location, special for December. Guggenheim Hall is the Aero/Astro building near the center of the UW campus. Parking is available for a fee in on-campus garages or off-campus at neighborhood lots. For more information on how to get there and what to do once you arrive, see the following website: <http://www.washington.edu/univrel/visitors/>. Dinner will be pizza, so there is a reduced cost for this month, as well.

Mike Zyskowski graduated from the University of Kansas with a Bachelor's degree in Aerospace Engineering in 1994 and a Master's degree in the same in 1996. He began work at Boeing Commercial Airplanes that year as a member of the Aerodynamics Stability and Control staff. He worked in stability & control product development, stability and control accident investigation, and aerodynamics high lift development before leaving for Microsoft Flight Simulator in 2000. He has been there since, responsible for the development of the core simulation engine and the aircraft flight models that are included in Flight Simulator products. He is happily married with three step-daughters and lives in the Snohomish area.



Joint AIAA/SFTE Lecture - Dinner Meeting

Date: **Tuesday, December 10, 2002**
Place: Room 306 Guggenheim Hall, University of Washington
Time: 6:00 PM Social, No-Host Bar
6:30 PM Pizza
7:00 PM Program – **Microsoft Flight Simulator**

Dinner Reservations: Call anytime (425) 342-0988 or send email to vera.a.martinovich@boeing.com or paul.l.clement@boeing.com

Dinner Price: **\$5** Non-students
Free Students

Additional parking fees may apply depending on where you park.
Please make reservations by 12/6. A reservation is a commitment to pay!

12 hp From 180 Pounds, The Story Of The Wrights Flyer's Engine

By Charles E Taylor

*In commemoration of the approaching 100th anniversary of flight, the following is the **fourth** installment of a **six-part** article written by Charles E Taylor, as told to Robert S Ball when Orville Wright died January 30th, 1948. Charles E Taylor then became the only surviving member of the three who built the first airplane. Charlie Taylor was the only employee and intimate associate of Wilbur and Orville Wright throughout the critical years. Without precedent or fanfare, Taylor built the engines for the Wright's first planes to their designs. The article below was written in 1948 while Taylor was living in retirement in California, it was first published in Collier's, December 25th, 1948 and was reprinted in the Airline Pilot, December 1978. Charles E Taylor died January 30th, 1956.*



I don't recall that Orville was that shy, but after Wilbur died I guess he just didn't feel like getting married. I think both the boys were mentally flying all the time and simply didn't think about girls. They were both fond of children, though. Orville, especially, was quite a hand with kids. He used to make toys in the shop and give them away. Later, he designed a little wooden man on a flying trapeze and licensed some company to make it. The Wrights didn't drink or smoke, but they never objected too much to my cigar smoking. I used to smoke around 25 cigars a day. Once I walked down the street with three cigars going at once—you know how a young fellow does crazy things once in a while. Both the boys had tempers, but no matter how angry they ever got, I never heard them use a profane word. I never swore myself, and to this day the boys were working out a lot of theory in those days, and occasionally they would get into terrific arguments. They'd shout at each other something terrible. I don't think they really got mad, but they sure got awfully hot. One morning following the worst argument I ever heard, Orv came in and said he guessed he'd been wrong and they ought to do it Will's way. A few minutes later Will came in and said he'd been thinking it over and perhaps Orv was right. First thing I knew they were arguing the thing all over again, only this time they had switched ideas. When they were through, they knew where they were and could go ahead with the job.

It was Orville who gave me my first flight. He first offered me a hop in 1908 at Fort Myers, Va., when we were demonstrating the

Wright airplane for the first Army contract. I was in the passenger's seat, and we were preparing to take off when a high-ranking officer asked Orville if he would mind taking along an Army observer instead. Naturally I got out, and Lt. Thomas E. Selfridge took my place. The machine crashed shortly after takeoff. Lt. Selfridge was killed, and Orville was seriously injured. Lt. Selfridge was the first military air casualty. Since then, a lot of people say they have narrowly avoided being killed in airplanes by a last-minute switch in plans. Maybe I was the first. In May 1910, Orv finally took me up. It was at Simms Station, and he did what a lot of pilots have done in later years with their first-flight passengers. He tried to give me a scare. We were flying around over the field when suddenly the plane began to pitch violently. I grabbed hold of a strut and looked over at Orv. He didn't seem upset, although he appeared to be having a hard time controlling the machine. Pretty soon the pitching stopped and we landed. Orv asked me if I was scared. I said, "No, if you weren't, why should I be?" He thought it was very funny. I always wanted to learn to fly, but I never did. The Wrights refused to teach me and tried to discourage the idea. They said they needed me in the shop and to service their machines, and if I learned to fly, I'd be gadding about the country and maybe become an exhibition pilot and they'd never see me again.

One of my jobs that summer of 1904 was as sort of airport manager at the Huffman Prairie, located about eight miles east of Dayton at Simms Station. I suppose it was the first airport in the country, with all due respect to the sands of Kitty Hawk. It was a small pasture the boys had arranged to use. We built a shed for the machine and a catapult to assist in the takeoffs, because the field was small and rough. It was made up of a wooden track and a tower at the starting end. We drew heavy weights to the top of the tower on ropes that were rigged through pulleys to the bottom of the tower, out to the takeoff end of the track and back to the airplane. When the weights were released, the machine would dart forward.

PNW Aerospace Timeline

Dinner Meeting and Lecture

Fourth Tuesday every month (except December)

Topic: Microsoft Flight Simulator
 Date/Time: 10th, December 2002, Social at 6:00 p.m.
 Location: Room 306 Guggenheim Hall, University of Washington (this month only)

Decembers Past

1935	First air traffic control center commences operation in Newark, NJ. 16 days later the DC-3 makes its maiden voyage
1941	Pearl Harbor attack firmly establishes the military capabilities of air power
1962	Mariner 2 - first successful planetary fly-by of Venus
1986	First non-stop flight around the world without refueling by Yeager and Rutan

Retired Members Brunch

Third Saturday every other month

Speaker: Peter Milnes speaking on the Predator UAV
 Date/Time: January 18th, 9:00AM
 Location: Museum of Flight, Seattle
 Contact: Tom Holgate 253-838-0333

Future

21 January	Dinner Meeting: Daniel Miller of Lockheed Martin on Active Flow Control Technology
7-8 April	AIAA Congressional Visit Days
7-10 April	Joint Aerospace Structures Conference – Norfolk, VA
20-23 July	39 th Joint Propulsion Conference - Huntsville, AL

The AIAA Public Policy Program

AIAA pursues an active program of public policy and public information on aerospace related issues. Activities include developing position papers, conducting workshops whose findings are presented to public leaders, and fostering relationships with the media.

In 2002 the committee made a conscious effort to form a legislative agenda that focussed on AIAA member needs and priorities. This agenda is supported through legislative proposals and meetings with lawmakers such as the Congressional Visit Days program. This is an annual event that serves to educate Congressional representatives and staff on the technical and public policy issues affecting the aerospace community, and provides AIAA members with an opportunity to directly impact the decision making process. The next event will be held in April, 2003.

Every year, the Public Policy Committee develops several key issues of concern to the aerospace community. The following is a summary of the 2002 key issues and recommendations. The full text is available at

<http://www.aiaa.org/about/index.hfm?abo=280>.

1. Workforce Issues

Recommendation: The AIAA proposes legislation that would establish a National Science and Technology Corps—the analog to the Reserve Officer Training Corps. Pursuant to this legislative proposal, the U.S. government would pay for the cost of a college education for any U.S. citizen who pursues a degree in math, science, information sciences, or engineering provided the student agrees to work for the U.S. government at a national lab or in a federal R&D agency, teach math or science in an inner city or rural school, or work for the Technology Corps at the State Department.

2. Technology Readiness

Recommendation: It is recommended that the White House Office of Science and Technology Policy, in cooperation with the President's Advisory Council on Science and Technology, and the Congressional Committees of jurisdiction conduct a thorough review of the government's R&D policy. In particular, these entities should reassess existing policies that restrict federal agencies from

funding technology validation and verification activities and the underlying assumptions concerning the allocation of risks on major R&D project between the federal government and the private sector.

3. National Aviation Research and Technology Plan

Recommendation: The White House has called upon the Commission on the Future of the United States Aerospace Industry to address these issues. Their response must be nothing less than a comprehensive national aviation research and technology plan specifically addressing both critical milestones and essential funding. The plan must be a vision developed and supported by aviation's stakeholders: government, industry, and academia. It also must provide a budget that is both stable and sufficient for its implementation and a well-defined set of metrics that permits assessment of the near-term and overall goals of the plan. This national plan must be articulated and supported at the highest level of the country's executive and legislative leadership.

4. Prioritized Investments in National Aerospace Research and Test Facilities

Recommendation: The Office of Technology Policy and the Congressional Committees of jurisdiction are advised to reassess earlier initiatives to consolidate aeronautical test facilities and to reevaluate the overall U.S. strategy for developing, maintaining and investing in such assets. Such an assessment must be done on a government-wide basis and not at the level of an agency or a service—these assets must be seen as national test facilities.

5. Aerospace Policy Planning and Coordination Council

Recommendation: Create an Aerospace Coordination Council at the executive level with participation by the federal agencies directly affected by aerospace policies, as well as by congressional, commercial and public interests. The council should meet regularly and be provided authority to coordinate aerospace policy among federal agencies, to recommend appropriate public/private partnerships that can accelerate aerospace development, and to make specific aerospace-related policy recommendations for consideration by the executive and legislative branches.

DO YOU consider these key issues? Do the recommendations make sense? Please let Karl D'Ambrosio, our Director of Public Policy know at kdambrosio@attbi.com. Your input is valued and will provide you with a voice in our national organization and in Washington, D.C. on topics affecting your profession.

Section website: http://www.geocities.com/aiaa_2000/index.html
 National website: <http://www.aiaa.org>

Please submit newsletter materials to
 Karl D'Ambrosio by the 10th of
 December for the January Newsletter.

Outstanding Section Awards
 1972-1973
 1977-1978
 1978-1979
 1991-1992
 1993-1994
 1994-1995
 1994-1995

Membership Award
 1997-1998

Young Member Activity Awards
 1990-1991
 1991-1992
 1994-1995
 1995-1996

Section Special Event Awards
 1976-1977
 1977-1987
 1978-1979
 1982-1983
 1987-1988

Career Enhancement Award
 1997-1998

Newsletter Awards
 1994-1995
 1995-1996
 1996-1997

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Treasurer-Elect	Open			
Appointed				
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