



The Apollo Guidance Computer

Frank O'Brien

Perhaps the single spacecraft component that assured the success of the Apollo lunar missions was its guidance computer. Created in the 1960s when most computers filled an entire room, the Apollo Guidance Computer (AGC) was small, low power, and included capabilities that are advanced by even today's standards. We will be discussing its hardware and software architecture, I/O devices, and how the designers overcame the demanding requirements inherent in a spacecraft computer. Additionally, we will cover the human interface, command language and operations required for a flight from the Earth to the Moon. Attendees will get the opportunity to examine an early AGC, its components and review the source code. A hardware and software emulator, running actual flight software (Apollo 13 and 14) will be used to demonstrate the Display and Keyboard user interface (attendees can bring a USB thumb drive to receive a copy of the emulator).

Frank O'Brien is a volunteer Apollo historian for NASA, primarily as a contributing editor for the Apollo Lunar Surface Journal, and is co-editor of the Apollo Flight Journal. Through the use of mission transcripts, technical interviews with the flight crews and a vast collection of documentation and multimedia resources, the Apollo Journals have become the canonical resource for those interested in mankind's greatest voyage of exploration. From this work, Frank was invited to the Cradle of Aviation Museum on Long Island, New York to assist in their May, 2002 reopening. He prepared the only remaining Lunar Module Mission Simulator for exhibition, created demonstration software for a Lunar Module cockpit trainer, and prepared an Apollo space suit for the museum's centerpiece Apollo 11 diorama. Frank is now part of a team creating a new museum, the Infoage Science/History Learning Center in Wall, NJ.

Frank is a 1979 graduate of Rutgers University (computer science), and later returned to Rutgers to earn his MBA. He has worked in all aspects of computing, from mainframes to telecommunications and PCs, and now works as an SAP and Oracle administrator.

The May dinner meeting will be the final ACM/IEEE-CS meeting of the 2006-2007 season. Monthly meetings will resume again in October 2007.

Date:	Thursday, May 17, 2007, 7:00 pm (cash bar at 6:30 pm)
Place:	Charlie Brown's Steakhouse, 4591 Rt. 27, Kingston, NJ (restaurant phone number (609) 924-7400)
Information:	Rebecca Mercuri (609) 587-1886, Dennis Mancl (908) 582-7086
On-line info:	http://www.acm.org/chapters/princetonacm

ADVANCE RESERVATIONS REQUIRED – please fill out the form below

Make my reservation for the annual ACM Dinner Meeting on May 17:

Name: _____ Phone number: _____

Menu choice: Prime Rib Chicken Francaise Roasted Red Pepper Basil Ravioli

Dinner includes salad, potato, vegetable, dessert, and coffee/tea

Please make your reservation by May 11. Send your check for \$25 per person and this form to:

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