SLBM Research and Analysis Division
Fire Control Formulation Branch (K41)
Developed and maintained fire-control and targeting
software for US Trident I and II and UK Trident II
Submarine-Launched Ballistic Missile fleets.
Physics-based computer modeling.

CV (Re Matlab)-

Portable Impact Location System (PILS), *11/1998-3/2000*

Project Engineer for the PILS II system, responsible for all electrical components of the PILS II sonobuoy, including analog, digital, and power electronics. Supervised a team of mechanical and electrical engineers, technicians and students in the construction of buoys and constituent parts. Developed microprocessor-based motor control and power distribution system for robotic station-keeping sonobuoy used to determine impact location of Submarine Launched Ballistic Missiles (SLBM). Supervised contractor in the update of legacy printed circuit board designs. Successfully tested PILS II system in the open ocean during SLBM test.

Launch Area Determination System (LADS), *11/1998-3/2000*

Designed and built a novel synthesizer-based coordinated acoustic tracking source (CATS III) for tracking submarines in missile launch test area, synchronizing test equipment with tactical equipment to ensure non-interference with vital launch systems. Designed and built prototype and production printed circuit boards for CATS III. Developed concept for DSP based SSBN test area safety system to provide launch area support ship crew with real-time submarine position data.

CV-

After graduating from Penn State, I was a mathematician in Dahlgren, Virginia at the Naval Surface Warfare Center Dahlgren Division (NSWCDD) in the Submarine Launched Ballistic Missile (SLBM) Fire Control Formulation Branch (K41).

I did physics-based computer modeling for the design and support of fire-control and targeting software for the U.S. Trident I/II and U.K. Trident II Submarine Launched Ballistic Missile Programs. (No, I didn't get to blow anything up. That's someone else's job.) I also got to use a CRAY.

CV FANG-KUO SUN

- **support** the US Government on modeling, evaluation and accuracy prediction of a strategic weapon system
  - project leader (a multi-year, multi-million project) for a team of analysts, meteorologists and programmers to evaluate the accuracy of the fire control target-offset procedure for weather compensation

→ See Comm AUSCANNZUKUS

- methodology development for analyzing temporal/spatial variability of the effects of wind and density on reentry bodies
- technique development and implementation for modeling these weather effects, using several years of RAOB data (collected by NCDC) over the entire target area
- temporal geographic database management system development to provide analysts with an easy access to the vast amount of weather data and system and statistical analysis tools to support the Trident II system accuracy prediction

ATR advanced technology & research – support Dahlgren with an office there.

Mountain state information systems

SOFTWARE AND SYSTEM SECURITY

MSIS personnel analyzed the Submarine Launched Ballistic Missile (SLBM) Fire Control System (FCS) software to determine its vulnerability to software sabotage. This included performing research into software security methodologies, development of new methodologies for analyzing vulnerabilities, and development of prototype computer programs to detect illicit code. MSIS personnel also developed a methodology for performing a risk assessment and vulnerability analysis called "workflow," and had this published in IEEE proceedings.

MSIS personnel developed training materials on software and system security and presented papers at national conferences. MSIS personnel developed and presented a three-day seminar "Causes and Prevention of Software/Firmware Sabotage."