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IPARTS Overview Improved Performance and Readiness Training System

McCauley, Michael

Monterey, California. Naval Postgraduate School

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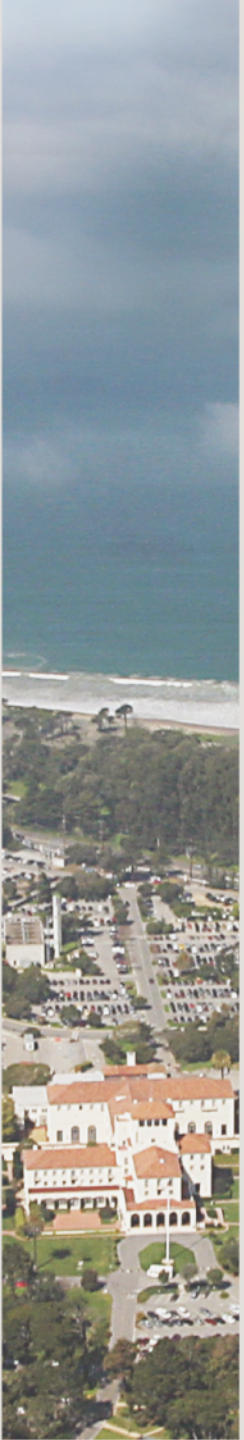

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IPARTS Overview

Improved Performance and Readiness Training System

MOVES Research & Education Systems Seminar,
31 July 2012

Michael McCauley, PhD

Mathias Kolsch, PhD

Monterey, California

WWW.NPS.EDU

Introduction to the Role of the LSO

Introduction to the Role of the LSO

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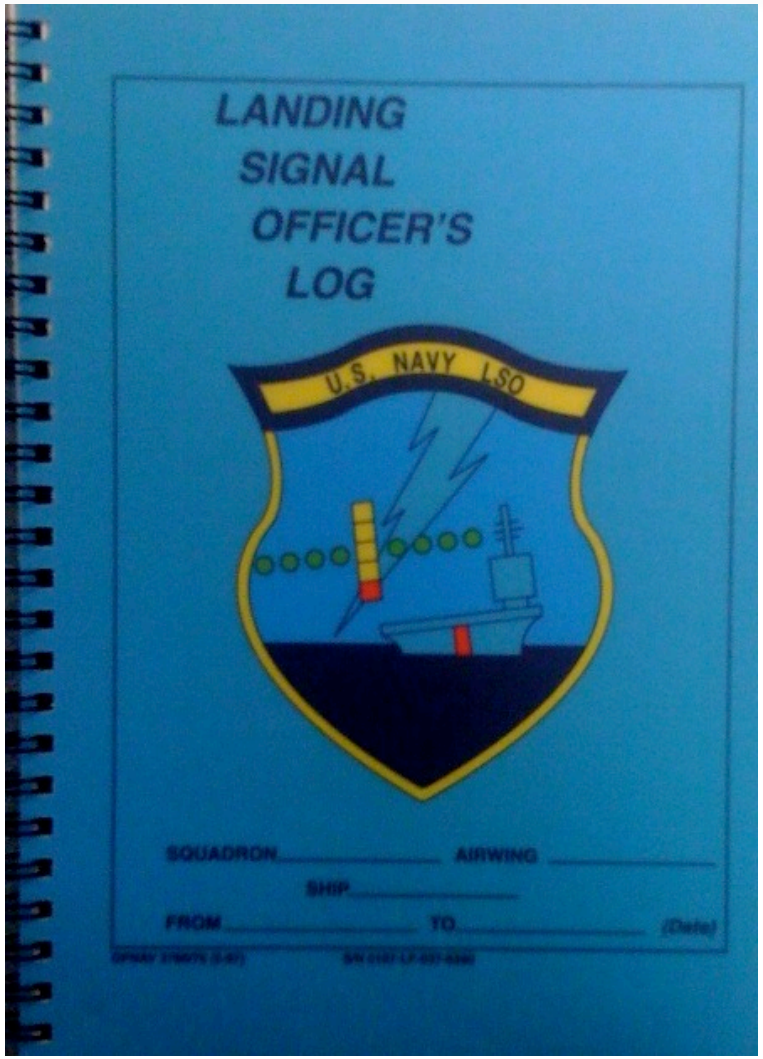
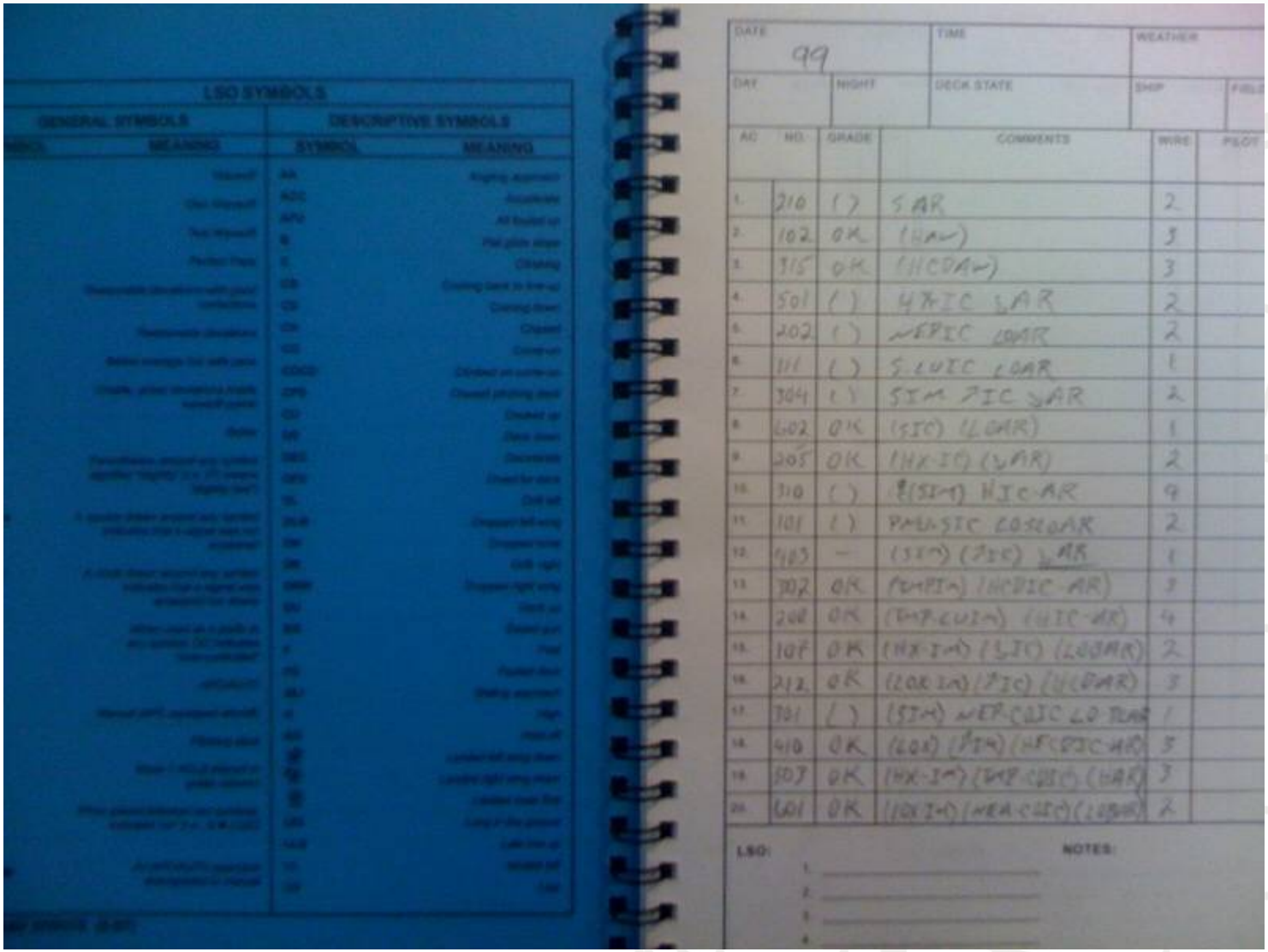
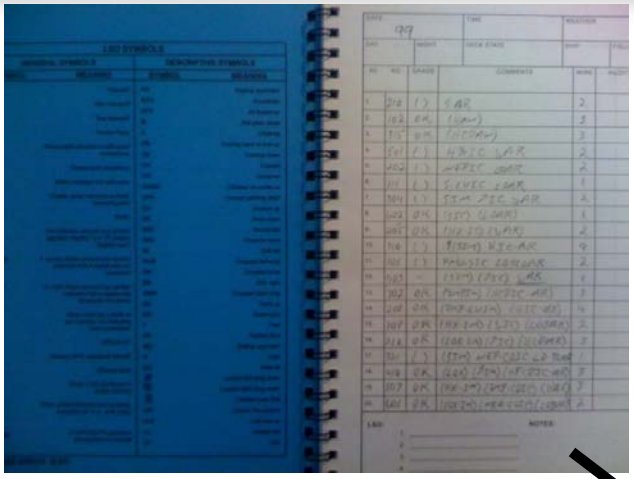


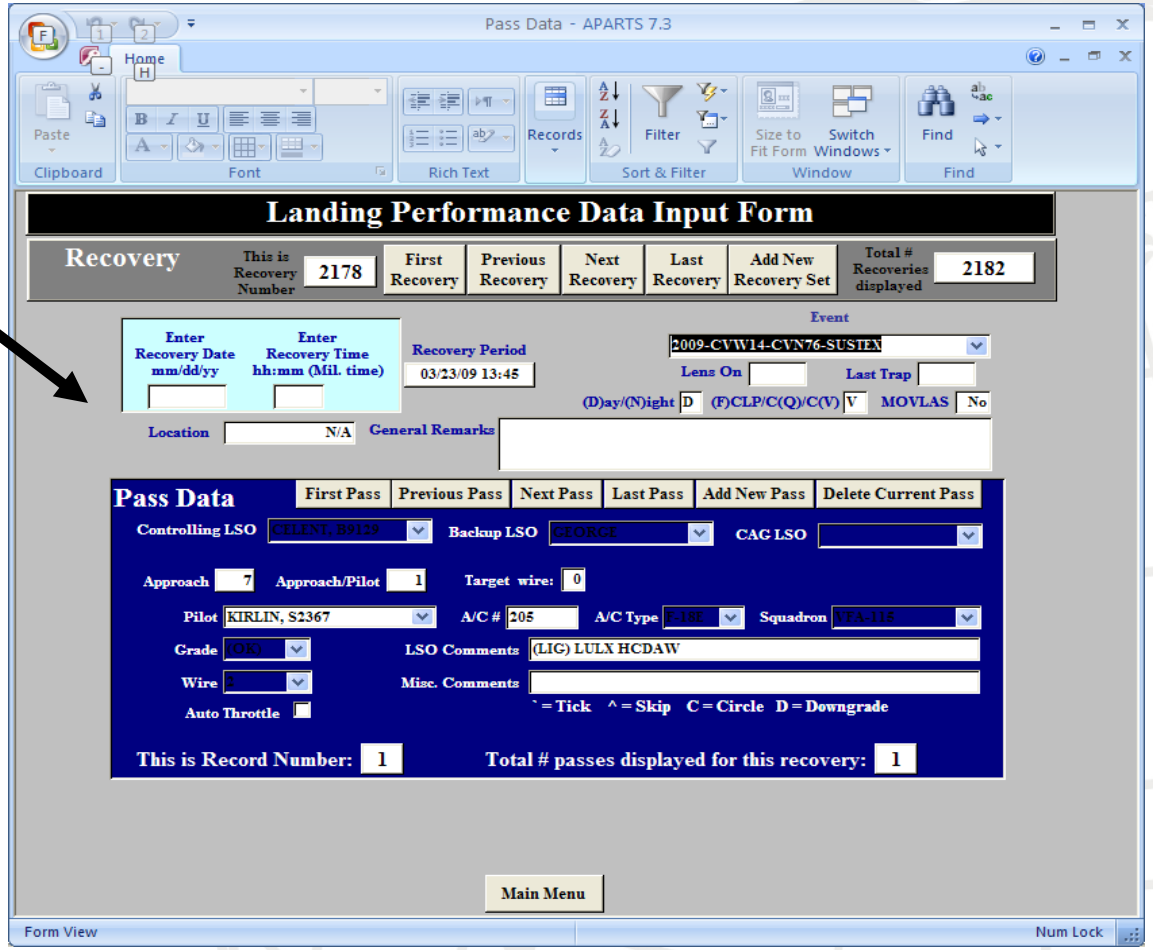
Introduction to the Role of the LSO



Legacy System: APARTS



Automated Performance Assessment and Readiness Training System



PROPOSAL to ONR TechSolutions

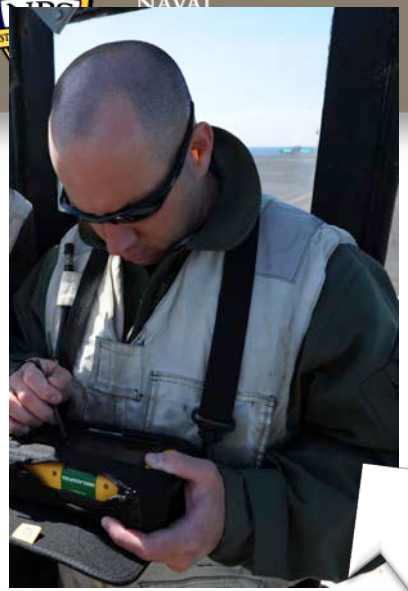
- Issues with APARTS
  - Not network friendly (data are squadron specific)
  - Subject to frequent data loss
  - No longer formally supported in MS Access
- The MOVES Institute was awarded the job from among many proposals from the Naval Research Enterprise (NRE)

IPARTS Benefits and Features

- Replaces the ageing APARTS
- Can import legacy data
- Better reliability
- Captures all relevant data
- Immediate electronic data entry → only once
- Immediate boarding rate calculation, trend analysis
- Fleet-wide database

User Interface Design

- Lead engineer, and NPS student, LT Michael Ross, IS an LSO and an F-18 pilot (currently at Test Pilot School, Pax River)
- Frequent intensive input from the user community (LSOs)
  - LSO School
  - NAS Lemoore
  - NAS Oceana
  - NAS Norfolk
  - Squadrons on several aircraft carriers for Carrier Qualification



Data entry on the LSO platform, electronically on IPARTS “Handheld”

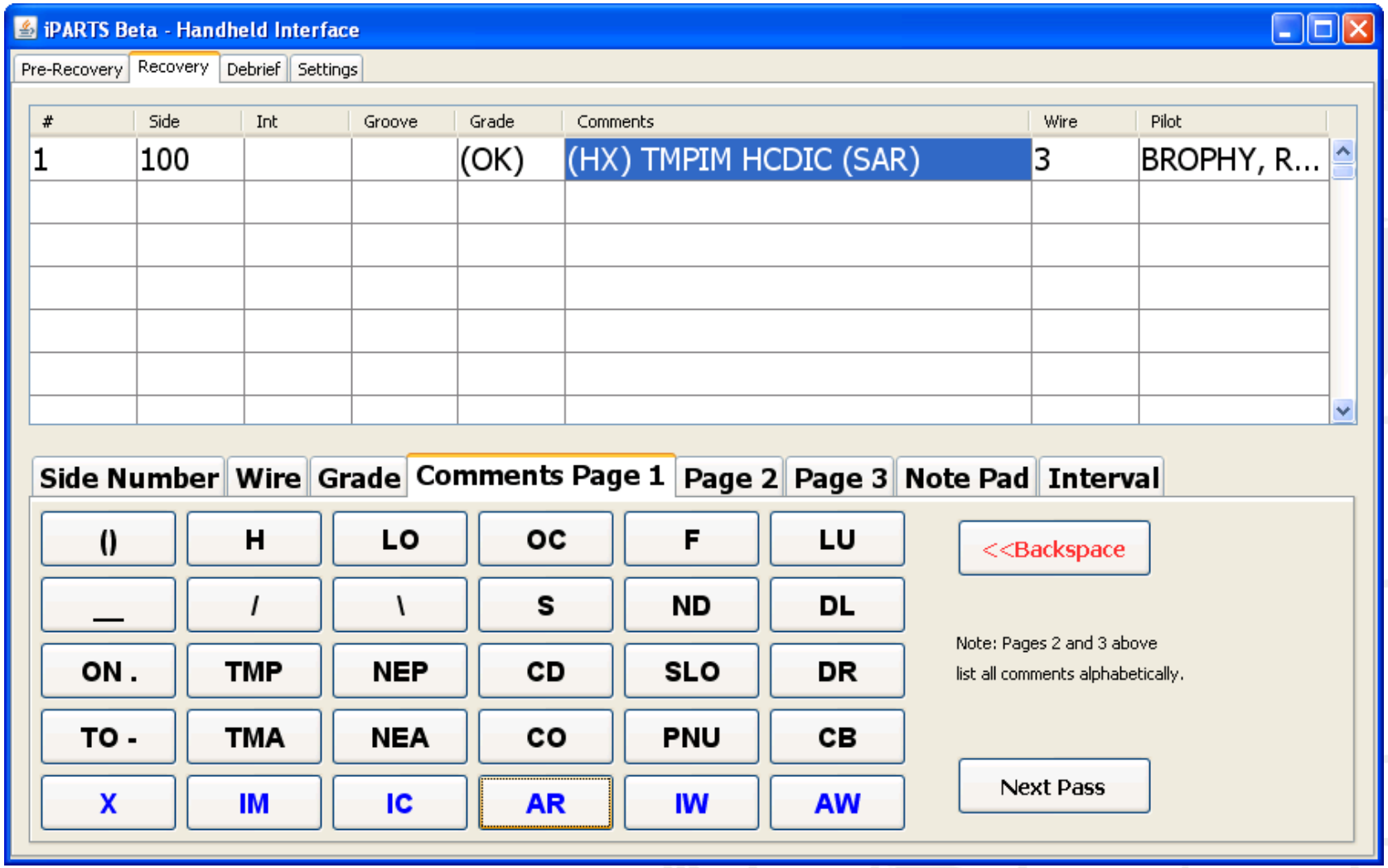
Debrief from IPARTS “Handheld”

LSO School database (“server”)

Capture Ship TV, add ILARTS video

CAG IPARTS “Laptop,” Squadron Laptops

HANDHELD INTERFACE



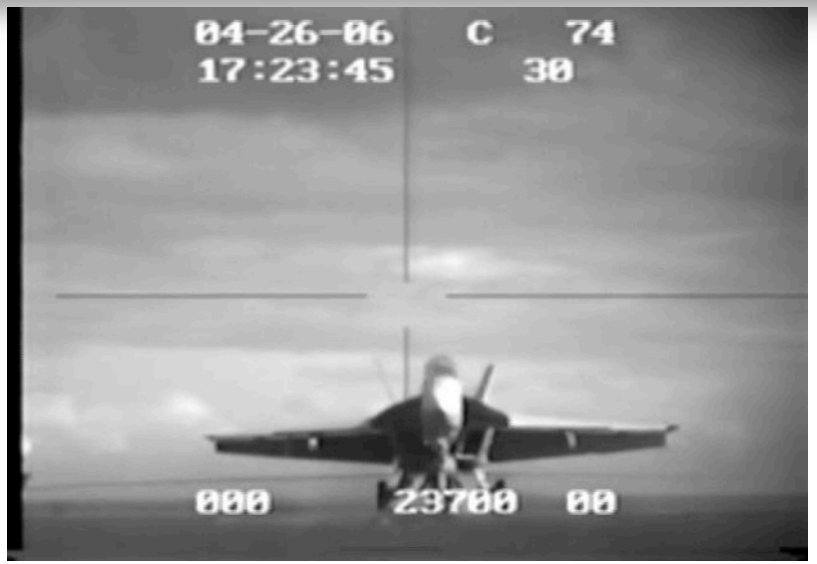
IPARTS Status

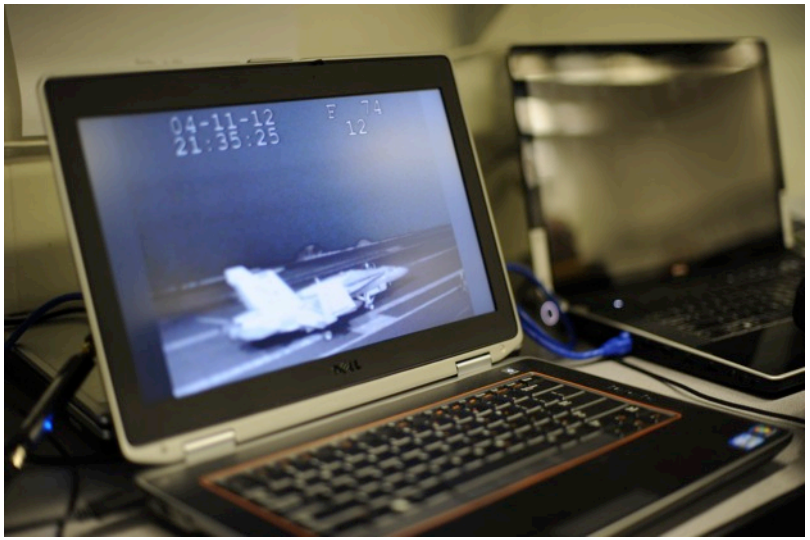
- Expectation Management:
  - IPARTS is a research prototype
  - “80% solution”
- That said, IPARTS works already, gets good reviews
- User interface developed by/with LSOs
  - Highly optimized, specific touch keyboard
  - Naturally follows flow of operations and writing order
- Pilot entries are consistent, unique, and carry over from squadron to squadron
- Ability to ingest video, misc comments
- Most APARTS reports are available, + new reports

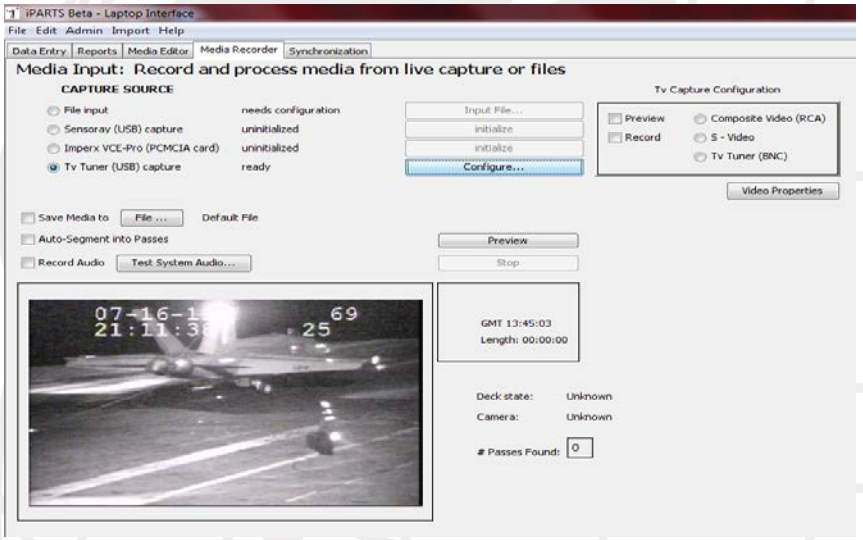
… many more features!

- Trials on Ike (CVN-69) and Stennis (CVN-74) in 2011 and 2012

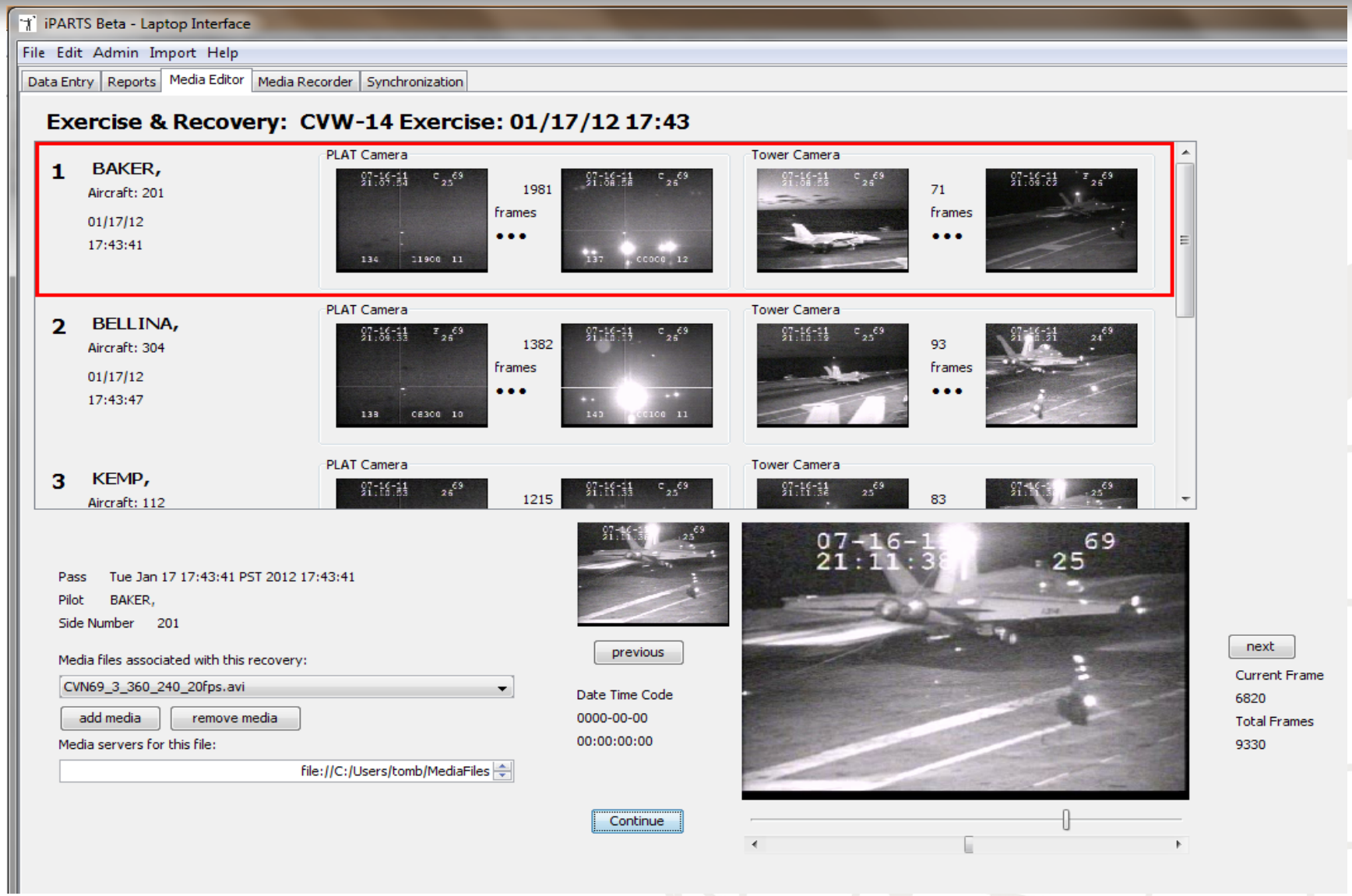
PLAT Video Recording







PLAT Video Recording



Example: Night Ops

- IPARTS “Night Mode”

LOE

Limited Objective Evaluation

… is an experimental deployment

… for testing under operational conditions

- VFA-122 (FRS, F/A-18E/F) during FCLP and CQ
- VFA-106 (FRS, F/A-18E/F) during FCLP and CQ
- VAW-120 (E-2, C-2)
- CVW-3 and CVW-8 during deck certification
- >6000 passes recorded and stored to date
- Lots of (verbal and questionnaire) LSO feedback, many bugs fixed, many features added, …

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Why Transition IPARTS?

- Strong support from the user community
- Functionality is a NATOPS requirement
- Built using DIACAP-certified technologies: Java, Oracle database; modular extensions
- Low deployment cost:
  - No licensing fees
  - Utilization of existing squadron laptops
  - Additional squadron hardware is optional, COTS, inexpensive
  - Central software administration and automatic updating
  - Open software architecture, designed with maintainability in mind
- Cost savings for fleet: FCLP quals, CQ, realtime readiness reports, time savings for LSOs, flexible fleet-wide reports

PMA-205 (Training) and PMA-251 (Launch & Recovery) will promote IPARTS' **transition** to the fleet

IPARTS Extended Project Team

- LSO School: Weeds, Frodo, Barf, Pleber, …
- ONR TechSolutions: Dr. Stephanie Everett, Master Chief Ziervogel
- MOVES Institute, Naval Postgraduate School:
  - Tom Batcha, Greg Belli, Arijit Das, LT Matt Dominick, Erik Lowney, Mathias Kölsch, Michael McCauley, Terry Norbraten,

    LT Mike Ross, Neil Rowe, Jon Schmid

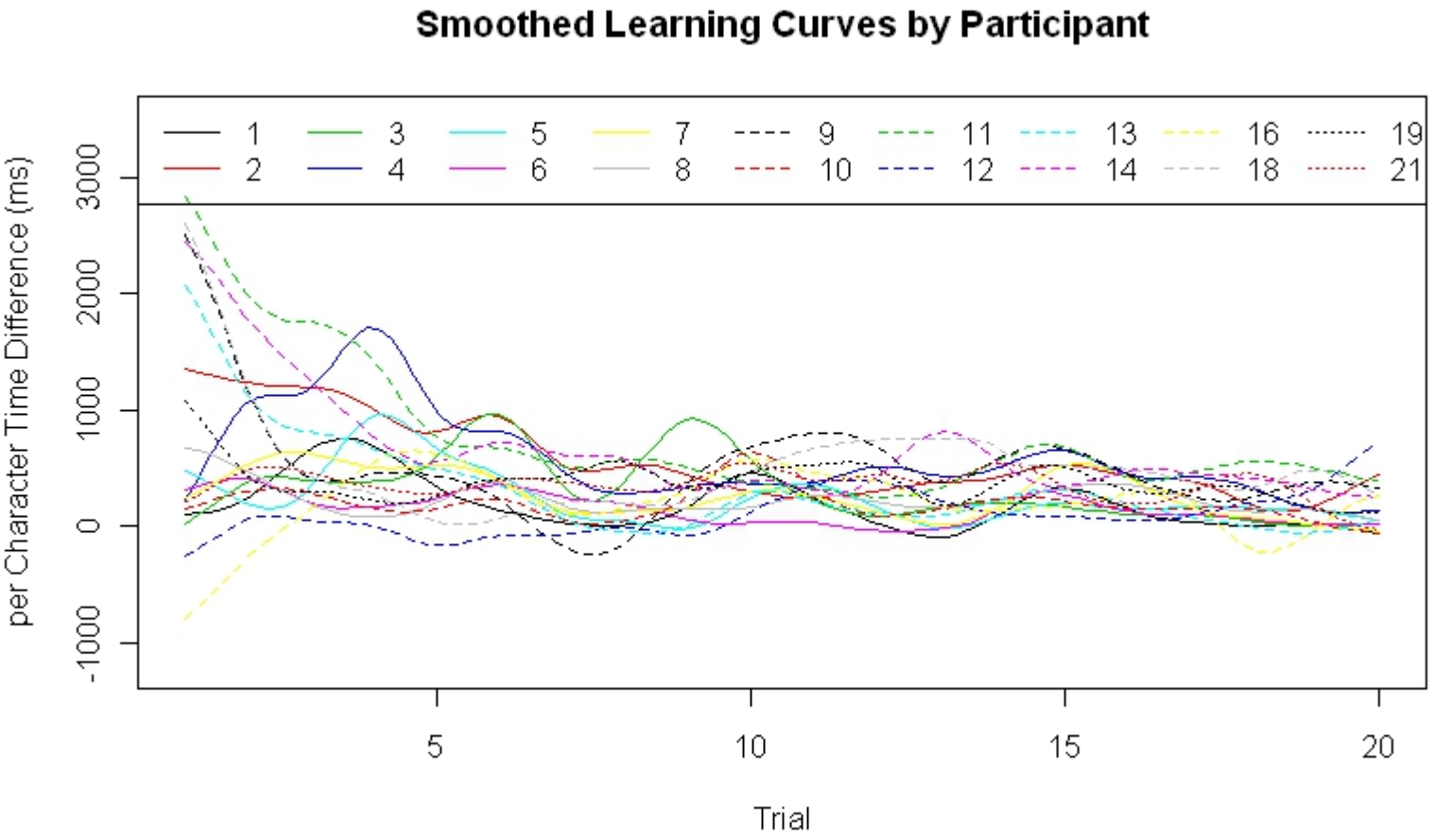
- Touch and feel IPARTS
  - Demo night,
    16:30 Wednesday

- Contact:
  - Mike McCauley: memccaul@nps.edu
  - Mathias Kölsch: kolsch@nps.edu

Thank you!

- Student involvement was/is critical
- Requirements analysis and iterative HCI/UI development is of utmost importance

TECHNOLOGY

- Commercial Off the Shelf whenever possible
  - Built using Java Version 6
    - Swing API for Interface
    - JDBC for Database interface
  - Oracle Database Products
    - LSO School Database runs Oracle 11g
    - Distributed databases use Oracle Database Lite Mobile Server (provides software update and database synchronization services)

Typing is Fast!