The Return of Lost Content: Born-digital processing of 5.25 inch floppy disks

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SAA Research Forum 2011

The class: Problems in the Permanent Retention of Electronic records a.k.a. Problems

AUSTIN HISTORY CENTER
OUR COMMUNITY'S COLLECTIVE MEMORY

BC BRISCOE CENTER
FOR AMERICAN HISTORY

Alexander
Architectural
Archive

University of Texas Libraries
The University of Texas at Austin

COMPUTER MUSEUM

Taught by
Dr. Patricia Galloway

Groups process legacy media from archival repositories around Austin and try to put as much information as possible on the UT Austin DSpace installation.
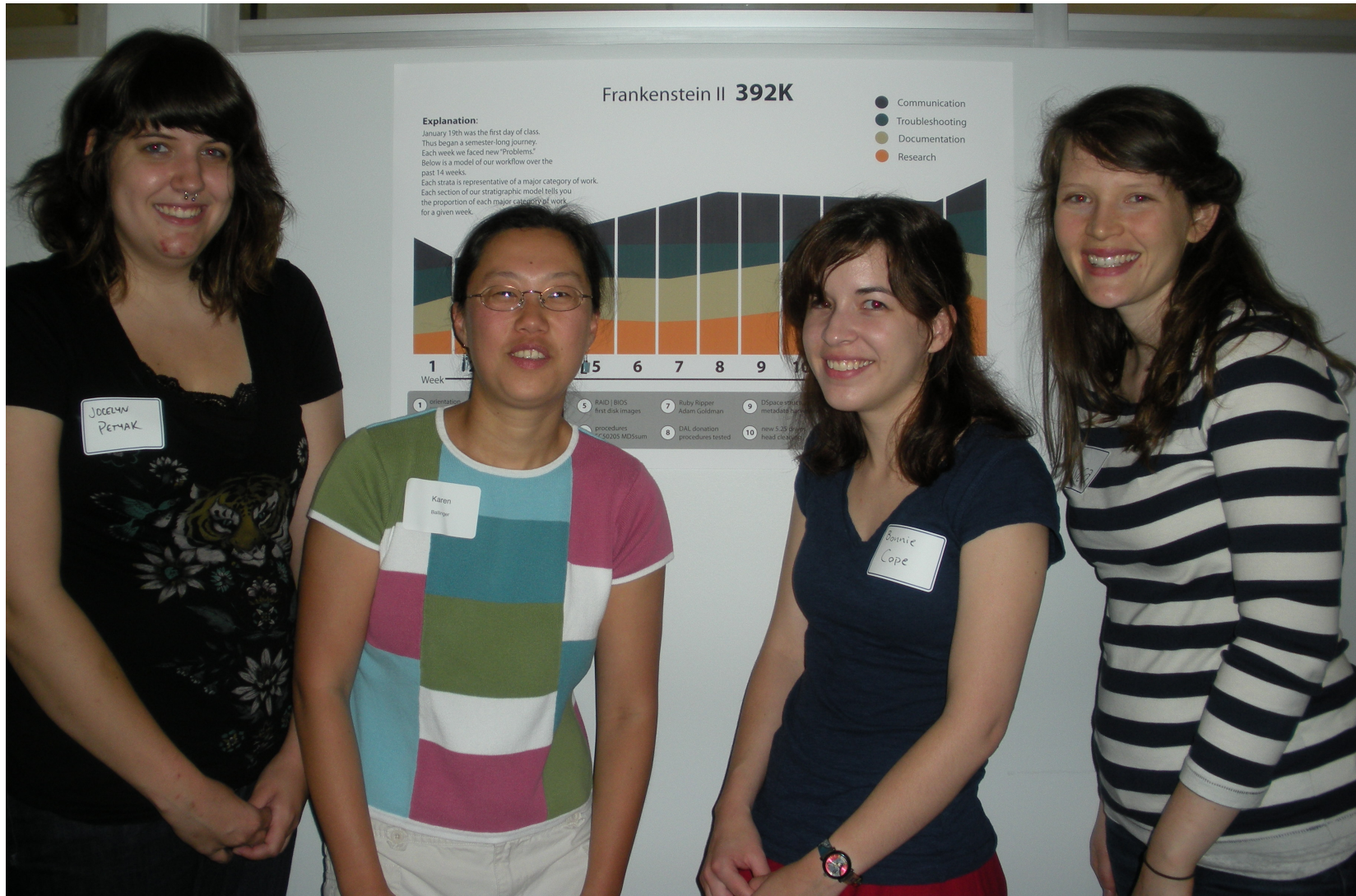
DSpace™
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DSpace at the University of Texas at Austin School of Information >

Welcome to the digital archival repository of the School of Information, University of Texas at Austin.

The Frankenstein team

Jocelyn Petyak, Karen Ballinger, Bonnie Cope, Jessica Meyerson
Our team was charged with getting the processing environment ready, which previously fell on individual groups with the most difficult media.

The Digital Archeology Lab

Processing workstations available and administered with archival policies, such as no food or drink, since it stores collection material.

Frankenstein

Donated from the Goodwill Computer Museum and originally a Dell server. Has a RAID card and multiple hard drives with different operating systems in the front. Connected 5.25 inch drive directly to motherboard after changing BIOS. Went down often; tension between extending machine and having it available as processing workstation.
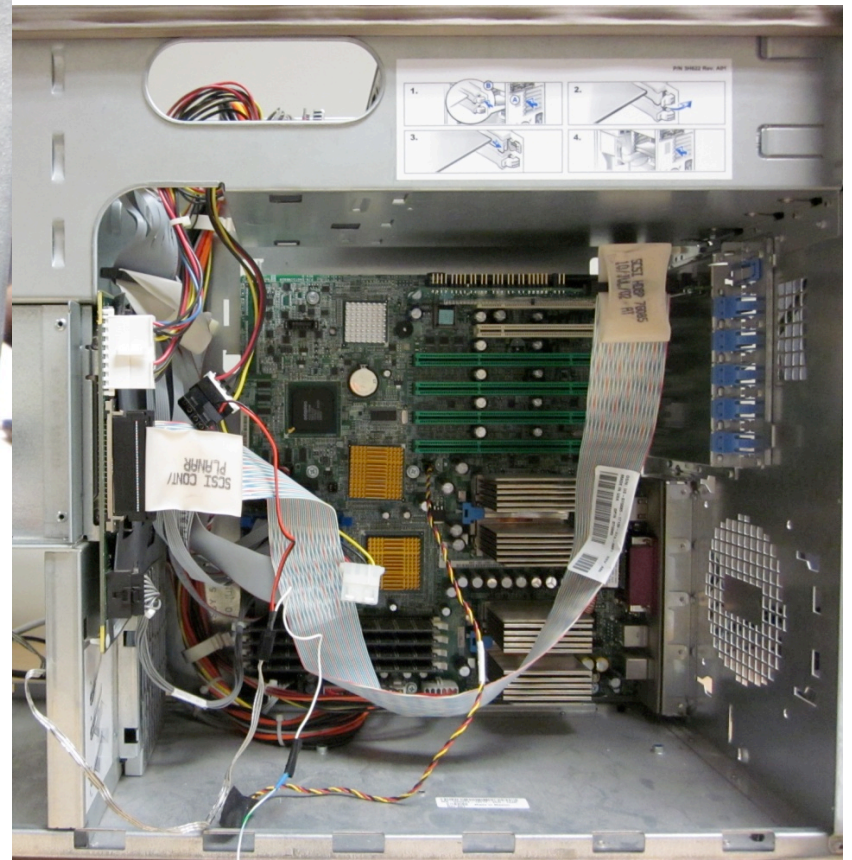
Used to image 5.25 inch floppy disks of specific formats with modern computers.
Communicated and collaborated with creator.
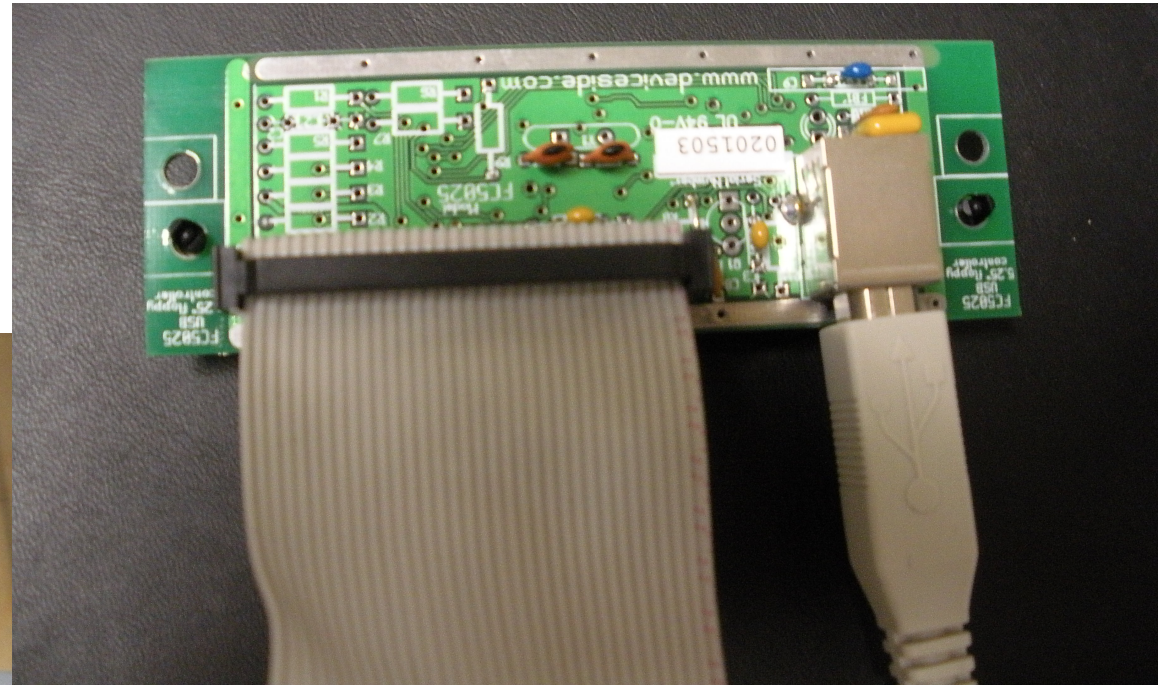
Device Side Data FC5025 Floppy controller

Toolkit

Disk dump

Dcfldd

dcfldd if=[/dev/devicename] of=nameofdiskette.img hash=md5 hashlog=nameofdiskette.md5

Checksum
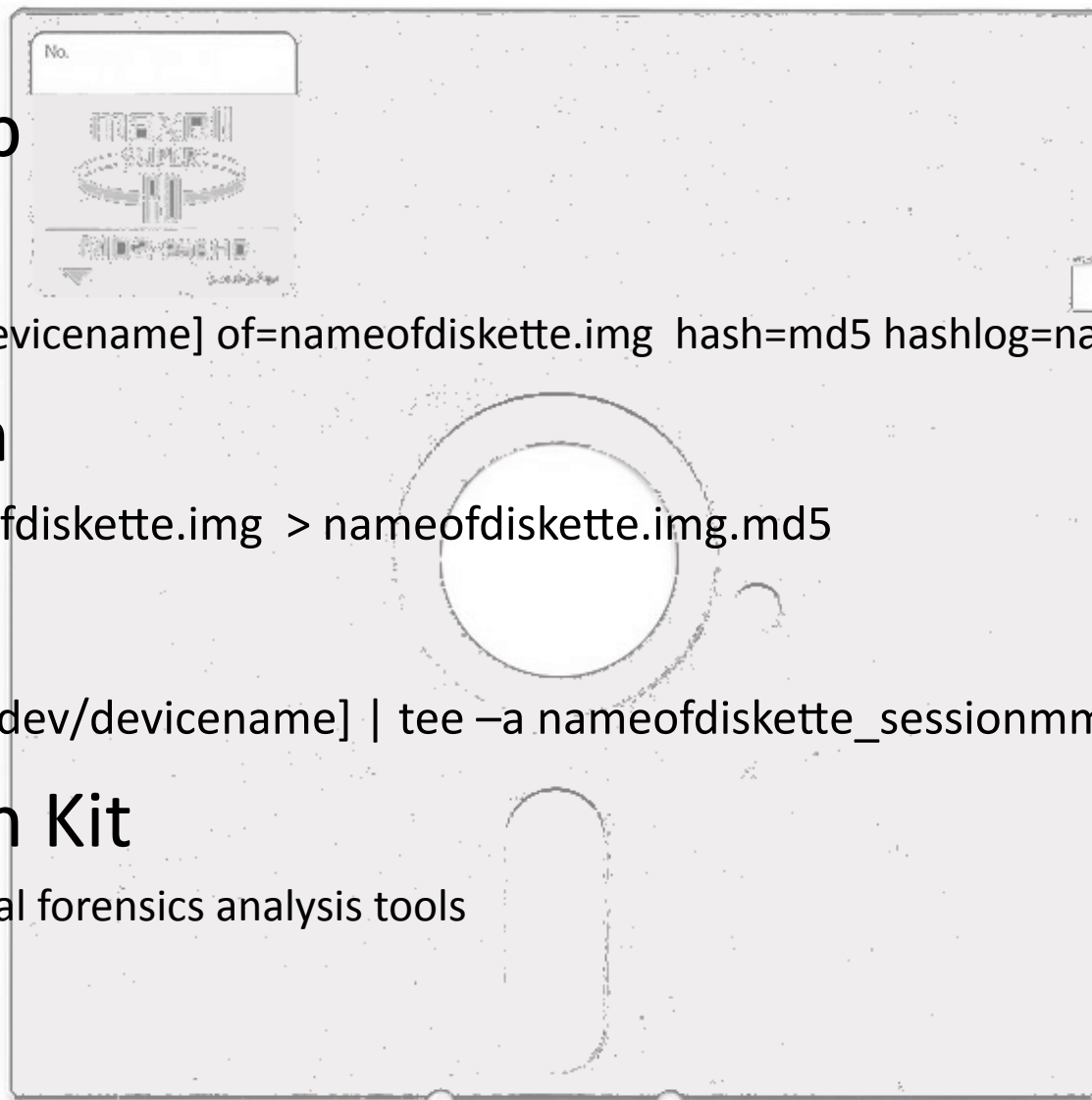
md5sum nameofdiskette.img > nameofdiskette.img.md5

Disktype

sudo disktype [/dev/devicename] | tee –a nameofdiskette_sessionmmddyy.log
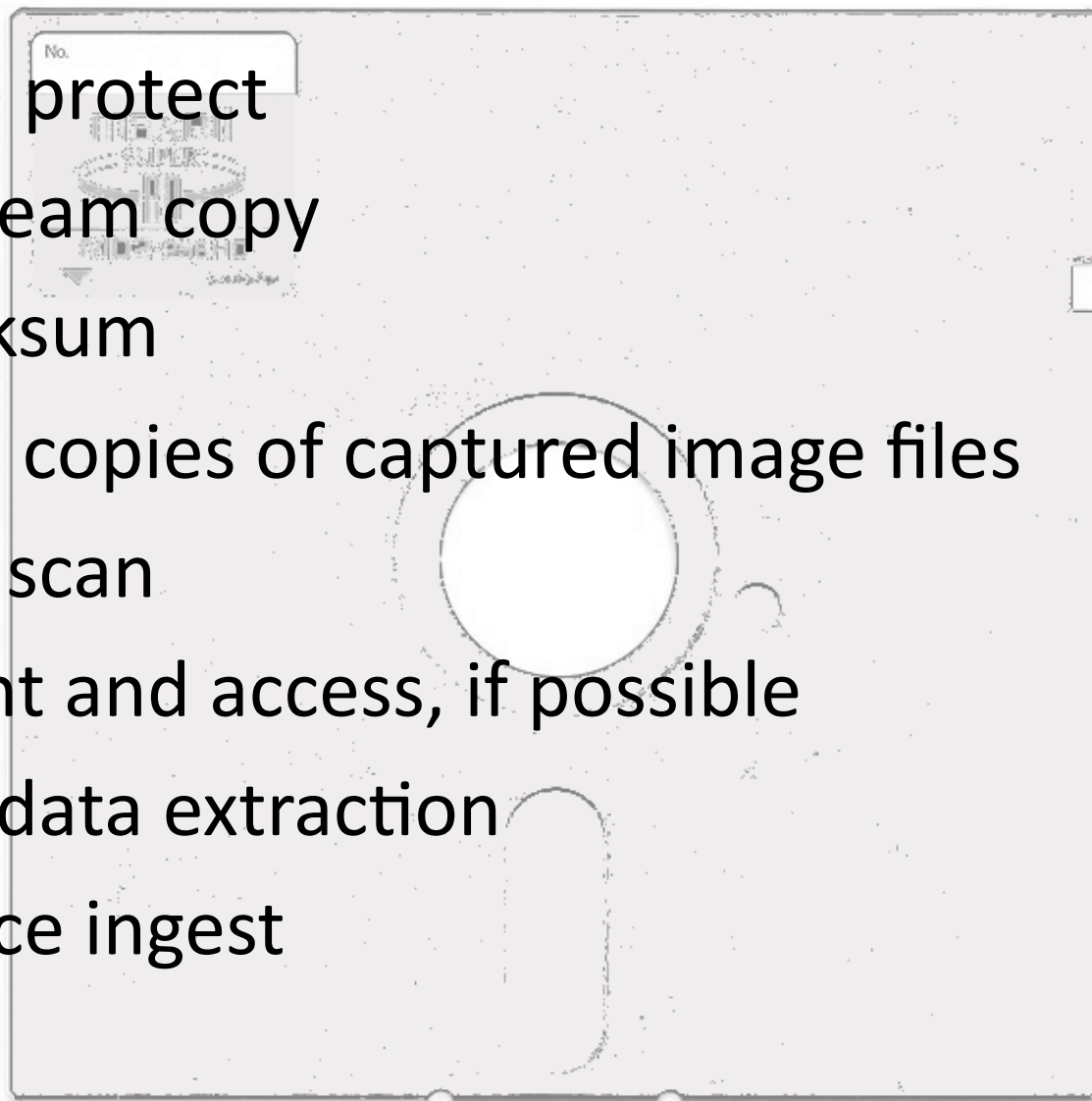
The Sleuth Kit

open source digital forensics analysis tools

Workflow

1. Write protect
2. Bitstream copy
3. Checksum
4. Make copies of captured image files
5. Virus scan
6. Mount and access, if possible
7. Metadata extraction
8. DSpace ingest

The George Sanger Games Project, 2011

Schmandt-Besserat (Denise) Papers

3.5 inch floppy disks and CDs relatively straightforward to image.

Anna Chen, Mark Cooper and Halley Grogan

Ultima I, II, III:

Ultima Trilogy I – II – III front and back cover, original box

Three 5.25" floppy disks. Disk one, side one *Ultima I* and side two, *Ultima II* Galactic disk. Disk two *Ultima II*, side one Program Master, side two Player Master. Disk three *Ultima III*, side one Program Master, side two Player Master

Ultima II: Project Documentation

Ultima II:

Ultima II front and back cover, original box

Two 5.25" floppy disks. Program Master and Player Maser on disk on disk two.

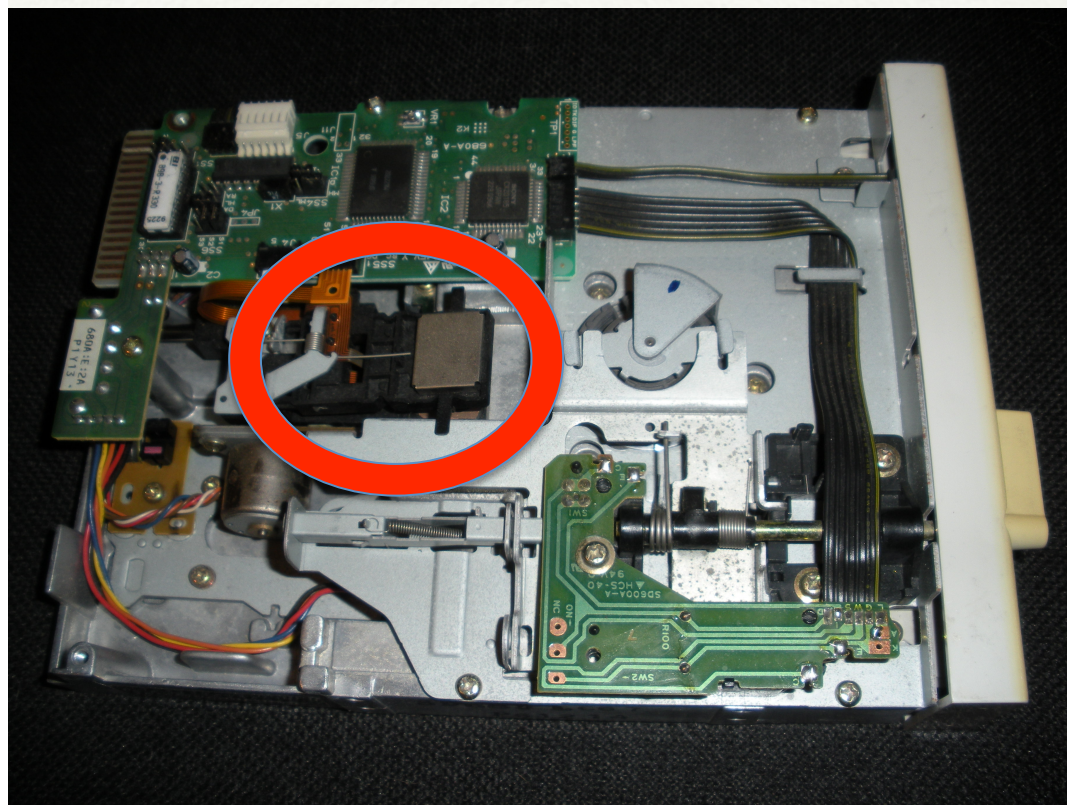Imaged Apple disks with floppy controller. Encountered copy protection issues.

[Pictured: Curtis Riggs with Zenith Z-100, March 2011]

The Zenith of Conundrums

## Archiving the Curtis Riggs Zenith Data System Collection

Ashley Butler, Amanda Keys, Holly Mendenhall, and Miriam Richards

Head stopped moving after imaging 30 disks. Eventually discovered heads were getting dirty by 31st disk, couldn't read first track, stopped moving.

Austin History Center's Librarian's Helper Stoned: Legacy Records, Legacy Viruses
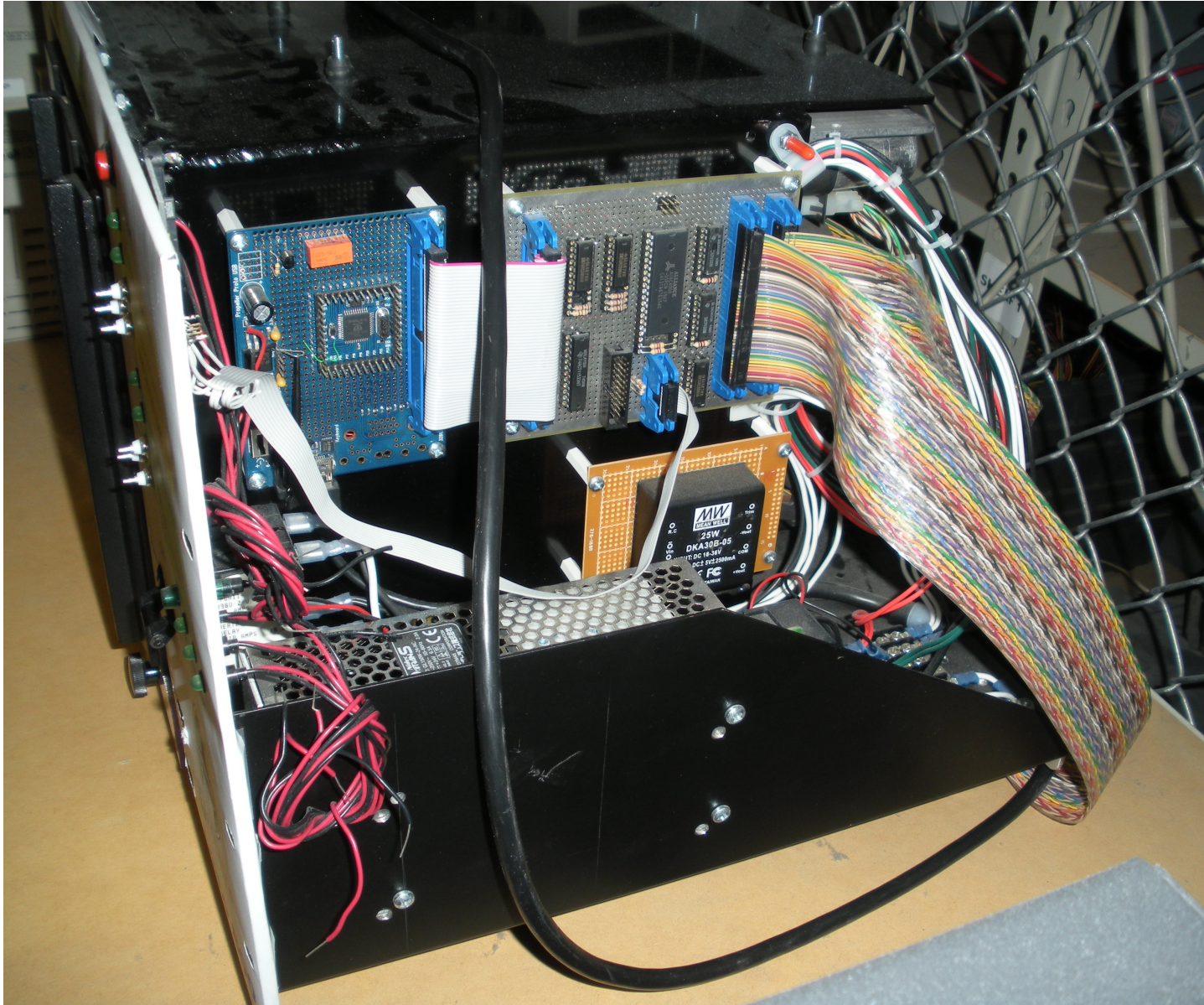
Carol Brock, Kathryn Garvey, and Jane Gruning
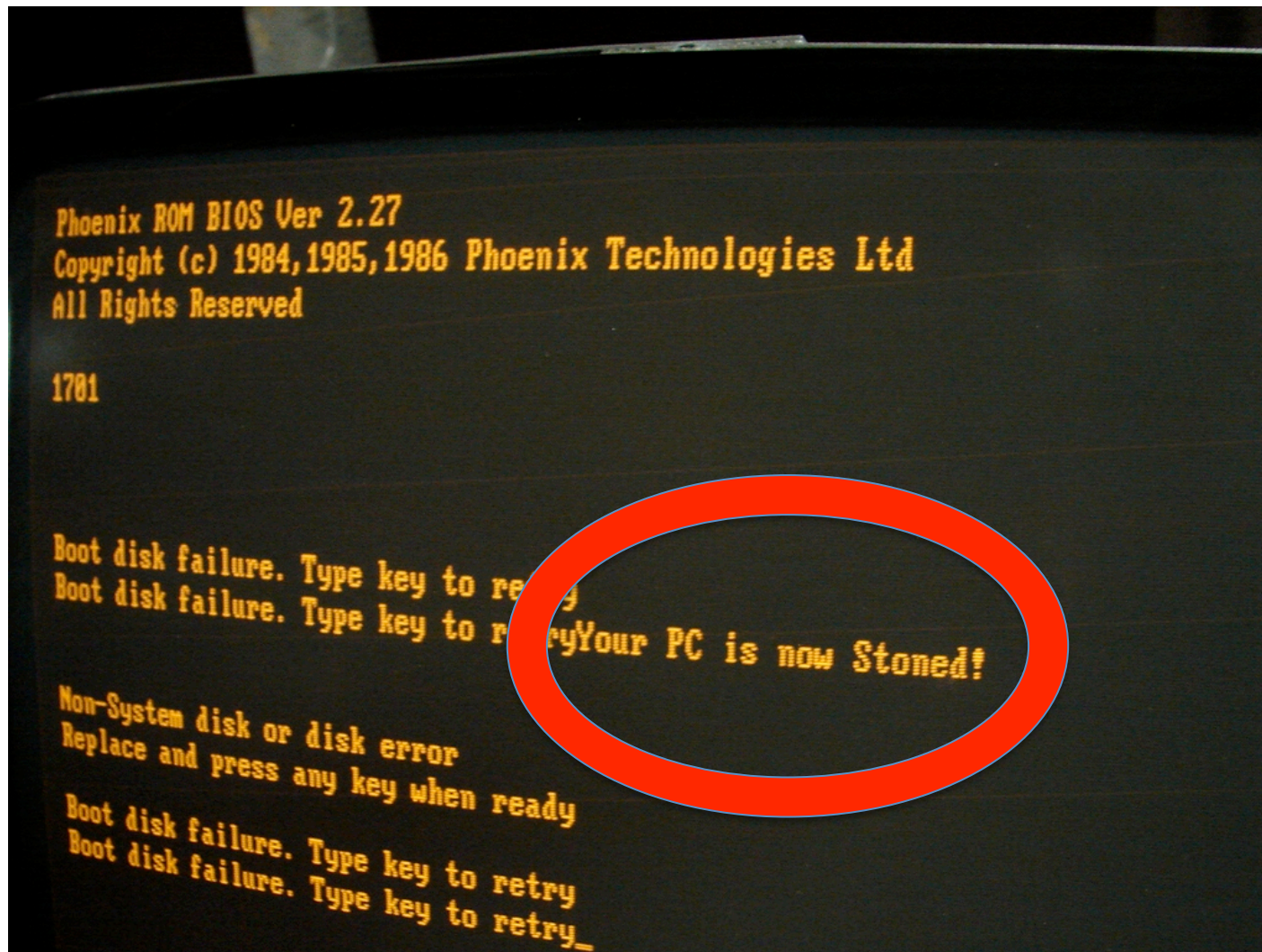
Discovered legacy virus

The future of disk imaging: Ditto

Being developed by Goodwill Computer Museum and grant from NHPRC

Minimize hardware, maximize software

Robust vintage hardware

Custom modern circuitry

Exact disk copy

XML Container

Analysis at all levels of disk information

Potential error correction

Collaboration with archival goals
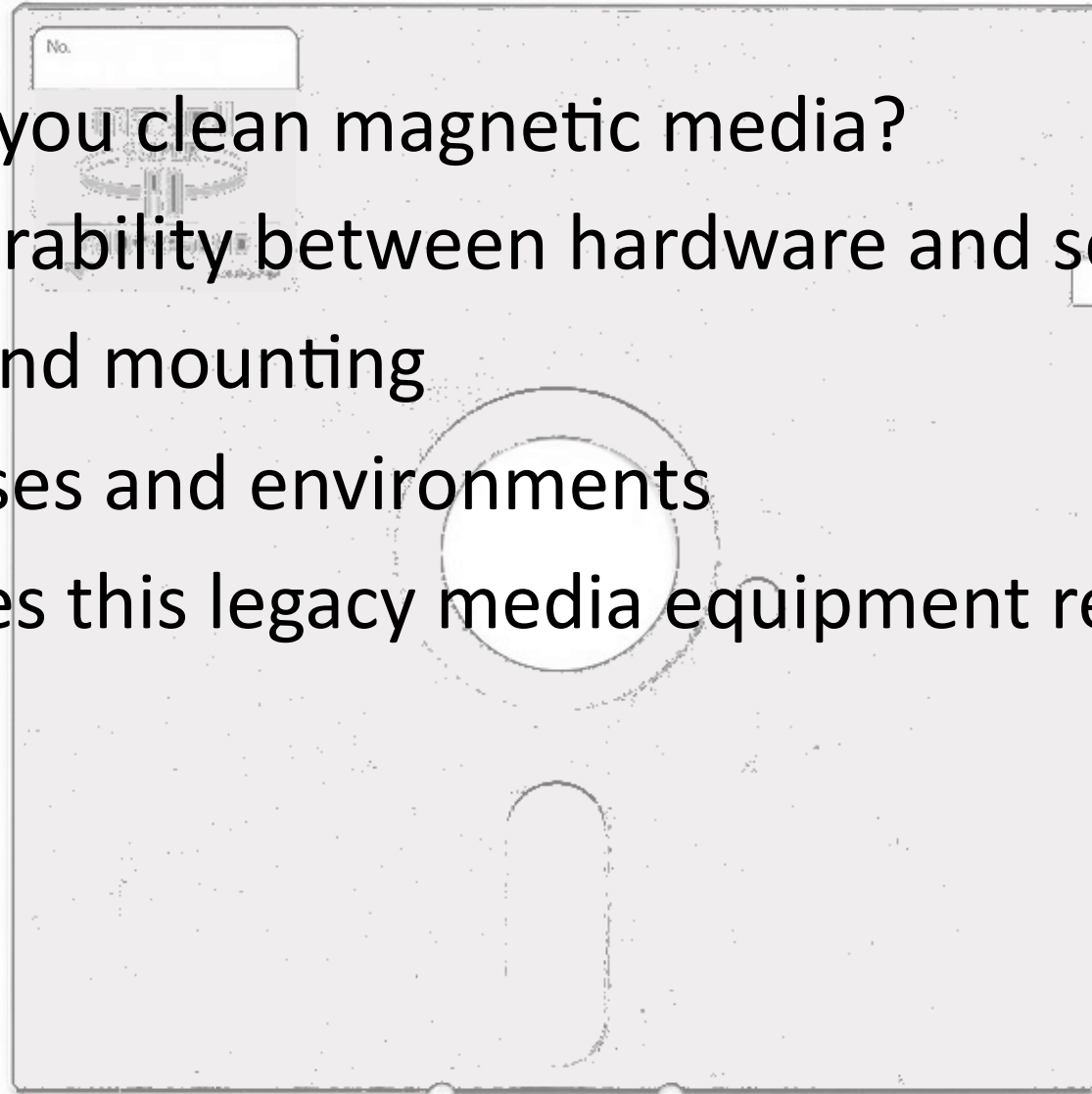
Potential research areas

How do you clean magnetic media?

Interoperability between hardware and software

Access and mounting

Old viruses and environments

How does this legacy media equipment really work?

Lessons learned

Document!! Especially failures, for yourself and for the future.

Deliberate testing Plan your trial and error testing.

Communication and collaboration Lots of opportunity for

collaboration with the vintage computing community.

Learning through practice We learned through doing! We
encourage all repositories to set up their own born-digital legacy media processing
environments and discover Problems of their own!
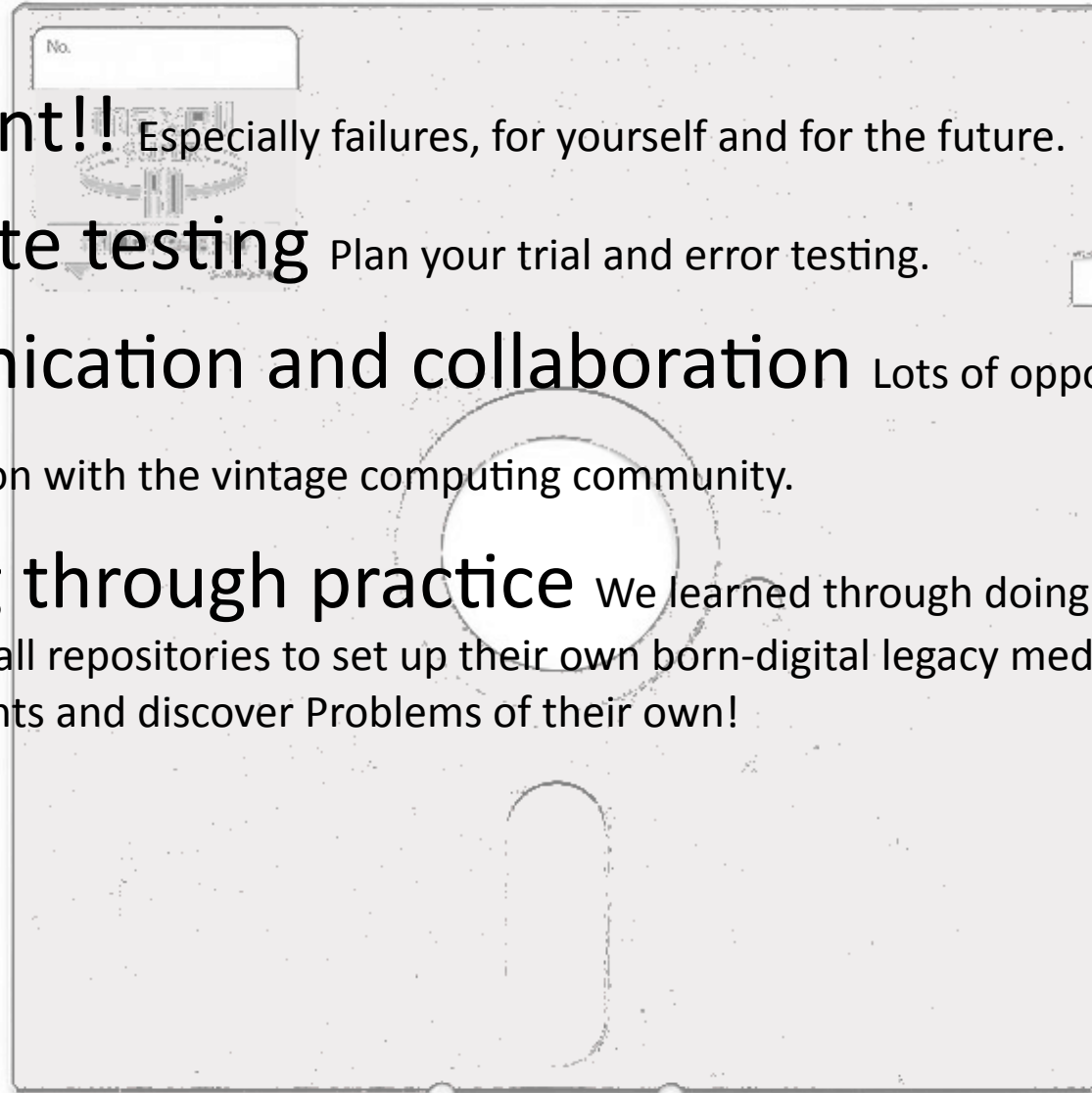
Questions?

Legacy Media Born-digital Processing Resources

University of Texas School of Information DSpace Digital Archiving Repository
    https://pacer.ischool.utexas.edu/

All project documentation from the 392K Problems in the Permanent Retention of Electronic Records class is available on pacer. Specific reports include:

Digital Archeology Lab manual: https://pacer.ischool.utexas.edu/handle/2081/23283

UT-iSchool Digital Archeology Lab collection: https://pacer.ischool.utexas.edu/handle/2081/21808

George Sanger Game Projects 2011:   https://pacer.ischool.utexas.edu/handle/2081/21810

Schmandt-Besserat (Denise) Papers: https://pacer.ischool.utexas.edu/handle/2081/21807

Ultima II and Published Video Games   https://pacer.ischool.utexas.edu/handle/2081/21815

Curtis Riggs Zenith Data System Collection: https://pacer.ischool.utexas.edu/handle/2081/21958

Austin History Center Librarian's Helper Project: https://pacer.ischool.utexas.edu/handle/2081/21850

Goodwill Computer Museum: http://www.goodwillcomputermuseum.org/

If you are interested in collaborating on the Ditto project, please contact the Goodwill Computer Museum curator Russell Corley at Russell.Corley@austingoodwill.org.

Device Side Data FC5025 Floppy Controller: http://www.deviceside.com/fc5025.html

The Sleuth Kit Open Source Digital Forensics tools: http://www.sleuthkit.org/sleuthkit/