

Virginia



Tech

# Electronic Theses and Dissertations How ETDs can Improve Graduate Education



"When print emerged, universities failed to recognize its importance and almost managed to marginalize themselves into oblivion. With a new major transition upon us, such benign neglect simply will not do. Yet the challenges universities face in responding to an increasingly digitized and networked world are staggering. Universities need a vision allowing them to express their dearest values in new forms, rather than protect their present form at the expense of their most fundamental values."

Jean-Claude Guédon, Conseiller, Publications  
électroniques, Presses de l'Université de Montréal 1998

# What are we doing?

- Using computer-based technology to improve the content and availability of theses and dissertations
- Educating future scholars so they can publish electronically and effectively using digital libraries

# Why are we doing it?

- So students can be more creative in their scholarship
- So the knowledge contained in TDs is easily and widely available
- So students can learn to use digital libraries and publish electronically

# What are the benefits?

Elimination of the hard copy will:

- Save the student money without a significant increase in effort
- Save shelf space in the library
- Save library staff resources
- Fit into the electronic library of the future
- Make access to ETDs more rapid and less expensive

# What are the long term goals?

- 400K students/yr getting graduate degrees are exposed to e-publishing
- ETDs become rich hypermedia works
- Graduate education is more effective, students are more productive
- University publishes its scholarship
- Knowledge, technology transfer are faster and better

# How are ETDs done at Virginia Tech?

ETDs are:

- Produced using standard word processing packages
- Delivered as portable document format (PDF) files
- Reviewed by the Graduate School
- Cataloged and archived by the library
- Downloaded by UMI from the library



# Status of ETD Project at Virginia Tech

## Graduate School Procedures

- Submission of ETDs became a Graduate School requirement effective January 1, 1997
- Student training workshops since Spring 1996
- Special ETD approval form developed for use by students, advisors, and advisory committees
- Graduate School staff member reviews all ETDs for format
- Graduate School can help the student correct errors detected before cataloging
- Over 1500 ETDs will have been submitted by the end of Fall Semester 1998
- Less than 0.01% of TDs are now submitted as paper copies

# Status of the ND LTD at Virginia Tech

## Library Procedures

- ETDs are submitted by students using a web browser
- ETDs are deposited in a directory awaiting Graduate School approval
- If the ETD is secured for patent or proprietary reasons, it is held after approval in a secure directory
- If the ETD is available for VT or worldwide access (as designated by the student and advisor), it is also copied to a directory for cataloging
- ETDs are cataloged within 1-3 weeks
- Available ETDs may be browsed by author or department, and may be searched using OpenText

# How has usage changed?

## Usage of Paper Theses and Dissertations

- Virginia Tech theses submitted 1990 - 1994, combined average circulation per copy is 2.24/yr
- Virginia Tech dissertations submitted 1990 - 1994, combined average circulation per copy is 3.2/yr

# Usage of ETDs in VT Collections

	1996	1997	1998	1999 (Jan.-Aug.)
Total requests	37,171	247,537	465,974	907,104
Daily requests	102	685	1,722	3,121
ETD requests	4,600	72,854	244,987	476,313
Abstract requests	25,829	112,633	177,647	143,056
Hosts served	9,015	22,725	28,022	52,663

# Costs/Savings at VT

- Graduate School no longer processes, stores and ships to the library 3000 copies of paper TDs/year
- Library no longer binds, shelves, and circulates 3000 copies of TDs/year
- 166 ft of shelf space saved/year by the library (based on 2000 1 inch TDs/year)
- VT used existing equipment in the Scholarly Communications Project to support the ETD project
- Library start-up costs for staff, hardware and software from from a zero-base estimate: \$65,000 (<http://scholar.lib.vt.edu/theses/>)

# What are Some of the Challenges?

- Training students and faculty
- Explaining importance to publishers
- Managerial and technical steering
- Evaluating at national scale and over research career of graduate students
- Improving digital library technology
- Scalability, sustainability, usability
- Expanding the concept to other universities
- Developing the infrastructure for the ND LTD

# Status of the NDLTD at Other Institutions

- Over 60 Universities and Organizations worldwide have joined the NDLTD. 30 are U.S. and 4 are Canadian universities
- NCSU, Michigan, UT Memphis, UVA, WVA, Waterloo, Rhodes (SA), Humbolt (Berlin) have ETD collections
- Many institutions have discussions underway in their governance systems concerning starting ETD projects
- Many institutions have visited Virginia Tech
- Members of the VT ETD team have visited many institutions
- Australia and Germany have national ETD initiatives underway

## 57 NDLTD university members

Air University

CalTech

University of Hong Kong

Chungnam National U.

City University, London

Clemson University

College of William & Mary

Concordia U

Curtin U of Tech (Australia)

Darmstadt U of Technology

East Tenn State U

Florida Institute of Tech

Florida International U

Freie Universitat Berlin

Griffith University (Australia)

Gyeongsang National U

Humboldt zu Berlin

IIT, Bombay

Miami University (Ohio)

Michigan Tech

Nanyang Tech

U. of Singapore

Naval Postg School

North Carolina State U

Penn State U

Tech U of Valencia

Rhodes U (South Africa)

Rochester Institute of Tech

St. Petersburg Technical U.

Universidad de las Puebla

Universidad de Valencia

Universite Laval

U of Colorado Health Sci

U of Florida

U of Georgia

U of Guelph

U of Hawaii, Manoa

University of Iowa

U of Maine

U of Melbourne

U of New South Wales

U of Oklahoma

U of Queensland

U of So Florida

U of Sydney

U Tennessee, Knoxville

U Tennessee, Memphis

U of Texas at Austin

U of Virginia

U of Waterloo

U of Wisc, Madison

Vanderbilt U

Virginia Tech

West Virginia U

Wilfrid Laurier U

Worcester Polytech



# Challenges to Creating and Sustaining ETD collections (and Digital Libraries)

- Making information literacy an expectation of graduate (and undergraduate) education
- Informing graduate students and faculty of their responsibilities associated with use of copyrighted work in ETDs
- Informing students and faculty of their rights as holders of copyright to ETDs and other original work
- Changing university P&T systems to make it possible to reclaim research and scholarship produced by students and faculty
- Changing the attitudes of publishers about publishing manuscripts derived from ETDs
- Developing a preservation system for electronic documents which is accepted to be as dependable as paper or microfilm

# Who are the sponsors and cooperators?

- Virginia Tech
- SURA
- SOLINET
- CSGS/CGS and CNI
- US Dept. of Ed. FIPSE
- University Microfilms
- IBM
- Adobe Systems
- OCLC

# Help Available to Others

- WWW site with information you might need
- Free automated submission system
- Student guidelines, style sheets, training materials, FAQs, PR info
- Word processor templates and converters
- Multimedia educational materials
- On site visits from the ETD team
- Workshops for pilot institutions

# Why might your university want to be involved?

- To improve graduate education
- To unlock university information
- To save money for students and for the university
- To build an important digital library that will help other digital libraries get built

# How can your university get involved?

- Organize a planning/implementation team
  - Graduate School
  - Library
  - Information Technology
- Adapt Virginia Tech solution
- Parallel development
  - Build interest and consensus
  - Start trial/allow optional submission

# VT ETD Team

Ed Fox - Computer Science

John Eaton - Graduate School

Gail McMillan - Library

<http://etd.vt.edu/>

<http://www.ndltd.org>

<http://www.theses.org/>



# Intellectual Property & the Internet

Issues related to Electronic  
Theses and Dissertations  
February 24, 1999

# Copyright responsibilities of thesis and dissertation authors

Permission or license to use a copyrighted work is NOT required if:

- © work is in the public domain
- © work is a fact or an idea
- © fair use



# Copyright responsibilities of thesis and dissertation authors

- Myths and Fair Use
- © Myth: It doesn't say it's copyrighted! - As of March 1, 1989, the copyright warning does not have to appear for a work to be legally copyrighted.
- © Myth: It's OK--it's for education. Before you include someone else's work without permission, consider ALL 4 of the fair use factors:
  - Purpose and character of use
  - Nature of the copyrighted work
  - Amount, substantiality
  - Effect

# Rights of ETD authors as holders of ETD copyright

- Who owns the copyright?
  - © creators of original works
  - © creators' assignees
  - © employers: works for hire
- 5 rights of copyright holders
  - © reproduction
  - © modification
  - © distribution
  - © public performance
  - © public display

What if, he (Steven Koonin, Provost) asked one day last spring, Caltech and its professors announced that they intended to control the copyrights of articles about research done on the campus? Instead of signing over those rights to publishers, as is typical, the institute and its faculty members would turn the tables: Journal publishers would be informed that they could publish articles by Caltech researchers only if the authors and the university retained copyrights to the material.

*The Chronicle of Higher Education*, September 18, 1998

# Relationships with journal and book publishers

- Most Journal and Book publishers require authors to sign over copyright to the publisher when a work is published
- For manuscripts published before the thesis or dissertation is prepared, the author should request permission from the publisher to include the work in the T or D.
- For manuscripts published after the ETD is submitted, it may be necessary to restrict distribution of the ETD until the manuscripts are published
- In the case of ETDs published as books by the period of withholding could be several years
- All of us need to work to educate publishers that in general T and D are quite different from manuscripts and have not been subject to the same rigorous review

# Conflicts between faculty responsibilities as university researchers and students rights to copyright of theses and dissertations

From the faculty handbook:

“Normally, the faculty principal investigator or project leader is expected to manage the university's ownership of research results and material (this includes all data) that best advance the standard routes of publication, presentations, and other usual means of dissemination of research results for that particular field. Creation of intellectual properties must be disclosed to the university by the prescribed route.”

# The entrepreneurial university and scholars obligations to make their work known

## Paraphrased comments from faculty relating to ETDs

- I will ask my students to stop describing future research ideas in their conclusions
- I do not want my competitors reading my students ETDs or journal articles
- Researchers in my field have an unwritten agreement not to read the theses and dissertations of each others students