Raymond E. Trygstad

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Illinois Institute of Technology
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Education

Ph.D. studies in Computer Science and Technical Communication, Illinois Institute of Technology
Diploma in Aviation Safety, Naval Postgraduate School
Master of Science in Systems Management, University of Denver
    4.0 GPA; specialization in Information Systems Management
Naval Aviator, Undergraduate Pilot Training - Rotary Wing, Training Air Wing 5, United States Navy
Bachelor of Science, major in European Studies, United States Naval Academy

Professional History

Illinois Institute of Technology

Ranks

Industry Professor of Information Technology and Management with the rank of Teaching Professor, 2023-present, Full time

Industry Professor of Information Technology and Management, 2010-present, Full time
Responsible for creating, teaching, and managing courses in a broad variety of information technology areas including operating system virtualization, disaster recovery/business continuity, legal and ethical issues, and systems integration/introduction to the profession. Designed curriculum and drafted the following degrees: Bachelor of Science in Applied Cybersecurity and Information Technology, Bachelor of Information Technology (Coursera), Master of Cyber Forensics and Security, Master of Information Technology (Coursera), Master of Science in Information Technology and Management, Master of Science in Applied Cybersecurity and Digital Forensics, Master of Software Development (China only), Master of Software Engineering (China only), Doctor of Philosophy in Information Technology. Chair the ITM Curriculum Committee. Chair or Associate Chair of several Faculty Search Committees.

Adjunct Professor of Public Administration, 2007-present, Part time
Designed and taught or co-taught MPA courses in Cybercrime & Information Security and Disaster Recovery & Business Continuity. With Jennifer Lin, co-taught two courses in Cybercrime & Computer Security for the Beijing Police Department. Taught seminar courses in Cybersecurity for MBA students from University of Sao Paolo Brazil.

Lecturer in Information Technology and Management, 2002-2010, Full time
With Dr. C. Robert Carlson, founded the Information Technology and Management degree programs and the Center for Professional Development, which later become the School of Applied Technology. Responsible for creating, teaching, and managing courses in a broad variety of information technology areas including web design, web application development, operating systems, cybersecurity management, and multimedia. Designed and drafted original curriculum for the Bachelor of Information Technology and Management and Master of Information Technology and Management degrees. When the ACM/IEEE *Curriculum Guidelines for Undergraduate Degree Programs in Information Technology* were published in 2008, only one course had to be added to bring the Bachelor of Information Technology and Management into full compliance with the guidelines. Wrote all of the course descriptions for all courses in the program.

Lecturer in Computer Science, 2001-2002, Part time

Lecturer in Business (E-Commerce), 2000-2002, Part Time
Created and taught key Internet courses in a Stuart School of Business curriculum in e-commerce.

Adjunct Assistant Professor of Computer Science 1995-2001, Part time
Created and managed the Graduate Certificate in Educational Technologies. Working with Argonne National Laboratory, managed a program to provide Internet training and access to nearly 3,000 Illinois secondary school teachers. Created a web development program accredited by the Association of Internet Professionals Certification Accreditation Council. Created and taught CS 493/CS494 *Senior Design Practicum*, a project-based course that was a direct forerunner of Illinois Tech's Interprofessional Project (IPRO) courses.

Assistant Professor of Naval Science, 1992-1994, Full time

Roles

Associate Chair, Department of Information Technology and Management, 2012-present
Managed and led accreditation process leading to ABET Computing Accreditation Commission accreditation of the Bachelor of Information Technology and Management degree in 2016 and re-accreditation in 2021. Drafted and compiled *ABET Accreditation Self Study* documents, 282 pages for 2015 and 346 pages for 2020. Created and maintain ITM Department Student Information and Faculty Information webpages. Drafted, revise, and annually publish ITM Faculty Information and Departmental

Policies and Graduate and Undergraduate Student Information and Departmental Policies. In order to assist students in course selection and provide reference for parties outside the university, created and publish ITM Departmental Syllabi for undergraduate courses and ITM Courses to Certification Mapping. Design and conduct annual new student orientation and new faculty orientation and regularly advise and mentor ITM Department faculty members. Drafted critical ITM Departmental directives including *Standards for Appointment, Promotion, Tenure, and Renewal for Faculty in Information Technology and Management*. Conduct screening and initial interviews for hiring of department adjunct faculty members.

Director of Undergraduate Advising, Department of Information Technology and Management, 2012-present
Created a system for undergraduate advising which includes publication of *ITM Undergraduate Advising Notes* about two to three weeks in advance of opening of registration for the next semester. The *Notes* inform students how to make advising appointments, when their adviser will be available, information unique to that semester, recommendations of core curriculum courses, and "featured" elective major elective courses in the department. Following advising sessions, give each advisee printed personalized advising notes for the nest semester. Encourage co-terminal degree enrollment, resulting the highest level of co-terminal enrollment in the university: 50% of eligible students in ITM are in the Co-Terminal program. Provide students with an extensive online list of Information Technology Career Options, compiled from multiple industry and government resources. Actively contributed and shared ideas as a member of the University Faculty Council Advising Committee.

Associate Director, Center for Cyber Security and Forensics Education (C²SAFE), 2018-present
Co-Chaired the 2018 NSF-funded Women in Cybersecurity (WiCyS) Conference. Convened meetings of the Advisory Board to consider changes to Program Objectives. Actively participate in the National Initiative for Cybersecurity Education (NICE) Coordinating Council and Regional CAE group.

Interim Associate Director, Center for Cyber Security and Forensics Education, 2014-2018
Drafted the Charter for the Center. Invited participants and assembled the Advisory Board. Completed all tasks required for designation of the ITM Department as National Center of Academic Excellence in Cyber Defense Education. Actively participated in the National Initiative for Cybersecurity Education (NICE) Collegiate Subgroup.

Associate Director of Information Technology & Management Programs and Undergraduate Adviser, 2007-2012

Curriculum Coordinator for Information Technology & Management Programs and Undergraduate Adviser, 2002-2007

Curriculum Coordinator for Internet Education, Department of Computer Science and Applied Mathematics, 1995-1999, Part time

Program Manager, graduate-level Certificate Program in Educational Technology, Department of Computer Science and Applied Mathematics, 1996-1998, Part Time

Curriculum Coordinator and Sophomore Adviser, Department of Naval Science, 1992-1994

Contributions to Teaching
Created, wrote the curriculum for, and taught the following Illinois Institute of Technology courses:

CS 493/CS494, *Senior Design Practicum* (Department of Computer Science)
This was a two-semester Computer Science predecessor of the Interprofessional Projects (IPRO) courses, taken by all CS seniors. Students completed information system redesigns for United Way of Chicago and Habitat for Humanity, and designed a campus multimedia center.

CS 567 *Computers in Education* (Department of Computer Science)
CS 568 *The Internet in Education* (Department of Computer Science)
Certificate Program in Educational Technology (Department of Computer Science)
This came out of active involvement in a K-12 Internet program run by Argonne National Laboratory.

ECOM 516 *Web Content Design and Site Management* (Stuart Graduate School of Business)
ECOM 563 *Web Page Design and Navigation* (Stuart Graduate School of Business)
ECOM 564 *Web Site Management* (Stuart Graduate School of Business)
Internet Technology/Webmaster Certificate (IT Certificate Program, Rice Campus)
Six-hour full-semester course, fully accredited at the Technical Foundation level by the Association of Internet Professionals Certification Accreditation Council.

ITM 100 *Introduction to Information Technology as a Profession*
ITMT 330 *Introduction to Information Systems and Information Technology as a Profession*
ITM/ITMD 460 *Fundamentals of Multimedia*
ITM/ITMD 461 *Internet Technologies and Web Design*
ITM/ITMD 462/562 *Web Site Application Development*
ITM/ITMO 356 *Introduction to Open Source Operating Systems* (Based on CompTIA Linux+)
ITM/ITMO 454/554 *Operating System Virtualization*

    ITM/ITMM 470/570 *Fundamentals of Management for Technical Professionals*
    ITMM 485/585 *Legal and Ethical Issues in Information Technology*
    ITM/ITMS 478/578 *Information System Security Management*
    ITM 574 *Strategic Information Technology Management*
    ITMO 556 *Introduction to Open Source Software* (Partially based on CompTIA Linux+)
    ITM/ITMS 588 *Incident Response, Disaster Recovery & Business Continuity*
    PA 538 *Information Systems Security/Cyber Crime* (with Jennifer Lin – Department of Social Science)
    PA 588 *Incident Response, Disaster Recovery and Business Continuity* (Department of Social Science)
Created curriculum for and taught the following course segment at the University of Chicago:
    Certificate in E-Business Strategy: Web Technology
Taught the following Illinois Institute of Technology courses:
    CS 105 *Introduction to Computing* (Lab instructor, Department of Computer Science)
    CS 460 *Fundamentals of Multimedia* (Department of Computer Science)
    CS 485 *Computers and Society* (Department of Computer Science)
    NS 201 *Naval Weapons Systems* (Department of Naval Science)
    NS 202 *Seapower and Maritime Affairs* (Department of Naval Science)
Created departmental guidelines, templates, and rubrics for faculty and student support
    ITM Learning Objective Guidelines
    ITM Research Paper Guidelines and Policies
    ITM Student Intellectual Property Guidelines
    College of Computing ITM Syllabus & Presentation Templates
    Information Technology and Management Research Paper Grading Criteria Rubric
    ITM Student Resources page

Publications and Presentations

Presentation: "Got jobs? Don't let HR chase your cybersecurity candidates away!" ChiCyberCon 2023, Chicago, Illinois, March 31, 2023

Proceedings: Editor, 2022. *SIGITE '22: Proceedings of the 23rd Annual Conference on Information Technology Education.* Association for Computing Machinery, New York, NY, USA. https://dl.acm.org/doi/proceedings/10.1145/3537674 September 21, 2022

Invited Presentation: "The Cybersecurity Hiring Challenge" CDM Media CIO/CISO Chicago Summit, Chicago, Illinois, May 24, 2022

Presentation: "Navigating the thickets of outcome-based education for Cybersecurity" ChiCyberCon 2021, Chicago, Illinois (virtual), April 16, 2021

Article (non-peer-reviewed): "Communicating Technology to Non-Technical Audiences" *Linkedin.com*, https://www.linkedin.com/pulse/communicating-technology-non-technical-audience-ray-trygstad/ November 3, 2020.

Presentation: "Comprehending the Crushing Cost of Complexity", LABMAN Conference, Illinois Institute of Technology, Chicago, Illinois, June 13, 2019

Poster Presentation: Dunn, Michael & J. Caruso, Robert & T. Craven, Patrick & Frost, Lorraine & Trygstad, Ray. (2018). "Proposed Cybersecurity Merit Badge for the Boy Scouts of America." 22nd Annual Colloquium for Information Systems Security Education (CISSE). New Orleans, LA, June 2018

Poster Presentation: Michael H. Dunn, Robert J. Caruso, Laurence D. Merkle, and Ray Trygstad. (2018). "Proposed Cybersecurity Merit Badge for the Boy Scouts of America:" (Abstract Only). In Proceedings of the 49th ACM Technical Symposium on Computer Science Education (SIGCSE '18). ACM, New York, NY, USA, 1085-1085. DOI: https://doi.org/10.1145/3159450.3162280

Speech: "Cybersecurity in the Home and Office" IIT Gunsaulus Society Alumni Luncheon, Chicago, Illinois, April 11, 2018

Contributing Reviewer: ACM, IEEE-CS, AIS SIGSEC, IFIP WG 11.8 *Cybersecurity Curricula 2017: Curriculum Guidelines for Post-Secondary Degree Programs in Cybersecurity* December 31, 2017

Contributing Reviewer: Association for Computing Machinery (ACM) / IEEE Computer Society (IEEE-CS) *Information Technology Curricula 2017: Final Report* December 10, 2017

Presentation: "Breaking Out the Cyber Security Workforce Framework", ForenSecure 2017, IIT Rice Campus Wheaton, Illinois, April 28, 2017

Invited Presentation: "Comprehending the Crushing Cost of Complexity", CDM Media CIO Midmarket Summit, Chicago Illinois, October 25, 2016

Presentation: "Cyber-Geography: NSA National Center of Academic Excellence in Cyber Defense Course Mapping for 2-year programs" ForenSecure 2016, IIT Rice Campus Wheaton, Illinois, April 15, 2016

Presentation: "Law Enforcement Override of Unmanned Autonomous Logistics Vehicles (Pulling over a Robotruck)", ForenSecure 2015, IIT Rice Campus Wheaton, Illinois, April 17, 2015

Presentation: "Enterprise Policies for Mobile Device Security", ForenSecure 2013, IIT Rice Campus Wheaton,
    Illinois, April 18, 2013
Presentation: "Virtualization and Cloud as Disaster Recovery Solutions", ForenSecure 2012, IIT Rice Campus
    Wheaton, Illinois, April 19, 2012
Presentation: "Security and Trust in the Cloud", NetSecure 2011, IIT Rice Campus Wheaton, Illinois, March 25, 2011

Contributions to Administration and University Service
Illinois Institute of Technology
University Accreditation Committee, 2011-present
    Co-Chair, Quality Improvement Initiative Subcommittee, 2012-2021
University Faculty Council 2016-2018
    Undergraduate Studies Committee representative, 2016-2018
University Faculty Council Committees, 1992-present
    Ad Hoc Teaching Faculty Committee, 2020-present
    Advising Committee, 2018-present
    Co-Terminal Degree Committee, 2016-present
    Undergraduate Studies Committee, 1992-1994, 2010-present
        Chair, 2016-2018
        Vice Chair, 2014-2016
        Secretary, 2023-2024
        Introduction to the Professions Subcommittee, 2013-2016
        Co-Terminal Degree Subcommittee, 2011-2012
ABET Accreditation Coordinator, Bachelor of Information Technology & Management, 2014-present
National Center of Academic Excellence in Cyber Defense Education Coordinator, Department of Information
    Technology and Management, 2014-2020
Faculty Adviser, Beta Chapter, Gamma Nu Eta - the National Information Technology Honor Society,
    2011-2015, 2019-2021
Faculty Adviser, IIT ACM Chapter, 1996-1999
Faculty Adviser, IIT Officers Christian Fellowship Chapter 1993-1999
Co-Chair, World Wide Web Policy Committee, 1996-1998
Co-Chair, World Wide Web Working Group, 1995-1996

Professional Activities
Association for Computing Machinery Special Interest Group on Information Technology Education
(ACM SIGITE), 2012-present
    Chair, 2021-2024
    Vice Chair, 2018-2021
    Executive Committee member, 2015-2018
    Chair, 23rd ACM Conference on Information Technology Education, SIGITE 2022, September 2022
ABET Computing Accreditation Commission (CAC) and CSAB, 2014-present
    Commissioner, 2021-present
    Team Chair, 2021-present
    CAC/CSAB Criteria Committee, 2021-present
        Chair, CAC Graduate Computing Criteria Subcommittee, 2022-2023
            Wrote the first draft of the *General Criteria for Master's Level Programs* in Computing
    CAC Criteria Trainer, 2021-present
    CSAB Selection Committee Member for Program Evaluators in IT and IS, 2020-present
    Program Evaluator for Cybersecurity Programs, 2018-2021
    Program Evaluator for Information Technology Programs, 2014-2021
International Society for Ethics and Information Technology (INSEIT) 2022-present
    Candidate for Board Member 2022
    Co-Chair, CEPE (Computer Ethics—Philosophical Enquiry) Conference, May 2023
Co-Chair, Women in Cyber Security Conference (WiCyS; NSF-funded National Conference), 2018
National Initiative for Cybersecurity Education (NICE) Coordinating Council, 2021-Present
    National Initiative for Cybersecurity Education (NICE) Collegiate Subgroup, 2017-2021
Cybersecurity Advisory Board, City Colleges of Chicago 2019-present
Contributor, Proposal for the Cybersecurity Merit Badge, Boy Scouts of America, 2016-present
Computer Networking and Systems Advisory Board, Oakton Community College, 2018-present
Computer Information Systems Advisory Board, City Colleges of Chicago 2016-present
Computer Information Systems Advisory Board, Triton College, 2015-present

Dean's Panel Moderator, Illinois Technology Foundation Educator Series, 2015
National Chair, Gamma Nu Eta, the Information Management Honor Society 2012-2013
     First National Chair for Gamma Nu Eta
     Hosted National Conference at Illinois Institute of Technology, 2013
Advisory Committee, Chicago Premier CIO Forum, 2010, 2015
Computer Information Systems Advisory Board, College of DuPage, 2008-present
Computer and Internetworking Technologies Advisory Board, College of DuPage, 2008-present
Panelist and Speakers Bureau member, Technology Executives Club, 2008-2015
Chair, CIS Honors Program Advisory Board, Richard J. Daley College 2004-2006
Founding Member, Council of the World Wide Web Virtual Library, 1999-2005 (founded by Sir Tim Berners-Lee)
     World Wide Web Virtual Library Naval and Maritime Virtual Librarian, 1996-2005
Association of Internet Professionals Certification Accreditation Council, 1999-2003
Subject Matter Expert, CompTIA iNet+ Certification, 1998-2000
Naval Academy Information Affiliate, United States Naval Academy, 1994-1996
     Webmaster, United States Naval Academy, 1994-1996 (First webmaster for USNA)

Significant Non-academic Professional Career Experience

Illinois Institute of Technology

Director of Information Technology, IIT School of Applied Technology, IIT Center for Professional Development, and IIT Rice Campus; responsible for managing staff and assets including all computer laboratories, faculty and staff computer assets, UNIX/Linux/Windows/ VMware/XenServer servers, networks, and multiple Web sites. 1999-2016

Manager of Client Services, Computing and Network Services (the first university central computing organization); managed staff and assets including university Web site, all computer laboratories, Novell networks, and Helpdesk services. 1997-1999

Manager, Instructional Multimedia Center; constructed the Instructional Multimedia Center, conducted faculty training seminars, provided support for university faculty use of multimedia presentation tools and World Wide Web in an instructional environment. 1995-1997

United States Navy

Operations Officer for a 10 aircraft Anti-Submarine Warfare helicopter squadron. Managed over $130 million worth of aircraft assets with 99.5% utilization of available resources. Acted as Commanding Officer in his absence. 1991-1992

Safety Officer for two Anti-Submarine Warfare helicopter squadrons. Both units experienced zero aviation or ground mishaps during my tenure in this role. Successfully implemented NAVOSH (Navy version of OSHA) from the ground up in both squadrons. 1987-1988 & 1990-1991

Information System Security Officer, Security Manager, and Information Systems Manager; responsible for acquisition, management and security of computer assets, and direction of physical and document security programs for Helicopter Antisubmarine Squadron (Light) 31. Achieved the first unit Information Security Accreditation and Certification in Naval Air Forces, U.S. Pacific Fleet. 1988-1990

Aviation Detachment Officer-in-Charge of a single aircraft unit operating entirely detached from the parent unit including two periods supporting hydrographic survey operations in Indonesia, and a circumnavigation of South America conducting anti-submarine warfare and anti-surface warfare joint operations with local navies. 1986-1991

Student Control Officer (equivalent role to Dean of Students/Academic Dean) for Navy Advanced Undergraduate Helicopter Pilot Training at Helicopter Training Squadron 18; instructed advanced helicopter students both in the cockpit and in the classroom. Coordinated all postgraduate assignments; arranged and conducted all graduations; managed student grading standards. 1983-1985

Current membership in scholarly and professional organizations

(See Professional Activities above for offices held)
Association for Computing Machinery (ACM) + SIGITE, SIGUCCS, and SIGSAC
International Society for Ethics and Information Technology (INSEIT)
Military Cyber Professionals Association
Information Systems Security Association (ISSA)
The Internet Society (ISOC) + Cybersecurity SIG
Internet Corporation for Assigned Names and Numbers (ICAAN)
Professional Member, Gamma Nu Eta (ΓΝΗ) - the Information Technology Honor Society

Honors, Awards, and Certifications

Appointed to the new rank of Teaching Professor at Illinois Institute of Technology, 2023
2020 ITM ABET Self-Study selected and presented as a model self-study, 2023 ABET Symposium

Dean's Service Award, Illinois Tech College of Computing, 2021

Principal Investigator, DoD Cyber Scholarship, 2021-2022

Dean's Educational Excellence Award, IIT School of Applied Technology, 2018

Principal Investigator, subgrant of Women in Cybersecurity Conference grant, National Science Foundation, 2017-2018

Principal Investigator, Cybersecurity National Action Plan (CNAP) Investment in Expansion of CAE-C Education Programs Grant, National Security Agency, 2017-2018

Excellence in Teaching Award, IIT School of Applied Technology, 2012

Professional Member, Gamma Nu Eta - the National Information Technology Honor Society, 2011

Navy Commendation Medal, 1992

Navy Achievement Medal, 1990 and 1991

Boy Scout of America District Award of Merit, Gulf Coast Council (Florida), Blackwater District, 1984

Certifications

Naval Aviator / Anti-Submarine Warfare Helicopter Pilot / Advanced Helicopter Flight Instructor

U.S. Navy Officer Subspecialist, Information Systems Management - unproven

CompTIA iNet+ (CompTIA Subject Matter Expert)

Civic and Community Activities

Naperville Men's Glee Club, Naperville, Illinois, Second Tenor 1994-present
- Poster/Program/Publication Designer and Editor, 1994-Present
- Webmaster, 1994-2008

Wesley United Methodist Church, Naperville, Illinois, 1993-Present
- Audio-Visual Lead, 2007-Present
- President, United Methodist Men, 2000-Present
- Lay Speaker/Lay Servant, 1995-Present
- Member, Church Council, 1995-Present
- Chair, Staff-Parish Relations Committee, 2004-2008

Boy Scouts of America, 1964-2023
- *Three Fires Council, Illinois*
- Scout Troop 100 / Venture Crew 100 Chartered Organization Representative 1997-2009, 2022-2023
- *Gulf Coast Council, Florida*
- Unit Commissioner, 1982-1984
  - Awarded District Award of Merit, Blackwater District, 1984
  - Organized and chaired Blackwater District Diamond Anniversary Camporee
  - Organized and conducted Chartered Organization Representative training
  - Completed Woodbadge Training Course, SE 367 (did not complete ticket due to military orders)
- *San Diego County Council, California*
  - Cub Scout/Boy Scout/Explorer 1964-1973
  - Junior Assistant Scoutmaster, Troop 709, 1972-1973
  - Senior Patrol Leader, Troop 764, 1971-1972

United Way/Crusade of Mercy of Chicago Information Technology Committee, Chicago, Illinois, 1996-1999

Naperville Area Chamber of Commerce, Naperville, Illinois 1995-1998
- Member, Technology Leadership Committee and 1996 Technology Expo Planning Committee

Christ United Methodist Church, Norfolk, Virginia, 1991-1992
- Children's Choir Director and Sunday School Teacher

Cameron Highlanders Pipe Band, San Diego, California 1988-1990
- "B" Band member

Wesley Memorial United Methodist Church, Pea Ridge, Florida, 1983-1984
- Charter Member and first Choir Director

First United Methodist Church of Milton, Milton, Florida, 1982-1983
- Choir Second Tenor and Bell Choir member

Faith Lutheran Church, Vista, California 1964-1981
- Children's Choir Director 1980-1981
- Sunday School Teacher, Shepherd of the Valley Lutheran Church, Oceanside, CA (mission), 1972-1973
- Folk Choir Baritone 1969-1973

Naval Air Training Command Choir, 1977-1979
- Second Tenor and Barbershop Quartet Lead Singer

Civil Air Patrol Cadet Squadron 47, Vista and Carlsbad, California, 1968-1973
- Cadet Commander, 1971-1973