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[Source: New York Times](#)

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[NJIT Earns Highest Research Rating \(R1\)](#)

[Source: Carnegie Classification](#)

[We're a nexus of education and research - where students engage with computing and innovation.](#)

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Monday | 6:00pm
CS 100 Midterm - Junilda Spirollari
Kupfrian Smartcart Classroom 105
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Latest News

Monday, March 24th 2025

NJIT Highlander Model Rocket is a Transformer, Becomes Drone, Lands Itself

Monday, March 17th 2025

NJIT's Bader, Who Helped Invent Modern Supercomputing, Gets HoF Honor

Thursday, March 13th 2025

Gender's Role in Climate Change, AI Highlighted at NJIT Women's Tech Conference

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CS@NJIT
Leading Faculty
Carnegie R1 Institution
Highly Ranked for
ROI
Expertise
Software Security
Infrastructure Security
Cyber Law & Policy
Location
Newark,
Jersey City

,
Online

Minutes from NYC

Open to the World

Program Summary

The M.S. in Cyber Security and Privacy (MS-CSP) provides a strong foundation and advanced technical expertise in security, p

The program features an additional

Cyber Defense Option

that produces leaders with communication and management skills complementing their technical expertise. This option is design

NJIT's Cybersecurity Research Center is designated by the National Security Agency, as a

National Center of Academic Excellence in Cyber Defense

recognizing the university's ability to train students in defending high-value computer networks.

Curriculum

Demand in Cybersecurity

The cybersecurity field is experiencing unprecedented growth. The U.S. Bureau of Labor Statistics forecasts an exceptional
33%

growth rate for cybersecurity jobs from 2022 to 2032—more than ten times the average growth rate for all U.S. occupations. Th

Program Details

Admission Prerequisites



The MS program in Cybersecurity and Privacy requires an undergraduate degree in computing. At a minimum, such a degree m

UCSD: Introduction to Discrete Mathematics for Computer Science

Google Data Structures and Algorithms

Udacity: Introduction to Operating Systems

Coursera: Introduction to TCP/IP

For students not eligible for direct admission, NJIT offers a

Graduate Certificate in Computer Science

, which provides a pathway to the MS-CSP program. Earning the certificate with a GPA of 3.0 or higher guarantees admission in

Application Requirements



All applicants are required to submit:

Transcripts from a prior degree in computing

At least one letter of recommendation

Certificates of completion of online computing courses, are taken into consideration.

All

international

applicants are required to submit scores for the following standardized tests:

GRE

TOEFL, or IELTS, or Duolingo

Score reports

do not

have to be submitted directly by the companies that administer the tests (e.g. ETS etc.) The scores can be reported by the appl

Test Waiver:

International applicants who hold a degree from an accredited US institution can ask for a waiver of standardized tests. To requ

NJIT admissions office

, by directly emailing our staff responsible for international recruitment.

Apply Now

Learning Outcomes



After completing the program, graduates will be able to:

Describe cyber security and privacy mechanisms, standards, and state-of-the-art capabilities.

Describe potential cyber attacks and the actors that might perform them, and identify cyber defense methods to prepare a system.

Perform security review of applications, systems and infrastructure.

Design and implement system, network and infrastructure-level solutions to ensure the security and privacy of communications.

Use standard security terminology to communicate effectively with other cyber security professionals.

Understand the ethical and legal implications of cyber attacks.

Campus Options & Tuition



Campus Options

The online program is available to both U.S. residents and international students

The online rates are available only to students fully enrolled to the online program

U.S. residents can choose a combination of face-to-face and online courses

The Jersey City program is not available to F-1 international students

F-1 students can take at most one course per semester online, or at Jersey City

Tuition & Fees by Campus (based on AY 2024-2025 rates)

Online: \$34,290

Jersey City

: \$34,504-\$37,200

Newark, NJ residents: \$36,426-\$46,450

Newark, non-NJ residents: \$44,748-\$63,120

For Newark students, the ranges reflect different course loads per semester:

Highest amount: Based on taking at most 3 courses per semester, no summer courses

Lowest amount: Based on taking 4 courses in two different semesters

Additional fee savings are available for summer semester courses

For Jersey City students, the lower amount assumes the student takes two courses in each of two different summer semesters.

For details, see NJIT's

Tuition and Fee Schedule

.

For information about cost of living see

Tuition and Costs at NJIT

.

Financial Support



All applicants are automatically considered for financial support during admission, with no need for additional communication. H

After enrollment, MS students can apply for campus jobs such as grading, tutoring, research assistantships, or roles in the library.

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NJIT's department of Computer Science is the largest among all CS departments in research universities of the New York metro

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[Education](#)

The department offers a full range of degree programs in Computer Science (BS, Graduate Certificate, MS and PhD). In addition

www.abet.org

.

The Computer Science Department enrolls over 3,200 students at all levels across six programs of study and takes part, alongs

as such, it is the largest producer of computing talent in the tri-state (NY, NJ, CT) area

. The Computer Science Department is housed in a recently renovated state-of-the-art facility. YWCC is undergoing significant

[Research](#)

NJIT is a Carnegie R1 Doctoral University (Very High Research Activity), with over \$178M research expenditures in FY23. The

research

to solve real-world grand challenges in computer science and plays a key role in the NJIT Cybersecurity Research Center. The

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Researchers fix critical mistakes in mobile apps
(Medical Xpress, November 26, 2024, Iulian Neamtii)
These 3 computer science master's jobs pay at least \$120,000
0
(Fortune Education, April 28, 2023, Dean Craig Gotsman)
EarSpy: Spying on Phone Calls via Ear Speaker Vibrations Captured by Accelerometer
(Security Week, December 28, 2022, Cong Shi)
Can You Get a Master's Degree in Computer Science without a Computer Science Background?
(Fortune Education, August 30, 2022, Dean Craig Gotsman)
A New Attack Can Unmask Anonymous Users on Any Major Browser
(Wired, July 14, 2022, Reza Curtmola)
The Latin of Software Code Is Thriving
(The New York Times, July 6, 2022, Caitlin Mooney NJIT Graduate)
In a Russian Cyberattack, How Does New Jersey Fare?
(NJBIZ, February 28, 2022, Reza Curtmola)
Bridging Human Intelligence with AI and the Future of Work
(Zinfi AI Visionaries Series, Featured Guest: Senjuti Basu Roy)
CBS Live recording from JerseyCTF | YWCC, NJIT

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[Description](#)

Connect with a YWCC Academic Advisor and grab a sweet treat! Stop by the Campus Center Lobby to say hello to advisors, ask quick advising questions and/or registration questions.

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[Submitted By](#)

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MS Computer Science

MS Cybersecurity

MS Bioinformatics

MS SW Engineering

PhD in CS

Computer Science 2025

The trajectory of Computer Science has been revolutionary, and computer scientists have consistently transformed how we live.

At its core, Computer Science is the foundation for computational thinking, a powerful problem-solving skillset that involves breaking down complex problems into smaller, manageable parts.

Studying at NJIT

NJIT's Computer Science Department stands out in the NY/NJ region as part of the Ying Wu College of Computing, the area's only college of computing.

Essential Information

The curriculum and requirements for the BS in Computer Science are available in the

BS-CS catalog

. A more detailed list of courses offered by the Computer Science department can be found

in our course catalog

. CS students can also explore a wide range of

computing courses

offered by other departments in the Ying Wu College of Computing. To stay current with rapidly evolving technology, we regularly offer

special topics courses

covering emerging areas in computing.

Accreditation



This degree program is accredited by the Computing Accreditation Commission of

ABET

.

Learning Outcomes



After completing the program, graduates will be able to:

Analyze a complex computing program and to apply principles of computing and other relevant disciplines to identify solutions.

Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the problem.

Communicate effectively in a variety of professional contexts.

Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.

Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.

Apply computer science theory and software development fundamentals to produce computing-based solutions.

Program Objectives



The objectives of the BS in Computer Science program are to prepare the student so that three to five years after completing the program, they will:

Be participating in and leading the development of innovative computing solutions, advancing computer science through research and development.

Be applying ethical principles and a global perspective to design computing solutions that address societal challenges and benefit society.

Be lifelong learners and adaptable professionals at the forefront of the evolving computing field by pursuing professional development opportunities.

By The Numbers



Bachelor's Degrees Awarded

259

2024

229

2023

189

2022

222

2021

177

2020

167

2019

Total Enrollment

1,697

2024*

1,700

2023
1,533
2022
1,336
2021
1,238
2020
1,046
2019
Senior Students
349
2024*
366
2023
362
2022
311
2021
299
2020
274
2019
Junior Students
513
2024*
450
2023
394
2022
380
2021
328
2020
276
2019
Sophomore Students
378
2024*
342
2023
313
2022
286
2021
255
2020
211
2019
Freshman Students
457
2024*
542
2023
464
2022
359
2021
356
2020

285

2019

* Projected numbers for 2024

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Program Summary

The M.S. in Software Engineering provides comprehensive expertise in designing, building, and evolving large-scale software systems. Unlike tasks that can be automated, software engineering requires complex problem-solving, stakeholder collaboration, and architectural vision.

Curriculum

Industry Demand

The software engineering field continues to experience strong growth as organizations across industries increasingly depend on software. The projected 17% growth rate for software developers and engineers from 2022 to 2032, much faster than the average for all occupations. This demand is projected to continue through 2032.

growth rate for software developers and engineers from 2022 to 2032, much faster than the average for all occupations. This demand is projected to continue through 2032.

Program Details

Admission Prerequisites



The MS program in Software Engineering requires an undergraduate degree in computing. At a minimum, such a degree must include coursework in:

MIT: "Missing Semester"

Google: Data Structures and Algorithms

Coursera: Database Management Essentials

Stanford Online: Compilers

UC Berkeley: Software Design Patterns

Udacity Full Stack Web Developer

For students not eligible for direct admission, NJIT offers a

Graduate Certificate in Software Engineering, Analysis & Design

, which provides a pathway to the MS-SE program. Earning the certificate with a GPA of 3.0 or higher guarantees admission into the MS-SE program.

Learning Outcomes



After completing the program, graduates will be able to:

Design and implement large-scale software architectures that meet complex business requirements

Apply modern software development methodologies and tools throughout the entire development lifecycle

Evaluate and improve system performance, reliability, security, and scalability

Lead software development teams using industry-standard project management techniques

Make informed technical and architectural decisions balancing business needs, technical constraints, and future scalability

Integrate software engineering principles with emerging technologies including AI and cloud computing

Campus Options & Tuition



Campus Options

The online program is available to both U.S. residents and international students

The online rates are available only to students fully enrolled to the online program

U.S. residents can choose a combination of face-to-face and online courses

F-1 students can take at most one course per semester online

Tuition & Fees by Campus (based on AY 2024-2025 rates)

Online: \$34,290

Newark, NJ residents: \$36,426-\$46,450

Newark, non-NJ residents: \$44,748-\$63,120

For details, see NJIT's

Tuition and Fee Schedule



For information about cost of living see

Tuition and Costs at NJIT



Application Requirements



All applicants are required to submit:

Transcripts from previous degree(s)

At least one letter of recommendation

Statement of purpose

All

international

applicants are required to submit scores for the following standardized tests:

GRE

TOEFL, or IELTS, or Duolingo

Test Waiver:

International applicants who hold a degree from an accredited US institution can ask for a waiver of standardized tests. To request a waiver, please contact the NJIT admissions office.

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[Elisa Bertino](#)

[Purdue University](#)

"The Persistent Problem of Software Insecurity"

[
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March 28, 2025
Varun Narayanan
UCLA

"Perfectly/Statistically Secure MPC over Layered Graphs with Optimal Corruption Thresholds"

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[Zoom Link]

March 25, 2025
Fan Yao
University of Central Florida

"Understanding and Enhancing Microarchitecture Security in the Era of AI and Emerging Hardware"

[
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March 14, 2025
Yuchen Zhang
New York University

"Combating Cyber Attacks by Securing the Software Lifecycle"

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March 12, 2025
Arka Rai Choudhuri
Nexus

"Foundations and Advancements in Cryptographic Proofs"

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March 10, 2025
Yossi Oren
Ben Gurion University of the Negev

"All Computers are Identical, and Other Lies we Tell Ourselves about Computer Design"

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March 7, 2025
Imtiaz Karim
Purdue University

"Systematic Security Analysis of Cellular Network Specifications and Implementations"

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March 6, 2025

Chongzhou Fang

University of California, Davis

"Cloud System Security: From Cloud Orchestration to Hardware Attacks"

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Jiaxin Guan

New York University

"Space Jammed: Cryptography against Space-Bounded Adversaries"

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Nusrat Zahan

North Carolina State University

"Evaluation of Security Controls Toward the Enhancement of Software Supply Chain Security"

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Rajeev Alur

University of Pennsylvania

"Neurosymbolic Programming"

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Takuya Ito

IBM T.J. Watson Research Center

"Measuring artificial intelligence through a science of generalization: Perspectives from computer science, cognitive science, and neuroscience"

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Shinan Liu

University of Chicago

"Weaving an Intelligent Net with More Connected, Accessible, and Reliable Machine Intelligence"

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February 13, 2025

Kieran Murphy

University of Pennsylvania

"Restricting information flow in deep learning for interpretability and insight"

[

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February 12, 2025

Haotian Zhang

University of Texas at Arlington

"Advancing Binary Code Analysis: Bridging Foundational Techniques and AI-Driven Innovations"

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February 10, 2025

Sebastian Zimmeck

Wesleyan University

"Implementing Privacy Rights on the Internet: From Laws to Systems"

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February 7, 2025

Soneya Binta Hossain

University of Virginia

"Solving the Test Oracle Problem with Program Analysis and Generative AI"

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January 31, 2025

Yanxue Jia

Purdue University

"User-Centric Privacy via Cryptography"

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January 29, 2025

Jingxi Xu

Columbia University

"

Robot Learning with Sparsity and Scarcity

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January 27, 2025

Mengyu Liu

University of Notre Dame

"Enhancing Safety of Cyber-Physical Systems in Real Time"

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Shivvrat Arya
University of Texas at Dallas
"

Neural Solvers for Fast, Accurate Probabilistic Inference
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January 22, 2025
Hau Chan
University of Nebraska-Lincoln
"AI-Empowered Collective Decision-Making for Improving Vitality of Communities"

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December 11, 2024
Ahmed Tanvir Mahdad
Texas A&M University
"

New Frontiers in Authentication and Side-Channels in Emerging Platforms: 2FA Attacks, Sensor Exploits, and AR/VR Security
"

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December 10, 2024
Yihan Du
University of Illinois at Urbana-Champaign
"Why is RLHF Data-Efficient in Policy Optimization?"

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December 9, 2024
Tsung-Chi Lin
Johns Hopkins University
"

Designing User-Centered Interfaces for Human-Robot Interaction
"

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November 20, 2024
Bhavani Thuraisingham
The University of Texas at Dallas
"Trustworthy Artificial Intelligence for Securing Transportation Systems"

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October 23, 2024

C. Mohan

Hong Kong Baptist University, China; Tsinghua University, China and Former IBM Research Fellow, USA

"The Data Landscape: Trends and Directions"

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October 16, 2024

Divyakant Agrawal

University of California at Santa Barbara

"Trust in the Untrusted World?"

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September 30, 2024

Christos H. Papadimitriou

Columbia University

"Building a brain"

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September 11, 2024

Divesh Srivastava

Database Research at AT&T

"Towards High-Quality Data for Responsible Data Science"

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May 8, 2024

Xiali (Sharon) Hei

University of Louisiana at Lafayette

"Investigate and Mitigate the Attacks Caused by Out-of-Band Signals"

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April 26, 2024

Shahram Ghandeharizadeh

FLSLab

"Intelligent 3D Multimedia Displays using Flying Light Specks"

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April 10, 2024

Zichen Gui

ETH Zurich

"Why Designing and Implementing Encrypted Search is Hard?"

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April 8, 2024

Liang Wang
Princeton University

"A Holistic View of Internet Security"

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March 25, 2024

Bahruz Jabiyev
Dartmouth University

"Security Challenges of Distributed Content Delivery on the Web"

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March 20, 2024

Nikolaos Tziavelis
Northeastern University

"A New Generation of Query Processing for Advanced Data Analytics"

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March 11, 2024

Guannan Wei
Purdue University

"Types and Metaprogramming for Correct, Safe, and Performant Software Systems"

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March 4, 2024

Kaushal Kafle
William & Mary

"Investigating the Latent Security and Privacy Risks in Consumer Software Systems"

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February 28, 2024

Moshe Vardi
Rice University

"AI and Democracy"

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] February 26, 2024
Tapti Palit
Purdue University
"Program Analysis for Software Security"

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February 14, 2024
Yanan Guo
University of Pittsburgh
"Security Vulnerabilities in Modern Computing Hardware: Causes and Consequences"

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February 12, 2024
Muslum Ozgur Ozmen
Purdue University
"Achieving Compositional Safety and Security in IoT Environments"

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February 9, 2024
Yan Long
University of Michigan
"Privacy and Security of Sensing in Cyber-physical Systems"

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February 5, 2024
Ning Luo
Northwestern University
"Going From Strength to Strength: Synergizing Formal Methods and Cryptography"

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January 31, 2024
Konstantinos Kallas
University of Pennsylvania
"Programmable Software Systems for Correct High-performance Applications"

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January 25, 2024
Tomer Galanti
Center for Brains, Minds, and Machines at MIT

"Fundamental Problems in AI: Transferability, Compressibility and Generalization"

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January 23, 2024

Arslan Khan

Purdue University

"Securing embedded systems using compartmentalization"

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January 19, 2024

Hyungsub Kim

Purdue University

"Defeating Cyber and Physical Attacks in Robotic Vehicles"

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December 13, 2023

Ziming Zhao

SUNY Buffalo

"HOLMES: Holistic and Hardware-assisted Control-Flow Security for Microcontroller Systems"

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December 11, 2023

Huining Li

SUNY Buffalo

"Privacy-aware Computing in Mobile Health Systems"

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November 20, 2023

Michael Houle

New Jersey Institute of Technology

"Local Intrinsic Dimensionality and Machine Learning: The Dynamical Systems Perspective"

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November 15, 2023

Murat Kantarcioglu

University of Texas at Dallas

"Securing Big Data in the Age of Artificial Intelligence"

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September 13, 2023

Marek Rusinkiewicz

Dean Emeritus NJIT

"From AI to Cybersecurity (and back?)"

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March 31, 2023

Chenghong Wang

Duke University

"Balancing Privacy with System Guarantees: Key to Practical Private Databases"

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March 21, 2023

Dr. Behrooz Omidvar-Tehrani

AWS AI Labs

"Data-Informed Interaction Learning"

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March 10, 2023

Saurabh Kadekodi

Google

"Designing Exascale Distributed Systems"

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March 3, 2023

Simon Oya

University of Waterloo

"A principled approach to privacy design"

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February 22, 2023

Constantinos Chamzas

Rice University

"Learning and Planning for Robotic Manipulation: Bringing Theory to Practice"

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February 21, 2023

Juan Zhai

Rutgers
"Software Quality Assessment via Specification Synthesis"

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February 17, 2023

Nathan Malkin
University of Maryland
"Privacy for Proactive Intelligent Assistants, or: How To Design for Something That Doesn't Exist (Yet)"

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February 17, 2023

Jacques Klein
University of Luxembourg
"A Journey Through Android App Analysis: Solutions and Open Challenges"

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February 9, 2023

Michael J. DeLucia
U.S. Army Research Laboratory
"Machine Learning Enhanced Network Security"

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February 8, 2023

Jessica Shi
MIT
"Bridging Theory and Practice in Parallel Graph Processing"

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February 6, 2023

Kasthuri Jayarajah
Center for Real-time Distributed Sensing and Autonomy (CARDS) at UMBC
"Designing Systems for Collaborative Intelligence in Pervasive Environments"

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January 27, 2023
Sri AravindaKrishnan Thyagarajan
NTT Research
"Cryptography For Fast and Scalable Distributed Applications"

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January 23, 2023
Seyedhamed Ghavamnia
Stony Brook University
"Attack surface reduction through system calling filtering"

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January 18, 2023
Anrin Chakraborti
Duke University
"Cryptographically Secure Systems for Modern Applications"

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December 7, 2022
Zhihao Yao
University of California, Irvine
"Doublethink Vulnerabilities and System Security"

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November 16, 2022
Michael Houle
The University of Melbourne, Australia
"Local Intrinsic Dimensionality: An Extreme-Value-Theoretic Foundation"

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November 3, 2022
Dor Bitan
Simons Institute for the Theory of Computing at UC Berkeley
"Using Zero-Knowledge to Reconcile Law Enforcement Secrecy and Fair Trial Rights in Criminal Cases"

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September 21, 2022
Avigdor Gal
Technion - Israel Institute of Technology

"Loch Data and Other Monsters: on Creating Data Ecosystems, the Intelligent Way"

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April 29, 2022

Indrakshi Ray

Colorado State University

"Cyber Security of Embedded Networks in Heavy Vehicles"

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April 27, 2022

Robert Kozma

Center for Large-Scale Intelligent Optimization and Networks

Department of Mathematics, University of Memphis

"Energy-Aware Intelligence: Biological and Technical Systems"

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March 30, 2022

Daniele Panozzo

Courant Institute, NYU

"Black-Box Finite Element Analysis"

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March 9, 2022

Samira Mirbagher Ajorpaz

UC San Diego

"Proactive and Adaptable Architecture for Security and Performance"

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March 4, 2022

William Hallahan

Yale University

"Automated Approaches for Analysis and Synthesis"

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February 28, 2022

Jiaoyang Li

University of Southern California

"
Intelligent Planning for Large-Scale Multi-Agent Coordination
"

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February 25, 2022

Jin Sun

Cornell Tech, New York

"Visual Analysis of People in Context"

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February 23, 2022

Yueqi Chen

Pennsylvania State University & Northwestern University

"

Securing Operating Systems Kernels with Fewer Shots

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Dongkuan Xu

Pennsylvania State University

"

Resource-efficient Deep Learning: Democratizing AI at Scale

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February 18, 2022

Souyoung Jin

MIT

"Cross-Modal Learning for Video Understanding"

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February 14, 2022

Pratik Soni

Carnegie Mellon University

"Foundations of Advanced Cryptography"

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February 11, 2022

Martin Kellogg

University of Washington

"Verification for Working Developers"

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February 9, 2022
Cong Shi
Rutgers University, NJ
"Security Vulnerabilities and Defenses in Emerging Mobile Applications (AR/VR and Voice Assistant Systems)"

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February 7, 2022
Song Li
Johns Hopkins University
"Dig Deeper - Mining Object Related Vulnerabilities via Static Analysis"

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February 4, 2022
Junqiao Qiu
Michigan Technological University
"Model-Centric Speculative Parallelization for Scalable Data Processing"

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February 3, 2022
Meisam Mohammady
CSIRO Data61 & Data Science Institute at Columbia University
"Novel Approaches to Preserving Utility in Privacy Enhancing Technologies"

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January 25, 2022
Adithya Vadapalli
University of Waterloo
"DPFs to the rescue: Applications of Distributed Point Functions to Secure Multiparty Computations"

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>/Filter/FlateDecode/Height 129/Length 54/Name/X/Subtype/Image/Type/XObject/Width 240>>stream
H m H @ & 2! ~
endstreamendobj74 0 obj<

```
>stream
H W m4v$AU$ ) [ Hx/_ KEEEEEEEEEEEEEEEE O [ + b ! s s0=
= / S . ~ _ M W \js{ &A* } 2 0ix q p ` l j * 6 f # + " m ^
k M + ! R f 5u 89 8*b& r n GpJ g j o
3 z . m ^ 2 s A t S ! P / ; # H e x _ ~ 4 Gp 4 A S
endstream
endobj 1 0 obj <
>stream
h V n 6 y L V / b " f 1 d [ k % 6 ( ( L @ b 3 3#jB l E 9qNa UA:
v l b $ F D ' - i 1 l E $ - + y K E 1 x B $ X # " d $ *
i * ) C n ! 2cwi : ~ x , 3 ( P ) | S s o ; ! C G Y 3 > A
endstream
endobj 2 0 obj <
>stream
2025-01-27T10:46:30-05:00
2025-01-27T10:46:30-05:00
2025-01-27T10:46:30-05:00
Acrobat PDFMaker 24 for Word
uuid:26e38d0d-2035-45ce-b305-3175ee4143f4
uuid:dd7fa2ae-5b70-4a6d-8aa9-68c26470ebee
13
application/pdf
July 23, 2001
HSS
Adobe PDF Library 24.5.96
D:20250127154557
CIS-NJIT
endstream
endobj 3 0 obj <
>stream
h 25P0P w / / + Q 0 L ) 65
T $
endstream
endobj 4 0 obj <
>stream
h | Ak 1 T 3 7J R EX sv3b u 4 z { R * L 5 v r [ 2
c # o K U . ! + W : Gc q Q _ 3 : K 8 O g T G ) a k Jw > ! + m
endstream
endobj 5 0 obj <
>/Filter/FlateDecode/ID[<6DB897C4918102408DCF01693585A21D><3BCB42E3488B0D40A8CA865B22851BF6>]/Info 51 0 F
h bb & F L , v R ` d L @ " # d
" o
endstream
endobj startxref
116
%%EOF

---
```

Page: <https://cs.njit.edu/sites/cs/files/CS%20seminar-Yan%20Long%202.9.2024.pdf>

```
%PDF-1.7
%
1 0 obj
<
>
endobj
2 0 obj
<
>
endobj
3 0 obj
<
>/ExtGState<
>/Font<
```

[illegible]

```
>■
endobj■
10 0 obj■
<
>■
endobj■
11 0 obj■
<
>■
endobj■
12 0 obj■
<
>■
endobj■
13 0 obj■
<
>■
endobj■
14 0 obj■
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>■
endobj■
15 0 obj■
<
>■
endobj■
16 0 obj■
<
>■
endobj■
17 0 obj■
[ 18 0 R ] ■
endobj■
18 0 obj■
<
>■
endobj■
19 0 obj■
<
>■
endobj■
20 0 obj■
<
>■
endobj■
21 0 obj■
<
>/F 4/A<
>>>■
endobj■
22 0 obj■
<
>■
endobj■
23 0 obj■
<
>■
endobj■
24 0 obj■
```


[illegible]

```
|  █X█N$█1█k█l█n█m<█^█y█<█0|█d█"c█_<"█j█*█5█  
█xyQf$█"F█@*█Z█DdO█^█u█*█.█]█!█<7=█+"█J█x█m█AM█s█>P█&  
)@[█P;j'█/█x█v~█x█K~x#█~█e█L█z█f█A█3█V█  
'gG]7[s█l█f)█B█e█$]█T4█G█d█  
██>█j█-█6█V(█.█  
Wt█s█$█v{█P█R_█D█  
█c[d█mK-█16Hb$█M█n█D$█P█K█^█&█M█qn█K█<█z█~S█Vt█gK█  
*█4█'█V█\█XY(█  
Z█?█R█,█^█s█/█k+█Q█G█O█o█H█+{█T█?█m█>y█ÿ█$█ (█P█)t█  
^█`█NT█j"█R█Ru█  
█J$w█QNu█Y█l█%ly\█"█IX█`█Gs█x4█3█\N█r█IXO█Uov█6l9f█  
█<█Q█LT█Q█Y█b█M█M█;█)█'█W84█{█#=█e+█>█`█}█r█'█~W█$█)█  
█*█C8█R█ahlo█8█&l█0█b█-█D█F█X█f█h█jaCA4█} &l█b█_n█'Tc█  
h█U█1█z█o@█o█e█&█hV█b█gr~5█C█s█  
█c8█(z█y█9█{█oA█p):vc█NIF█,k█U90  
█j█$█R█LM█H█Wt█C█N█I█E2█)█Jx█qU█SE█j█%)%F█#█Ue█  
`5█rr█_█o█Z█|n*█;█? .4#W█6█]█_█^█>█<█j█h█3-█T█+█o█.█e█-█!7#<:  
\█n█f█M█yFH█(█$█K█(GG)M█Fi█5█h█&█s█GC█F█h)█j█v█(█Q█j█  
[rk█  
█\U█o█f█UT█j kb|A█:N█-█t█ E'█6J█As█h█7vx█Dc█=█^█/_█  
█|█a█<l█w)█a█//█of7█=n█~█w█y█{^Kd3█_TY█_s█dU█m█t█1g█E█  
█Q█N█&=█1;█ptvZ█T█anv█z█~█q█l█2█r█rφ█E█U█f~█E█s{█E█3█1Ls█  
█n█n█J█6█i█&t█SK█CA.D█/y█OO█^4█s█g█W█oz█0█9█~█|█;█  
█VF█XLg█i█&5>█$█*1^█d█  
█j0?█m█wC█r█Q5█U█kkk█UC█;█<█j█\ykl█3█u?t█[█]A█|█9█:D█  
█B█[█H█"K█e█G█o]█e█B█L+█Z█&6█j█:m█_SSZ█9█J█i5█R█6█YNl█_x█  
█whG█Gk█'█k█g█gh█.█/█x█a█-Hb=█y█M█hRB█/r█<█O█#█}█a█<█N█fy█ )█'  
F█&█"ä█S█#-█@7n█C9█=█E#C█-9█*bplp█n+█ZJ|█r█a█=█T█5█{k█R█r█  
█B█f?*█ p█d#█-L█T█&█X'█R█jpg█w█ ++█M)█_QT█d█Ar█Ma█4U@█9█:█#E█  
  
"█!█&L█(█Y1|i█*█(█%█x█a█9Bx█oUZ'█IA█@█.█e█  
█aDc█jN█  
█F█JwO;█h;^█L█V█C█n%█&█$;G█wK█2█zto█X█U$Uvr█1█IR█8█  
█V█  
q█pJ█@dC█"9█  
o█U%█>Q█=58█#█`█T█F█LD'█R█Vt█{█jCo█@█=$!█2█q)█  
█S█d█q64█*a█(█s÷█q█~█fZ█g█#█Q)█_█x█A█6█!█Cq~j█x█&█C█  
!█.\<$█)█]█  
█V█Rk█Y█].█WW█9█$█@=█U█|3█V9█V█h█0~█H)█|█&█*█A+█  
DK[█EX?█N█:█$█'█!█  
█p█y█S█n|█U█N8█P█,█)|█_█nS█?█}w█s█N█>o█LV9█=+█+n█U█  
█w█'█C█[:g█/VU█Ry█'█g█K█>█2D█}█7█4;~█.p]█  
█+█)█:█<█C█g7█a█b8Ω█k█H█&k█Z█}█S█=█6█+█e█:█wRh█oq█n|7{█pT█r█  
d^█Q█%b█D█  
█H█,C█:█T█e█K█(█g█s█{█|6█\█IH6█'4█r█(█j█((█@<@D█P█Z█V█#█m█  
█N█.$█r█D1jF█T█jK^J█fY█R█k█b█#█2█CU█c█6u█5Y█b█  
█x█z'6;+█E'█e█A█U█^█9█_<6s█"█%█9B-l█7a█j{█d█x)1█NI█  
_█{█u█bo;█}█D█N)█%B-█k█b?P~█  
q█N█11█W█V█CT█  
24█F█L█CYF█h█H█ð█|"█EP█V█r█$u$F█B█4█B█[,█)█H█/  
█q█^█4R█#A█X█jkm█  
ax█m█7█w█p^b|█|█C█eKs.S.5█$M█_█-r█L█S'$0█P=yN█e█u█<█XY█\c5Vu█)V█L█N>)█=█  
Eb█` (█E█hl█dl█e█(>█R<█+█n█4█,-<█>█8wb█'█+A█%q█H█g█.█;H'█t█  
q█!qD█*D█E█y█8█c█$█lb█0█!█d█1█`R█>█0N█)█CX█%0Di2█d█,█G%.  
█4Y█u█+█iJ█gY█cjKbcY█(█u█me█m)█Z█e█M█s#█*l{█0^}█M'█hE█*{█8z█Oe█`  
>g█%█v█;il█'█\█|2p█8█MU█,i"█N█$█@█;█-bz:█p█vuf█\█_9u█S█$█KW█0█  
06█)~N█e{█y█3█^w█J█9█U█U█"█<█Q█3]  
█k█ow█|█/m{█o█?█o█o█M█3█LP█R█h█
```

p2 @|C|+2T2T2'A]R[]c"Nzm-VqR%iqYTk)\$7eif
 NJN:1==}c^O||jSX(s
 8AF||pV|A|Q|F%|K|c|5[|iL9||~|H|X+|5|2|H|X#|{||Di+|
 \$(|G|2||v||P||>|y:|8||#|8U||G|4|d|87|*|;||%||>||^_|p|OV||<|XL|
 T||X||=||p||e:|R|k|nN||u||!||r||q|7||>|@p|z|b|NIT"[R|E||~|;||
 yr|y||5||{||v||{||o||+|
 1||j|l_|||j|t|GW||*||>:U4"||^N|X|l||~6||_||G#||?||[||'|||y|
 ||t|3u|5||
 o{c_|||a44xB||/{||?||'RY||2|Bu||P-8_|||wH|O|y|H+c_|!&v|L||1|OUkDQj|h)W||
 ||{||f-Y|g||!|n:|8||Sz:|)||L||)=F||2b||JE|x|-||8iMmM||-7||r||yH||k|v||2||
 1||1;fZ||V||a||i||u||/||D#8<|'|:||:DL||/||G||M||iEp|A||\$||#02=N|
 4d|!|7H||a_|.||/||!M||"||a||Z||O||a||y||h||zd|[c|M||C||;||
 ||f||R||f||ko||p%|7||d||
 "G|h||}||kt'|2L1|O||j*r||'r||D|W||(|j|=L||Bi||5||9||.||{||0||}||Bi||
 k||`%||r||!||_|||y|
 c|XQ||eNZ||YQ|c8E|r|1f||8Y||m||!||A|o||h|'g|&|S9||H|&||M5.0/|f|K||μ|m|j~|
 r||HYc|3K|g||k||\$|+||p||M||M||`>||%|&||<+J|+||D||"I||~i|B|7L3||
 m||8%|B<||@||J#n~ZR3\$x|t'|.||<||\$=L#||vx"xb|q*b||"||a!||z||W*|d|o`<||
)||^|#||0;@||l|0||K|N||P||<||W?X=||
 /~||i||mg||\x||!u||!M||K~r?|v|W||VC||A|C||=||\$||A@||(!||C||h(h||d4|
 u|te|h'|t||)!!||#|pG|:C||l;||k||.<||\$|3||+<||y'|T||,|1||/||o||s||_||
 ||z|z^~E||m)*||:||a|\$||'4|(|r|2|h||5Z||5||B||H||[8f||S||%K||n||9||
 ||s|k||K|2|n||[||]l~W||G|Q||%||o||.||e||7||xv9||}||":||
 5E8_|σs|9|\b|^M|-,||~||x|J||X/d||?||A|K||z(G|!%b||*R|D||\$)||d|P|O|J~||K||
 ||f|g||^|1M_Q||'||8E||0&||D||!|N|pW||a||bz`||;||RDL||8||=||K||.||[||
 e||s|Bv||d^<t||R||6||St|(D||OMK||`||#||.||i|y|
 b|D||o||.}|6|||""S||&||m|J||+||!||[||h|j||G||!|6n\{||-Z||M||afj||a||_||p||
 (|s||sl+||t||D|||)|'ζ||πs||&Nnd||_||s|t|P||c||8F||ct||e.g||
 ==||>||6|||k||B|||w|Kw|r|mW||(|b|#W||C||@U||F||h||2A||N||%||
 :^hi||zls|l'|5|6X||=|V||)||m|JS|gO||s||d|L|\$3||H&||B||!\$||2||
 %||/j||@0V|o|Vj||z|-||[|T|W||;||0||P||o||u||:||X||o|v?ww||%|Cv||C||
 {P||Q||?||b||M||Zqx||^||}||A|[z||l||5~|uAu|4\$C||1Q||jk||b||8||%||~||K||
 R||)|T||=||R||Z||c||J||_:||4'|n||
 \$|%|el||_||5||J||QL<||O1||:|||w||m||;||>||lr||n||uij_x||
 /n||8kh||y8||@'|,||-||{gU||'||%||^S_|||ob||U7||W|6|8~||M_|,^4p||
 H||~||k|=||2`|k|h|SF||@A|y|V||%|8|qY#||}||eW0vJ||H||(|b/wl||d||*||A||
 y||>||?q||E~||g||;||"||s|B||V||V|TyL||*|6||^||
 P)|@||X|g|k%V||hU||/||a||n~qPK|Z|h|1|S|mj|V|:<|*,|V||1\$-||c||T||L||)-b|naqA|+||3|l||
 _L||o||T||_W||r:QGt|=0||GsO||w@||6||q||}||o||[||{||7=M||1||"9||h||
]~oo||~||q||d||SHX|89u||U|9||\||Y||uK||2||k||,_U|||?|W||x||
 a|S||o|J||C|h|p|43||sY||D|2||+w|^|=||t|1||h||k||{||H||5'|8||+||
 4||Z||]||?||j2||A||5ya(|T||JXJ@|M||L||S||Pr||hu|t||.||18||!||;||q||
 CN|b||Q||/||yp||)RHlrm2||7||l||IP|C||5||nN||gV|^||-||\||\||O||e||YY||
 <||p||N|r||u|v|q|Ng||.||_k||>||t||M||]S|N|z||&q|b||&m||?||(|j||&||[||#||-||@||,||~||/||
 b|jRD|^Y||j||':||-||^||[||\$||C||s|m|A||{||F||K||,||w||_sW|Px||]||8||G||
 |y|<||+5||Z||cK||J||_||\$||Om|a||ECwvu||F||^w||c||4||7||4||M_|Q||J||
 ||||(|i||@||&||Dd|=||J||Vo||%|[||+,O||#||H||4=||hm||O||\||rr||V||X|0||+||
 T||+||uWICbj|L||>||=||-6||9|b|=f||v||e&||O||[~||;||K||f||^AZIZ|3|/P||
 ^||y#3:<||OJ||jZ||;||6||
 G||&||%?|4||b|d;|||(|(|?|G|7||g||v:z:Z||nU|cV||,||6||,||U|A||X||1||"||_||
 \$||~||[|W||1|c|W|J||^X|-)||U||hE|Y|U||e5||Z||g||`||xw|||Zk||
 6||{||`||Na|KN|Ne||0||>||JNe||+L||\$||rZ|-||AE||O||it6||f||e,||
 L|r|\||Wp|n||r||+Y||aL||N,||c-||@||,||r#,||0||?||YK|B||i||%||A|76|r||}||~D|7||
 2||%|z||S||!F|Do||w||o||f|8||\c|iY|i||>||)||f|d||y>||bXK|v|||'|{||Q||[||:z||GL||
 f||@||P||z||=||:É||F9||e|ga||>||3|)|||_|f||<||x'|a||k||y||
 w|XTPX"||PX\||w||E||ok||_||N|y|(<||J|Y|9||"||
 d7w:|N|t!|N'|J9{|^8||Et#|WQ||x|t||\$q||G||d|7||3||N|M||J||[||@||p||J||!|q|R||
 H%|T||c9hw|OK||S|&a|s|e|jt|x||>||>||M||?u||%||?||?||Qs|Qs|Qs|Qs|
 JN: |+||k|Q||+c||(|Jd#||`||7|G||\$||y|o||hyb#"||è||R||~||

```

#####h#####q:#####2#####h#####O#####B#####6#####k[k#####b#####aEd\#####&R#####3aCIK#####@#####t#####"#####8[:#f#####l#####
-BM#####JjO#####2J#R#####6#8O#####V#####l!#####t#####o[v^#####;sEj]-#####s#####E#####[#####\uh#####O#####+.#####«#####C
o#h/I#####N#j#N#qjH@#####a#####O#G#####hH#####Q?#####k#####.#####;#kSb#####[#####g#####A#####f#####}#####.#####H#####
#w#~#####80#####3#####C c#####Ye#####(
#####!#####E#####1#####-#####FI#j#####h#@9#####+#####.#####0#####v#####U#####)'pW#D[#####2$#####]!#gPeo#O#
#Zsu\#####θ#####5#####?c#M#####N#####f#+wEjG#####NNo#0<#####H#l#n#####~8#####U#M#xQQn#####$[#####Q7#J#####v#####H
#####*###########'#####s#689=I]#####h#####|#####3#####fu(#####v-zr#####wO#Z#####'<#####x######!
d#####|#####b#####.#####}#####\Bp#####j#####a#####q#####L#####,#####7#####7#-A#####~#####]q"#####_#T#####^#####"#####-#z~e#i#####l#####pB
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#ow#####@#####$#####k#9#####MT#V%#####
A#####)#####E#####(#####N#####\#####/#####~#####O#####G#g#####.#####.#####@#####-#####%#####*#####<#####~#####T#6#####C#####7#####s>#####kiw#w#####f#####[#####L#####
f&#####'D#####'#####B#I#####
#####j#####1#####e#####
]]'#####r#####9#####U#####M#####IEk#####N#####\#####A#####B#####8#T#]#####6[#####X#####
#i#####G#+#####?#####_#####$t#####z#####e#####2Hk(1#####^#####>{#####6qO#####+3#V#9#####R@#####r]#####/#####ak#####q#####F#####
#####q#V#
endstream
endobj
30 0 obj
[ 0[ 750] 3[ 278] 11[ 333 333] 15[ 278 333 278] 19[ 556 556 556] 23[ 556 556] 28[ 556 278] 36[ 667 667 722 722 667 611 7
endobj
31 0 obj
[ 278 0 0 0 0 0 0 0 333 333 0 0 278 333 278 0 556 556 556 0 556 556 0 0 0 556 278 0 0 0 0 0 0 667 667 722 722 667 611 778
endobj
32 0 obj
[ 278 278 556 556 556 556 556 0 0 556 556 556 278 0 0 584 0 556 0 0 0 0 722 0 0 0 0 278 0 0 0 833 0 0 0 0 0 0 611 0 0 0 0 0
endobj
33 0 obj
<
>#
stream
Microsoft® Word 2019
July 23, 2001
HSS
Microsoft® Word 2019
2024-01-29T13:17:14-05:00
2024-01-29T13:17:14-05:00
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uuid:B754E813-DE5E-4FEE-A8DC-13379B81A1E5
endstream
endobj
34 0 obj
<
>#
endobj
35 0 obj
<
<13E854B75EDEEE4FA8DC13379B81A1E5>] /Filter/FlateDecode/Length 133>>#
stream
x#c`#####*#####P#####3#####^#####)#####J#####L)#####C#####0#####(#####~#####)#####`Jy6#####R#####S#####j#####B!#####|0#####>#Li#A#####`
endstream
endobj
xref
0 36
0000000000 65535 f
0000000017 00000 n
0000000119 00000 n
0000000175 00000 n
0000000515 00000 n

```

0000002976 00000 n
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0000008007 00000 n
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0000061294 00000 n

trailer

<

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startxref

61628

%%EOF

xref

0 0

trailer

<

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startxref

62505

%%EOF

Page: <https://cs.njit.edu/sites/cs/files/ACM%20Fellow%20Distinguished%20lecturer%20-%20%20Speaker%20Divy%20Agrawa>

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1 0 obj

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endobj

2 0 obj

<

>

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endobj
3 0 obj
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>/XObject<
>/ProcSet[/PDF/Text/ImageB/ImageC/ImageI] >>/Annots[ 21 0 R] /MediaBox[ 0 0 612 792] /Contents 4 0 R/Group<
>/Tabs/S/StructParents 0>>
endobj
4 0 obj
<
>
stream
x[~w d xue%Y;!!u8~tT yU[l8;W@zyk wZ
>{>d |ÿl<U
37~L#E^k"l".o~J Oo?L%N x==n38%Gc wE^yY5
H P@ I{E o4R R GB ; WBF -; U K
E6j36D<7#e<y<:L>?Ar Q^`vYi sC D42OMq5x
[<Hq hG#h$ _
hj0 Gw Ai j @?|5$ Sd]l
t m)228' '\`bnO; O4 t , "N \ [ k+ 'g T & v
Qq X:1 ^ J' < Y q R S ) ^ R X i 0 g b
$eY \ X BW 9 c ; } a ] !L==/ps t EF % f [ J 2v 0 Z B 1
} , P ? N xq l P l W @ Z 8 s R | t v , z 4j ' a C x E >
D | n9 & I ^ Z M Q h * B , d 6 V G , [ L C 3 ! 1 7 B p J R s
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i e C I R z ; F V [ . 7 M n = ] Z | M Z y ) > H C 4 ' ! 5 ~ P ` ) 6 V k
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a T * V } i 2 B v y [ 1 H - ^ 4 $ N E f > Y : Y ] Z M + 5 ~ 9 v q N d
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f G g N R x \ J r # t 4 i \ n n r a 7 ' ~ P 4 W x ) W 4 l y g
n 0 I S h x / t 5 " I A } _ F D % [ M ] s Z [ K o + _ b C C m > V k k / n ! " < ; 7 ; Q
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9{wggqF*****>*****WZGQIK*****n]!pW.1*****ifssE?
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[illegible]

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■1■fMr■q■k■}■Q&■@■"■\$\$■1■m■]-■i■F+■M{■,/z■A{m■"■s{■
■H>■/■s■R■b■m■id>■o■~F~■c■<#■7■+■5■{2l■f■+p■p■X■
■(M■W■z■f■)■r■u]■,■i■7■^■m■;S■r>z■C■yC■?■a■d■V■y■C■)■koh■
■W■=Gi■z■rF■BW■"■J■(■|■_■]gW■|■:■\■p5■A■@■<■P.uD■"(■x■8■#■
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■~■A=■p.■|■[M■,■a■u■,■N■s■V}■aYU■,■f■
■X■5&■!■N■=■v■'o■|■]HZ~■{P■=■u■0■*■n■1■\$■J■}^■9■T■
■0■(>■fE■M■{■O■o■o■
■p]r■>■U■\$■)■7■\$■:■L■t■}"■*■Qy■`k■k■Y■A■2■
■y?■k■g■]p■r■g■Z■jz?■H■KP■:■@N■c^
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"U■F■4■q■i■\■r■[■3W■\G■4■P■"!■o>9P|■O■v■y■y■O■E■
■6■8■WEm■HJ■ald■:6■tln■Qix`h■`■W■W■~■o■}■E■~#■w■ld?<■
■!r■Φ■P■6■g■2KO■,]kM■,■cX;■|■A■[■y■
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j■UY)■ek2Q■2■@■
v■U■P■~X\$■T■l■6■R■F■)\$■t:■S■r■B■t■P■@■@■PH■~UP?■><■8■
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■?■UU■Dk_■<■v■uCH■KI■q■6<■tUD/■2■o■O■.N(■!■Qh■*■
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■C■,■v■*■<■!■Rv■q[■e■d■c■J■|■G■fk■f(f■t■!X■|a■`■E■r■\$:■]■9■
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26 0 obj
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T`Nn14vV6F%YzyZb<s%
isD+-gl&-qMT&Vkkx`Ekk`9`X{xivR
6QO-?||%|^x5(.=a)hvN h4!C)4UdY6"qkM9a:: @
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9D}M`nn-a vHX R::4<[. .&S Q#-fSx@
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HfzV53%er| |Y.}Q&{(*fSEo"Np=Y~N QI#>YZ
ek*.#<M%||4t6++'IXH)*~tZ[a2F*`v
`H$pfNss+kE",SRrqSp)Wvl+h6Yvhk&.=t+`C]CW6b2;
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)krrfd8rr*T
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wT#nccR}73v pjXzm oty'"}o VVq>Fp5-Us
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R Et\$ / y&z G P- " Y, @g O " O ? F & h O ~R c|x l0
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j p vC nu + Y ! ns v f i ° & V Xd PqL 2 ^] N WJ Z z # ` `
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h ? z ~ g c + b5 r , JNeGuCS S n | V } ' _ X # V o } i O jal & o V k j p
J) < Q6 V hs q A . i () | G | (! < : : V O % = | A 5 5 " z
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f G , 7 - % & o # [< o] N Z - u) L X ACT0 . [# z \$ 9 }] / Pa * z6
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O G (5 C Mmf z S > " " \$ r G ' \ T r : D H < ; D DV (Dd \$ 2 D
Mt Dw m ' = x | Ft + Bt3 MD m D Sc Q +] CyW] Et % T r J Ft) % w1 r w D n
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Page: <https://cs.njit.edu/sites/cs/files/CS%20seminar-%20Dongkuan%20Xu%20-%202002.21.2022.pdf>

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S#T#E#F#####fpM#####]:Q#Y*###3###fd#l=2F#a#####fG:n###a9Z###h#####91m#JTQ#####(##S[##;##Q#h
MG]###6#####5#####j#x#z_#(##:##^o##;##!#`b#x(#y#a#O###e#_S#####|yA##|p#####4##
Z##C#####n#(j#####s#gO#####{-,#####yt##U#####
#6H#####d#f#####x#?`###A#####^###]#1#Z#####"'y#gz#C[##9^###m#####{.##E#F#;#CaB #####
c#F##G"#####bv#####U####_#####UM#riLe0X#fu###i##C#####z###r#z[##z#####~#@#n#|S/#n7#d&###[U
:#####Z#M##,+#g###J#Qk-##/##SCK#6vA#r#Eo#7P1#@##2#####.######vl#####f<##?D##f###nz###a#A#
{#####g#+#c#[##w)q#####pi#####y#####.eJ}#;B*###RX#N#g###.####s###|<#<#R9iqZ#####zz#####}
i##|2####?#l#J#####Dd#####~9 O#g#####*#####-#####M#####"###X#Z#####;#####z#####.######J
>E##_#####3L!;m2#####-7#####0#RO##Y##Qr#e#c#GO#####f#####,%#(D.###le#k#####5y
###W###8###n####{#[#####4W#ÁE##%#jt#####%d#Rb#5####R##0#####b#R###z###i###tL=mN###M#####
#R#####1G##[##-YDK#>M#####"M#BB##)R!#m#6##e#_##>#D#nM##U#####=#]#:+}V#4#"#####
32R##-#####jFQ#d###k###Xtx###+.#.<|##~#####y#####7##Lf#>6##;#Fww#3#o~#####'q#_x|#M##q#~#
D###E#|X¼#CgJ
7;##|####zBJ*####&d###4-6####>#S#>#####7##E###7#3}#he#e#####u#3#M\#xU#U#7##My?#}#####
#####t%#V#####O###0#####r:#####u;#S`#+#H9#.R#8#RZgkK5#e#u###Y#d=#####J#V#yv###U?#
###-#A#W#####t%9##;##%y#####Z<#####l7#.#cFTaA#####@Qa)H#8##3#i`F#####0#aV#####E#=#y#5E#
M#####a#E#n#o/#9#q#-#u#####|)#####(##(###b####bt@
Y####4=#####"######s#&#iz.#####3#-#####L|A#\#####6#1~4#####|E#6#}##78###`#####c#k;####*#c# 4
#####t:Y)Zv#####;x###]###fTa2##R#|#/U#####-#E{####/#`#E#H#t###K#'###c##@P#####N###C
##3####?####~###-lhi####>
H#tn\##\###_##^#~#1#}#####oCBo###o#####"'w:p#####p#####QaP#####9#|#####j#p##RX&/W.UWEn#
#####W#E+0s&47#####<<#####HV####sT5b%U###t&#####e #N\#k###@c^######E#####Q######@k
)#e##\#####_#%|9g^#:#~#n#w/_#####>##?##g#####O#####}####
#Y####Y####/######q#~#####&C#jn###A,##E#53t3####6#JJA#|X####O#####"v#3^#e#?#>#M#7#p####}
V]##<##A##m#!#####8#####p#d#####_#/####}#####g6#5##-d#####G###W###sc#p#r##g+#58Z###xT#

```

E■N■■■■■■■■G■■■■■■F;■■D■%&XVHp4■■■■DJP■■A■■. #■&■,š■■■■■■■■L■■9■U■■■■■■■■
■J■■■p
&■\O■■■\■■t■■■"p■■R■■■■■j■MO■:■■X■?■■■(e■■■■■■'eV■■■t■■■a■■■f%■RTq■■■■■2■■US■v■■■u■■■
■i■q■Y■K■E)■■■_■u■■■Y■fy9]■■ueN■■■j[pf■-z!■■■J■f■>■^■■■■■1■■■■■■■T■■■1■■■■■■d■■tj■■■■■(■H(t<■■■
l6■{■■■p,■■■(■■i■■■■■"■■hpE■■■
<0"■ ■■■■■(■
■M■■■"■"VQn■■■jH^■■■p■(2*■G■■7■Q)■■■U■{■■■{■■dl#■N■"7■■■■■'■■■#0\■■■%■■■■■■p Lsq:■■■■■■P■■a■L
■@■■■G■■r■■■■~■■■
■■zn■O■
O■■e■x■■7u■■■■■■R■■C,S■■■■M■■■S4■■■L■■2%■X■■5■■N■■H■
■■■■■■■■|■■■■■■■■D■■PM■■■g■■■■■■■■o9■■■8$ô■■■j■,■D■(■■P■■■P■{=æz■■■{■■D■fwm)L■UA■■■■■■■■
!■■■>■\■Q■■■■■.■■■■■■■■G■R■T%■■■■■■■■■-F■■7■■■JLy■y34■■■[■■■,9■■■ILU■,V■-■9%c■C■■■■■f2U■
■-■■■■■■■■■%l■■■B■■■■■{■■q■'■■■ag_■■■■■■0]■■■■■■■■■■}■■■@■H■■■za■■?■■N■2■U■\I#■■■1w>■■■■■
@■,■■■z4R■■v■Q■u■■Rt■d■■■7,■■■■■■■_2■■■7ea■■■■■{i■■■do■■■■?■■■■■■n■■_OE■!{■■■8■■k■■■■■■■q■■■
■xQ■■■■■■■a■ ■w■■■ ■%l■X■■dZ■n%■■■bz■■■■■M■Vv7■■■■■x■■■■■■■■[y■■■k:■■■■k■■■6■■j■■m■■■■■>
■f■■■$■■■■■■■■■■■b■%■■!■,■_■■,2■t■■■■■rx
d++T■■■L.■■■S■#■■■P■$7■■■■■-■■S8■■■G■■8■FSA■■■■■M■U7y6■■■■■■■■{■{■■■^■O■■9■■■■■■■■■■{■■/■■■■■■
@A■5J■■■$s■■■■■■v■■2(■■■■■■■■v■■S■U■■■w■o■■■■■N■{*B■}■■■<■o■,i■d■%K■k{■■■a■ta■■■d■%■■■
Wh{■0■■■u■■■■■■t■■■■■■F1■■■Ëp?■q■8n■■■X%■m■■w■■ino■d■■■
■■■&%~■■■^■■■4■:CP■■■"■■■■■■■■iAd ■y■■■■8V■■t■■■■■;■Fq■■■'H■Y■■■■■■■■8r■
■"Wey-■^■■■pw■■■X■■■■■■VtO■■■]ERh■■■w■■■m■■■■■■Wh■■■■■k■k■■t■■■■■■"■■■)■■■■■M■■ h■■
■■■/■o■-■■■E:J■d■.y■J628oF■■1■■■H■#a■■■:■■■F■■■&?■U■~■@■■■w■■■W|q■■■
■■■%■■■=■■■?■■■i■`■■■o
o■■ ■■■;■■■O■■■J■`■■■h■■p■15x■qV■■■■■■r*b■■■"k■|o#tg■■■■■C■■V9■6■T■■■s■■s■■!■■■■■■U■■U■■■
Z■■■i■■■■■q■5■S■■■pX■1■X4k"■b■■■+■■■(D6*+■H>■■■■■(N■■■■■(■t■:■@%1■■■_■■|■wJ■■p$PE■■■a■■■F■
■■■■■|!■■■_■■■*■W■■■■■■/T■L■d,■■■L■■■■■■■l■■v■f■■■■■E■■■■■■■*u■~■qijEz■■N■l]■■■b■■■>}■■■Q■
F■L■■3vo■9;■■^}■/■|■3■■■■■■■■■■}■■k■]■■■■■>■■■■■■j■■^)}{x■■■■■?}1■■■U■s■■■<:■■■o■■■j7■z■Y■■■■■■
■■■■■■7■■■}■■■■■■■rM■'■E■■■■■■■_x■C■■■)■■■u■8■n■r■k
{■■■(■■■)\■■■■■■■■[■■■■■■7y■!■■■k_■fX■r<■>■■■■■j■■■■■■■■h■■■■■■N■■■■V,■■s■C■■P,■■■(■À■YAH■■■`■(d[
■■■Z■■■-■■■R■■■■■■■■,1
K■■■&■F■■■ω%xlwm■■■N%■■■7■■R■Y■■■■■■■■S■■a■■2■C■■1■S■■■[■Xh■h■U■w■■■`■■W>N■■J ■■■■■
■■■■■]■■■Nf■■■'■{■C■)■■■,■i■QR■■■}■■■,v■k■vc■7
■■■,W4■■■Su ■■■■F■■■#W■■f■■■eXk■■■1■Xa■8V■■■■■■■$+■k■■■^h^!Z■■■■■b\■v■■■■■■r■f■Z■F■■2■hf■0N■
■v■■■rq/K■"h■U■u■■■'■*■h■J■■■Qn■■■■■■sfN■■■■■■grf■■■■■■■■0■■E■■■/;■■4■a■■■■■O■■■(Y■■■u,■q|■
■g■K■J■■■■■■Dy7"■x,■■■IJ■%■■■■■■v*HI■■■■■T■q-v=■■■■t■wL=■■■a■4O■■■;■v8■@■_■M■■■n■■■2■■wwA■
■s■■■M■7:■■■■■■■■,■_y■■■G■■■a■■■aNY■■■■■^■■D=■■o[Q■SLt'■|o■■WIF■Q■■■{$■J■T■■B■■■■S■2■
■
j■9■o■■■>My■-"*E■■■■■■■■■■l■dY■■■■■■p■dl■■■,■■T■■■■■■z■■■N■R[■■■■R■vT■■Z■■■0H■■v■■■■■■9■
b's■)■■■d■■■dF■E■■■■■■%■■■;a■
J[■■■-■$'■■■[■u■$■94$■#■p(■■■e■H■3■■■b:■■■x■+■o■■■z■kP■■■{■bs■}■■■■■S■V■■■^■■■■_t■■w■■■
■Y%■v■■■■oG■V[■ZS!|.P■■T4■■■■■■■■■■■■■■E■■■
x■■■■5:■Ng■d#■J■:■rX■L■■■■Z■6■■■b■■■MG■")L■h■■■ ■■■■■■■P■■■■■■C■G■■■■■!■■■`<■■■Q■rb■■■
■u■K-■■■<■■E#■■■`o■■■■■■■■■■■■■■J>■=F■■■■■■■■■■■■■■YC■-■■O■■■l■■■$■V■■uA*■)■■■■■■■■■■■■^■■■■
■N]C/■■■
■O■■■■■>■~■■■<■y■■■F■■■■■■Q■S■D■
#■622■n■■■■■■■■R■■■5■■■■■"■■Q■DaFWL■kJE■(■*■■■■'■S■%■X■■v■}b*g■ô■■p■■■■■i■i■■■|■■■z■■,■G■Z■■■
■ma■■■■■■■■Q&■dL■■■■■MN■z■■o■■■■■■■■VKSW■O■9}■!■
■m■
■■■x■]■■■y■■■oP■??@::yH■z■U■■■g■c■■■z■■■O■■4■QTT?■■■ff■k■#kλv#■■■■■=■o■(■■■■■l■7■G■■■■■■
r■$■■■#■&J■jt3%■u■■■Bn■■W■W■■■■Z■■:■4{■S■■+h■UE■C2■SJ■$VpL■■■p■p■■Y!$■■■3X■2-^■x■G5■■HR■■■
■■■■j■■9=■h■■■■■&■J■■■■■*G■-■■■.■g■■■■■■■#s■■■\,■/■■■■■■■■■■*■s■■■
E■
EKV(
V■p■³_9V■■■E■■■]+■u&[■■■■■q■■:■~■Z■.7P■■N{■L{■L■■■■■■■■■■■■■■■■Nc:■■■<■b■■jd■■■b$■■j■■L■o■■`■■■
4■1■■■z■e■:■■■c■■!■H#■E■S■x■■■■■■Z■■:■■■■■■:Q■■■c■■5■■■\■0■@■Y■0i■■■m■■■■■q■7)■■■-■■■■V
■■■9N■■+■■y■■■H@■H■,■■■0■4■■B■■■■■#■zidCdsd(■F■■■■■■■■P■■■0■■;B6■■■Es■b■■■■■■■■■■■■■■X
$=■J■_■■2("d■■■(■`■■■■■■f■■■i7■9$~■@■Q■"VK■ZSthot■4jESN"l■■■■■■O■i{Nn■■■■■mi■e(■K■w■■r■■l■■
■■■■■■■■:■■■4■■■8■■■■f'■■■8Ka■■■P?u■■W■■■^■■*|■■■N'■■■■■■■#■■■:■lcFMc■3b■H■■■■■■■■

```

```
9||>Y%5j>y|O||5|||>||5w|MfHg|=U  
9 {P C w,CG L Kf$ L a a | My _ m 9ld:: Y,-a ) -C @ @ X4d/ZP+ Q r  
a y 1s_ |l(f p &k au K! gc zU nU nUJq N # # n Sv  
} m L p+; N6/1?W \1h* DR M t *^T ) || Gf3 # } t6 1o< J?  
V9j'sF AB `a p v5 >= k Oo + _xf M[ q ` f j 8 < w>x a L V  
B W % W T R *f | n U / ' > | "y 6 ) E P P -0 P  
 = i 3 u ; / x PC | G X I N \m z o R ; l 5 > ' W L \U d C c b  
 M ) ) [I H w k ( o o ; { f b Nt ' \ || @ ! v / q c ` ( W '$ = -q:  
 { '?# x 4 U7 & . 0 i O da ? + ; G _ ; 5 Z f _ e T $ w Uz M T q  
x n q K () # H 9 R qp K 2 a " k L. M K  
 j & fh d & &) M YC j g r % : j O j f 2 3 n *} u l C  
 @ :: m  
 Gf@} 7 ) 0X &. ('R # DT R  
v r eb 5 ] R T { $ + UV z | q T + P | Y 2 PGP R N r B ^ $.  
 q 8 l ' . T ; r. R 4  
 - 8 Jt m 9 l | L 14 s 9 Y dgf d " Z m [ hi' Jn dK F W ! p> t t % b v *  
 Of X ` 3 c K / # # * x_o * r 7g y > k t D ">" G > R q T ; ^ b 2 A  
c -L ( K Y 5 [ ] R b S Z ^ o Bc - 1 Q , Q F m w ~  
 K) H T 5 ygd q ! DA FN '+] 4 C m i X ; 4 @ ~ JC / + V . bg % * l , r 8 T &  
f + 5 || K / _ n 3 l " w % = N 5 t K < T  
 ? C X ` C : M N } ` F o x = U N % ^ - l F + kbS/Sy  
 Nk " 1 S cz T a s Z @ |  
z H , T f b ` Z . 9 UB i s + yú T ? " n  
 Q ^ H y f C d ~ ! WT VD | z h "#Z ! b X [G P 4 % l ! V Y $ X m j  
M FO 1 b NL mn 3N WR q Ja k C < 9 j O m 6 t e # ^ OO G $ @ $ o h  
 X . ' m | | _ | > . E { QG " A ) M 1 _ 1 T * # N ! J >  
 $ p 2 ' Q3 gobg") RP: 0 2 T f h) Z l & [ z m RT r e * d x 0  
 N ^ z $ r r u ? V w | ( f 0 + > pD3 . O . q , j 8 ; 6  
 $A# " u  
d ! K G > % IN ] ~ 0 d ` IRql > " U B D 3 / / 0 & 6 n ] h h g + 6 ) J  
 N q 3 U ni r (H @ * 4 : 2 u b > S JP S ' B ^ @ oe hdt b &b B  
{ 2 f g Vopj ( o 2 < RD { < L 3 A ; k L # RL c } WKK A  
 (+ W SI \ b l K s f 8 (~ L u c : Y AB 7 b # O 1 ( D $ 6 Z ` 2  
 S 6 VL V 4 * ND B 7 q P U * WA / n O WZ 8 F B @ L b - X  
 L 1 P ` q z a X v P " ( U * h C d : d v MK # Qtb Fu 6 KL G t * F  
 / b o = rd _ ; = ? Q F ( < ) D Z a F ( = [ @}  
 @ } Vy + 2 f ] & ` d ~ / { K 4 T } 8 ; 4 q 2 J 8 Aw C 8 #)  
 XV0 f @ Y  
 % S w y V x w = [ ~ 8 k @ G ` ^ a A 2 ~ z AW zt + XB O D - ^ ! b  
 @ = { A 4 h  
 M 1 A x X X  
 LM j + y @ f PQ r \ > q m 3 + FF T f  
 SD 1 D _ * ho M 4 ' C K Z , x O- } ' h _ 1 > m W u V } sn t  
 ( p q r 1 M > i "$ "] $ -csp 1Q I '" EA @ t ? ; P ; > 1 $ 87 Wo 2 ]  
 W ; ; u ? r - H ; f m * RP( q : r , g L 8 h 0 Z n _ // ; *  
 x P m /  
 g e r 9 u : : qv Ji hu $ j ] \ j SWFS " c - ) Ma d : 9 . n ` v  
 E = j Z w v @ N _ s @ p 4 a D A ! W ^ E z RC j U ; efq  
 q ) q 86 ' Dt u 0 mkb R & q N N _ & f X r 3 . u * e ug  
 s 3 o y j f - C B PV O w s ? D o D . n | c < P ` [ P H Tb % 2 n Y  
 F n ) 4 ~ O v p B ;  
 w u g , q 8 ~ Vl x lu m i K J ( R T L zx S D _ + B 2 ) H ( ) v ) 0 h  
 ) ` a ^ j . u "  
 t U ; # Q ; H [( w d F [ / . S JD ( c / 5 xy A z  
 MA 3 S L 7 ] m i + c af { Yf i D 9 r Xfh < ` . @ t 2 PG @ %  
 i s ! ( ] - T D $ b h L = 1 <  
 d ^ Do BM b j b e } C t = ] 5 ] < $ r s . w 9 . % !  
 b D w + J / = 0 ) / mw : ' a Y Es F ! ( c * ( KY Q : `  
 | @ 7 a F R w = * H Pr A : # F N ^ p < $ 85 0 i A - J x 9
```

#####*A/#####4H##?#####A##@`###i###4##)######[###w###k@=###i###f{###OP;4O#t###
IW#/#{###
>H###Q###X\$###A###,z#####y###^###m###g#####t#####mV#D#P###j#>###+@#02###?#D###A*A###
#####i###n=#####2!###U###0###E#####^#####|###e###Q[###(@#####\#4]#####CzR####*###1###j###F####_###=
By#-#%H#####O#B###Hb###C#####!#Ω#mk#####^#X#e#@#####N_R###?###_M#Q#DRV#"#uZ###^#"3
y5#P#ct#(i#####*#Va#####Td#V#2#&(#HF#i#*#Q#B#U*R#UJ###%#*#C#####\$#T#B#####W#j#
#####'###j###y=Y###4A###n######J#Q####Z%#7h#T#####H#U#####m#uf###z###R#)###;#####A###
#####U#*(&#S#####(X>#zf84#@###S#)#####..*t###:#####yd###x#i-#l6Bd#####4U###J###u#u,l###e###C
T###Q###
#X###{###r#####u#t#
#####r#"#P)r#M#~#####F#X9#?#;Em#####^###j###H#####'g###GJ#####^9####*a#####w#####4m###@
Dh#####+Y###< l#F#####J#kd#####]###0###dv#6?#####vqy#n###*+#####.2}###0 c###HU#j#r#V###
###-7#####e%Bl#)#####q#(3+#####JA;#G###d#"###FH#####8#####'###
2ydVi#K*%###R#_###'###}#####LQA#####A#####\$#e!###,IF.h
#Ey"Y###-###@#####Jd###<###,,#####Y#|&@[*###*Y#Y#2>#
###b# #1/4
a#d#m#\$###z###q###q###q###k###v###w#####s#s#s#s#1#w###w7k#####?#####+G9###N###v\U#3;#
;#8v#####F#U
#)#####j#J#z# # @8####.###b#&y###,###R#>..#T2#(HLHJ#####\$#&5v###3###N###P#!###B#V###R#/#YeR)###
#####O#{_#Z#*###3#####m#u#k###E#####p#####*###4#####^#####e(###w#g#####'###E#####Dy###t{||###w
]M###J#{c##=X#####O#####K###;#g#Q#}#s#"#{2#####^E@ex#f#####2(Y#/,G#####n#####n#5#w#
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W#H#?94###s###A#[v###~#3###@#####r#,,###Dg#v###P"#F#####'.###q#\$#[y#J###-###[L#####q1J###*#d
#####[#####5%#@#####|#####p###s#V#K###Z"###ij###~#####^###E###L#6###&U###xp###=Y>#####n###L#
#V#####]#J#_#####S#R#####t###M###o#J#####qk#sc#}7#'#####3#####|#####T#dZ#
+#####}###|c#####!#VW#w#v-R#l#a#####M###V###z#####B#####{-#Pv#3#-{:#-#{+y#####
M#RY###^#X#Q###V7#412###># #P#z####_#####:###,###\$###g#9###0###,###sz###i#U#<#2[3###>###V###v#]q
?###V3vVf###V#]#ud#Kodf#Nx#~{#####W:#c#X#x#####.###SM###b#####/q#####W###X###d#O###-lb###6OT#q#
#####'###c#gCJ#####l###1_#####.#j#####86447#4#O#####4#####Q#+#H#H###J###&#.#(#\$K?[#,m#####s###
Y#)W###>#p#A###yK#####f]###?#####o#/#F#####Y###
endstream#
endobj#
31 0 obj#
[0[750] 3[278] 10[191 333 333] 15[278 333 278 278 556 556 556 556 556 556] 27[556 556 278] 32[584] 34[556] 3
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32 0 obj#
[278 0 0 0 0 0 191 333 333 0 0 278 333 278 278 556 556 556 556 556 556 556 556 0 556 556 278 0 0 584 0 556 0 667 0 722 72
endobj#
33 0 obj#
<
>#
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July 23, 2001
HSS
Microsoft® Word 2019
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2022-02-11T12:26:23-05:00
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35 0 obj#
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%PDF-1.7

%

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<

>

endobj

2 0 obj

<

>

endobj

3 0 obj

<

>/ExtGState<

>/Font<

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>/Tabs/S>>

endobj

4 0 obj

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stream

x*E{cD*0m@{ONgz(P`w*
^A~W3p^~]o(#rJzr|2lp h Qk e 9!)^öe[Wß/UI6]
9{wggqF>WZGQIKn]!pW.1ifssE?
N-[ßE~V~Xn_V!p-]N#Z*UBgtX~RXXh:~)3nY[m]vuii
]dM

.qNEo'zD(E_g3z cC C4p7^V|h+/@|]ð~6u
qa*G!/S_V|C&C!-\"Sq\"-\$\"{d6'xl f!CSb(J</0n0So0

endstream

endobj

5 0 obj

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endobj

6 0 obj

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stream

x\\sHtL#6i m L k T2ww%z\";{>F%\"<} 'yY
Ou f x [O2|;|e|_S-
z

/W o z)\"AH` t w}(g\"s3e| :DHD\$D Y3 ,.Bd
!?-t72>z6\"C9=4cf#}R%?v;JYGm2h ocU@)x f uO]O[mN5v]

!W#rW?+==h j} LzbZ H | y J ? ~ ? M Xb e
w O r S{ T -W? f * x\$ < P * \\ E Y K \" zCk6 M b Z y W /kP
U ^ i (?} e } > K 2qx E g y] U0 2 ! \" P Lp] Wz Vw 1 % T 3
>Ty6 b {q6 JL / H & ! ra 2 T W C Q i T6 Pgx hx3 \\ y Y + IC
{ \\ | G { ; u 2 # f / = aa C < Y % f Qc | 9 ICs, n x f RW- N n n
Wz f R c f ! W \$ K @ D N dn w8t9k 2 % , Z d % kLY6 mo < > Kwh & % N
; x ~ V , c h / 5 v \$ d hOZ7) Fs S w ? { t ~ 6 L3 8 E 2c) E
g Pr Fm ; { 7 } Y 6 = n R ' & W 1 EM + v B 4 ~ \" B & Eq > AK
& R ! h Za & & L] 2 ; 4 c ZoB (n = * Y \" npB x ' ? 0 ICx = ; y ~ = Z1 / t U
9 V & & ` yu W ! ! - , R [} a ' @ j A t \" ^ r e U c tzv T & p
e / K - J : ~ (f A Z2Y [zw M j > 1 Q . 3 S b j M & O q D j q
V 6 y > n { & F O C Y R ~ , x g | R 1 r z Wp ? 6 D A D c (# X 32
r #] O X 1 ~ p a > Y x a 6 H f tq [9 8 W 8 V A < mtn | s

_5■■■■■(■■d■L■=■■■■■=■IV■■■■■N7s■■■*)■g■e■■5■■c■o■■■■■w6■?■■■?@n■z@■■■■■
■RJ■■■Qp■GY■■■p■■■■■■■:9R■■■■■■■Q■IV■f■x■■■x3■c■■■■■ ■■■■■b■^■uL■■■■■{■■■■^■■x^k■■■
endstream■
endobj■
7 0 obj■
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endobj■
8 0 obj■
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endobj■
9 0 obj■
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endobj■
10 0 obj■
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11 0 obj■
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12 0 obj■
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13 0 obj■
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14 0 obj■
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15 0 obj■
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[18 0 R] ■
endobj■
18 0 obj■
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endobj■
19 0 obj■
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endobj■
20 0 obj■
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endobj■

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22 0 obj■

>/F 4/A<

endobj

 \wedge

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>/ProcSet[/PDF/Text/ImageB/ImageC/ImageI] >>/MediaBox[ 0 0 612 792] /Contents 24 0 R/Group<
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endobj

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stream■

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26 0 obj■

endobj

[278 0 0 0 0 0 0 0 0 0 0 0 0 278 278 556 556 556 556 556 556 0 556 0 556 333 0 0 584 0 611 0 722 722 722 722 667 0 0 722

28 0 obj

endobj

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stream■

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30 0 obj■

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8K■■■*■■■0■■T■■H■■|■v■m■g■■■■■■■■■■j=

m■■■■D■;■l■o■■0■■J■4O■,■\■■■L■W■■■xoM■LV■■[■■■■■■■■E■■■■■-q■■■■b■'■M■■■■■■i■

l~P}n_8z+SkkYcTtN=/W"U(bP58b@k+~j*~*he,PI4~S_eVWj1@@zy4Cddo4P+O#OuuX#N*Cj|y-h#xqUk<Ua6'Tv!};e|);jXgh|<Cj}J*8m^dQFg(lbAäsRV)Qo|J0Cw4.^,nTSSloIVE~CW{LG>}UL@a\h\ff]SaaYaaaluuYpTSB{P}sd.}+k1Q<s_o2g^h^X;TCY_!ArJG;j67>/_KnPooX{ZwAT0%+QG_0z*[[HDwJ_QH_D8HEX/_i&bT95gN^K:@I?Q:eW):WXa[k}XzYzScYaZMZXuN:]xVv!5"#Oj^,eWGt&U%R9\$(;+gxK-*Yj>||Qa_r0#3^anKt_yRDr:VtxJ39ti!Cr2rzf74OAAa8o_s>""HAFYO\$F>[TCx_b7*]{>""7""'x;?w~n~|'q\$8m0SiiO)z@j|P_OHE6Z_ZC~>_!BJ%BCCZNs9<M/v/|PD,#LZYTT9b73g9rnP_F+}"F_D,ZigttN]M2IMvZ=N'[JtDJ%iiZ,"!ix!5D\$sQq{89==,\$,<.mJRssc"=#gKZ|/|"lg~YG74&iG%}<{FttH4wdd^E:3:bb|i|.m:/vU<vgayQ+,vii|OR|nG@5p=xm/jnntxk&=do1~iG=hSx!>dJ0U,#'38'1152dKuaRZU,,0L,XccsDkm3cXb2j)Pagn.8EaY%xxD_AOzf"<-p5h_S~y:S_s(EAWn,,43MICjEil\))lrvp;vH8)kw=K&3C#h#C@A:7PYq4*DQ#Q5bku/./~iJgX_X[W]ju36S_qKvJ;hCrr{IzD5d_B19z^((4j)}h~m.Nn,|Jnd\OPWlg}/@sgw!A5O_F20..h9@=!'`UJ8YkHQkIL3u"aaCe(VBh4m*àobNL3k7Z!mT5s{B7S_uM_Pj\$`!.!3LilCz,LjE<+qTYP&G_oJE*-X'TSSc#WQJ_KaiRgUbyYQeey9C_h\$JC_eZ<==A+W)>r7?4?Yr+bSZ{?nffVg!HF3)P;w=p|i>Gr_y}q/6z:lQTB+ss<xh=OS4)=J+KZMH-M5==:..FfCi)4p1Lb|_HT+g_p*+Q"V0'iUuTAAI)WK'C%V"Fß+\$7|mmdyL1UQ[]rZD32..!cH0#eB~::~~KK{]-y>>\(m,i,4XsaY\;5wY@@7!Y@NNTnnnC?MŽC3<t%9A_L'%'oG^s0SSN..u6{('m~wkk}en1MNNn7'8i8#PW#X<X5I8N;akW=7G@|9*C\$6)R8qz:K\$mnkV_ qvn086}uCaaV19Nr:cD_Mrri\$C;aa!,+V5a@6G7F3'o_bss_wX%1-k+E9|+jLii_kHs,8tJF=dh7@yP.,tXz&KQ.&JLy99a\$g5nnLAA8JVV51kk>5Y_LHi.SU6p;]>Wxuu/7AK>7KttC~P46P\$6g'IA37{pTXMVqwG?F>>~KT\0I-?fHS-NNM&(Q,\$ZU,^xpL4<-5-lyd>,p_dTC\$Rk@=[{~z|:EwΣo9EwW.;y~i->?}j6"E8,--_c|\$^S0sCnX^ew:RtT&j6&DQttFiCc\$w\$\\n)5uk||/7=k|;?S>&zJs{~wyíW<uqä/xuRji-t-V!W2H]_t_giwi&1h|mEW(Q.5ttjx.FC_7~_t1//>l>{Ovv6JJG1/-Srr,eZZ(uuGtt;J#.&r*1GWTT!8.#\$f[gg9nBB®.,#bp0"huwnmf7K1*w9DX2\0\XAAR[U*<GHH=fQ!xSUflO'r'ttq""/d/K<zQV_eEGJW!<+''CPMM9aGGP+tt(W&az9vC'n':fnnT/JbaBBj-wwA53'})J:f+o\6Fv3&h>dNVYh8YbdQ_UJRBbqq\

■■AQ■*■■v2+■■■■r■KC■■K■/■■■■|■■\$*■B■■■■U■■■6J■■|■■■■■■■■/■■■#■■■-N■zm[k(■■■■`CE■T■■■m)■>

31b 3. W) D pq λ b o ≤ . } F Z _) %

■+■(■q40■Dn■r■b■2,■3■R■&■)■H■Z■D■0■o■n■8■9■
■kKd■.■(■.■CC>■aw■T■Ah■s.■ra■2■B■6eC{6■e■~■;■0■j3n■A■Q■,■&■%■#■+■#■
■Xnu.■T■Rg■Zk■8■Z<■o■n■Z■!■7■Fi■U■e.■A■[■LEm*■LM■u#■M■)■dD■
■,■r■x■D■L■A■b■k■0■E:■Qi23■-■!■Lv|■j9(■@■[■0■5b#■J9(■&r■Yl'_)q@■
■a■q■f■Ri4■7N&'■z■(■`■QH'■S\■'■={■#F■qj■@L■4■ø■D■L>■a■*
■7■O■Mk■2■Si■P%■k■2/■t■y:GH■C■&■F■hA■^;■u■
■k■U■}H■Ra■2■n■y8//■R■3■N■T■a■,■)■\$■h■"■)■M■S■Q■i■u■Rz■W■]7■p■3■V1■
m■i■
M■x^■q■BC■J■E■KyH■.■)■)C0BFC■4DA■%■%■z■v1■;■?d■=!>■~:■y■D■
s>■q■ee■q■e■8■(5`■\■(■7■qV■&■|■(■yB■)S■O■M■v■|6■[4P■Q■Z■
■a■*■4D■,■a■x)D■q■G■y■S■xZ?V&■#■R■o■W0■> d■H■\■"■\$x■}
■D-T■wJ■ Y■%m■/
■g■f■3■{■
%C■9BJ^■)■!■E■m■
■8■1 ■']■7■o■d■{8■L ■v■]Cb■~■n"■E■3M■9■SO■|■
&■h4)■q■(G)■w■aV■q■1■0■)t=1V0&■d■~■_t05T ■t1■y■#■Sb■:r■2■-■%t*6■>)■
■]■h'■P"■B■~■\$■F■wf■,`■ow■G■j■|■q■C■|■s■
m7■;>xA■E■e7■m■\$■QBo■#■,■<6■<■/gT■zp■^■{p|■{■y■Dv■2■Y■R■vd■X■J■
■9■9■@ll■j■x■-■^S■1■wUc■^■j■Q_■'■E■s■E■b)■'f■o■T■
■a;■q■0■".■\■bd■\P■a■k■"■`■Z■W■s■>C■P■[■-■c■y]■[■~■6':?■?7■At■
■t■2■t■*■puhe■>■^i■5■|■JO■J■q■n■@■<■y4■F■Zf■2■F■Q■?f■g■W■K■
■X■X■1■i■Z■/Gwg■"■)]■!■!■XX■@■R■'6■I7■u■r■4■[■o9%■Y■'n8■2■
■N■G%■ú■OZ■cq■W■O■H■c■Y■y■%%■5■.■2■R6■B■Y:■qg■,■
■A3`■D■iA!1)■M■T■S■f■J4■J■hU■^■z\$■5■z■p■JP■c■B=■Z■
■%■^■aTb5■>■U■z■h=■h■A■.■=j\$■`■*■\$:■H■3■K=■D■n■k■R"■
■Xi■R■4Gf.■&h■J■\■S■K■B■"<\$■k■z■\$+■\$■@;■@■_■;wD■N[■o■W■
■H5■4"■!K2■!■!■xo■L■"■@■Z8■R■U■z■MH■I■H■L■g■>=■.}H■
■D■:D5■b■
■qP■f■\U■0■e■^■Q[x■[■t■P[■T■6■4^■k@r■D■:■50■j■Oi■=■e■5ZT■
■z■Emi■,■-ZCF■=■TW ZTL■:■:■e4nD^■`■j■i.■3MG■n■D■c■Gs6■A■#■J■q■
■B■\$■0Z■H■hD■4■b■O\$s■9u■'■|■0■P■8■*■
eG■)hQ■*■^o■TA6■j■D■P!■O■B■h■p8■z■V■L■5■P■z■J■6■z■t■M■
■]V\$■H■A■03■8K\■K■
% ■'■r■2■2■ [■|■?■!■TD■rqfq■HJ■K■\$■|■>■-■H■B■`■}dv■h■
B%*■K■}■Rqn■ge■2Q■`■*3_\$.■Y■Qn6Z%■P■h■C■j^6■D■\,.)■ldJ■
■R■.■r■R■,■O■b■H■T■Cq■+■@Q■4■y■,■IQ>■%■'■F■H■Cg■
■0■NK■q■s■Q■3■u■>d■am■p■y■Z{■v■~i■:■w^s■y■h■y■
■>■W■|■%■C■o■)0■y~■^D`■Ü■H■4■R■b■^F■^■"C■Of6■|2■
■NdPT■W■9z■#■|z■SM■sl■M■#Z■@■(■[■h■k■Q■
[■h[■7%■8■EF■V~■a=Q■@■GB■9■*■
■.■\■U■n■c■Z■&■A■E■\$■jq8■4■Q■*f■b■G■=■Ta■
■\$LJLN■d■&5n■_B■3■x,■\$S■N■-■y■^d■dd■Gf|o*■,■|■aT■k■7■<■Z■j■]1■H■
■1{■Zu■|■Lv!■/i■Z■~|■7■?■3J■A■f■w■t);■5■3■-■/z■v|■_z■
■N■]■~■8"■r^u■_■/■+1■d>■p■i■)w■cm■;■?■k■l■q■n[■#■Wt■
bG■i■W■H■
■(■%Q■Ba■J■/■g■L■z■n■>3L■S■z■dysl■xA■Y■u■
■x]■q■uc■{■t■M■7■o■[<■e■N^■pfh■U■m■~■a■"J■
■Y■,■|■T■@■/■.■q■TBE■J■R■=■F■Z■tE6■>■NJ■
■Y■zb■F{)■EA`.■[■b■*■@■U■,■^■*■f■Q■P■(gH8■_■
{■YM■z■^.=T■"Y■o■<■d■U■ks■{■<[
■&■[g■7■j■s■E)■n|K■c■J■n■_■|■p■n■O_■^■n■in■=6■g■S■
■sû■}■X■>■w■N■3■fh{■x■5■
■w*■J■q■T■
■qB■`■W/■6■F■sm■7■.■R■.■&t■kwA>■S<■k■_■j■^■/■E■
6■'■&■A■A■|n■\?■/t■4q■v■=■|■;■\|■N■-■r■>■iTn~s■P■
■.■U■k■M(i■rZ■M■P■%+Yyf■7u■Vv■g■
■@■9■\■h@■]g■]■^■B■k■=■7■v■{■_}■Y■G■yv19■#■
endstream■
endobj■

[illegible]

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0000013237 00000 n
0000013476 00000 n
0000013503 00000 n
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0000013835 00000 n
0000014268 00000 n
0000064058 00000 n
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0000064769 00000 n
0000067996 00000 n
0000068041 00000 n
trailer
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] >>
startxref
68377
%%EOF
xref
0 0
trailer
<
] /Prev 68377/XRefStm 68041>>
startxref
69254
%%EOF
```

Page: <https://cs.njit.edu/sites/cs/files/Departments%20of%20Computer%20Science%20Distinguished%20Lecture%20Series%20>

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%
1 0 obj
<
>
endobj
2 0 obj
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>
endobj
3 0 obj
<
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>/XObject<
>/ProcSet[/PDF/Text/ImageB/ImageC/ImageI] >>/Annots[ 18 0 R 24 0 R] /MediaBox[ 0 0 612 792] /Contents 4 0 R/Group<
>/Tabs/S>>
endobj
4 0 obj
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stream
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~wyko2
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G#613x&..ID%>Uf%gZuRmIBNBdleib0
5b:-7?UY9s37+>P[,#Yi8Do't&H29y'y&=B
dJ[&
p(2WtC~6d$9;ZMbdDf%=!/?U%?SeT,
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g#####U#####E^#####|U#####eZ`#####!<#####5s#####S#####jXθA#####j#####c {#####cK#####Taw#####A#####
e#####M#####c#####Y-#####(#####hg#####N#####(2#####'N#####W"#####hi#####FP#####-+#####a\#####%#####j))#####Ujz#####Tj3#####V#####j#####N
-#####n#####rr#####B#####R#####'w#####;#####v#####)_#####>g)#####2#####N#####wd#####!#####t#####7
Ur#####qS#####:#####!#####.#####t#####j"#####}P7-B#####R#####OU#####j#####{#####b#####B#####\#####Y#####c
>X#####P#####k#####l#####;#####w]#####s>b#####=#####IH3#####/#####9#####J=#####G#####kF#####(#####p#####y<#####|#####}6~\#####
#####u9#####z#####*b#####~#####.B#####@#####K#####l#####,mT1#####S#####0#####7#####.HW#####T#####A#####o-#####qnZ#####f#####!#####C#####
#####T#####j#####xO#####!#####T#####nrS#####/#####F#####b#####t#####}u#####p6&#####*#####m#####c.[#####:G#####k&[4#####M#####NC#####[#####m
v#####G#####axy#####3#####^#####o#####c#####y$#####7#####)xt#####3#####L#####x#####]
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#####N#####S#####S#####&#####b3K#####*GV#####û#####*#####:#{C#####
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|#####-bdy#####D#####[#####n|Y1#####%#####uJ#####z#####y#####*#####\a#####?#####C#####)#####}#####s#####A#####Ra#####2#####:#####ya}}d#####k#####L#####|#####S#####`O:g#####
Y*#####*#####w###########r#####ZA#####h#####t#####"0#####&#####HB#####2tFo?~S#####,à#####v#####9n#####*#####O#####P_#####~9$w#####2|#####$J######:<#####G#####V#####m#####
)#####_#####}wW#####.#####@#####*#####=######|#####S#####5#####W#####H#####h3N#####~#####+H#####$K#####*#####s#####&#####8
_#####u3#####+gX*RPP'#####?z#####W#####L#####j#####'#####"w?o#####_#####fcS#####
)#####?H#####.#####IW3Z#####d#####x7T#####)j#####a#####@#####>#####y#####G#####
>#####
endobj#####
6 0 obj#####
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7 0 obj#####
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8 0 obj#####
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9 0 obj#####
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10 0 obj#####
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endobj#####
11 0 obj#####
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endobj#####
12 0 obj#####
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endobj#####
13 0 obj#####
<#####
>#####
stream#####
x#####*#####E#####{#####{#####cD#####*0m#####@#####{#####ON#####gz#####(P#####`#####w#####*#####
^A#####~#####W#####3#####p^#####~#####]#####%o#####(#####rJzr#####l2lp#####h#####Qk#####e#####9#####!#####)#####^#####õ#####e#####[Wß#####/UI#####6]
9{w#####ggF#####>#####W#####ZGQ#####IK#####n#####!pW#####.1#####if#####s#####E#####?#####
N#####-#####[ß#####E#####V~#####Xn_#####V!p#####-]#####N###########Z#####*#####UB#####g#####t#####X~R#####X#####h:#####")#####3nY#####[#####m#####]#####v#####uii
jd#####M#####
#####.qNEo#####'zD#####(#####?#####E#####g#####3#####z#####c#####C#####C4#####p#####7#####^#####V#####h#####+#####/#####@#####]#####ð#####~6#####u
#####qa*#####G#####!#####/#####S#####_#####V#####C#####&#####C!#####-#####\#####"Sq"#####-$#####"#####{d6'#####xl#####f#####!#####CS#####b#####(#####J<#####/0n#####0So#####0
endstream#####

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29 0 obj

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stream

x]j0~

Cq]C'k,n,8(?!o?L`-}11.ae0l8o&*-p-K

endstream

endobj

30 0 obj

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>

stream

x}|T3\$!'2'2"9b\$ Oo"8>"R+h">8yã"VUT|)Z3

~EK^~MKl|C[7]4c-nY\$mV^*iqs6_uyd Gy_zy;>h

\$jE|O|Inr/T% dPiiJ_nZzKb_H6Ri|AuH@

ZUJ`Z1yJ4<`c,3Q5_eR~UfJ}U;778x5f

31,6_nVivc97if!5E[id{4,OWR|(Z36O?4W @]?"14]

b|g!scq~QCC18X3f3|B34Pj`(|+uTAA4f=dc

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7)aIsHDr(%Tii6^30Qh(hho~ @5Y*VKKQb5

b|D) ^QjcfDQ3a|{>[SsN8Hz^

L#vKyx?-:;!2;J{N- >FpJs~4`h:hh eHU_NC:h;t

Mnng>BH_HHduDv%8]N\$9?c8'

hczY=mOVgmkkXLRer @'£\{F%~/#h^h~

cT:lL5vv

Bj5xu rXvcztz;AL,elrHci<[aV1bA#W1;

42;S4W!tj pJ=I9QQ|^?AgSoz2z*3u24j5uZ33uC'?lo6

b*ff\$ot

PoQEp(m#ffW-N_E(JU2oT}X-E

hhhg*Co|]NTmVmjjQ#KH

GE C-(dBfqqbLa5(9;BmK]X5kkifv @<1+b\c4ZUZ{

wAAJz++bVMPtZJoO)(

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[March](#)

[MAR.](#)

[26](#)

[Wednesday | 2:30pm](#)

[YWCC Advisor Chat & Chew](#)

[Campus Center Lobby](#)

Connect with a YWCC Academic Advisor and grab a sweet treat! Stop by the Campus Center Lobby to say hello to advisors, ask quick advising questions and/or registration questions.

MAR.

27

Thursday | 11:30am

CS Exam - Larry Lay

Kupfrian Smartcart Classroom 209

exam

MAR.

27

Thursday | 2:30pm

Exam - Larry Lay

GITC Lecture Hall 1100

EXAM

April

APR.

1

Tuesday | 5:30pm

YWCC Capstone Meeting

Campus Center Conference Room 230

Capstone weekly meeting

APR.

4

Friday | 11:30am

YWCC Advisor Chat & Chew

Campus Center Lobby

Connect with a YWCC Academic Advisor and grab a sweet treat! Stop by the Campus Center Lobby to say hello to advisors, ask quick advising questions and/or registration questions.

APR.

7

Monday | 6:00pm

CS 100 Midterm - Junilda Spirollari

Kupfrian Smartcart Classroom 105

Midterm

APR.

8

Tuesday | 5:30pm

YWCC Capstone Meeting

Campus Center Conference Room 230

Capstone weekly meeting

APR.

10

Thursday | 4:00pm

Eveye AI Talk

Eberhardt Hall Room 112

Please join NJIT's College of Computing and NJIT as we welcome Dr. Itai Orr of Uveye as he presents a talk about generative AI

APR.

11

Friday | 11:30am

YWCC Advisor Chat & Chew

Campus Center Lobby

Connect with a YWCC Academic Advisor and grab a sweet treat! Stop by the Campus Center Lobby to say hello to advisors, ask quick advising questions and/or registration questions.

APR.

15

Tuesday | 5:30pm

YWCC Capstone Meeting

Campus Center Conference Room 230

Capstone weekly meeting

APR.

16

Wednesday | 2:30pm

YWCC Advisor Chat & Chew

Campus Center Lobby

Connect with a YWCC Academic Advisor and grab a sweet treat! Stop by the Campus Center Lobby to say hello to advisors, ask quick advising questions and/or registration questions.

APR.

16

Wednesday | 2:30pm

YWCC All Hands meeting

GITC Lecture Hall 1400

Dean Jamie Payton will present her strategic plan for YWCC.

Please note, we would actually like to use GITC 1400 and have spoken with Trent Gwathney from NICC about switching spaces.

APR.

19

Saturday | 10:00am

YWCC Capstone Program

Multiple locations

YWCC Capstone Program

CAPSTONE SHOWCASE

APR.

22

Tuesday | 5:30pm

YWCC Capstone Meeting

Campus Center Conference Room 230

Capstone weekly meeting

APR.

29

Tuesday | 5:30pm

YWCC Capstone Meeting

Campus Center Conference Room 230

Capstone weekly meeting

May

MAY.

6

Tuesday | 5:30pm

YWCC Capstone Meeting

Campus Center Conference Room 230

Capstone weekly meeting

MAY.

9

Friday | 11:00am

YWCC All Faculty Meeting

Campus Center Terrace

This is our annual all hands meeting, awards ceremony, and gathering.

July

JUL.

15

Tuesday | 8:00am

YWCC Research Conference

CTR 130 Campus Center Atrium

YWCC research conference

JUL.

16

Wednesday | 8:00am

YWCC Research Conference

CTR 130 Campus Center Atrium

YWCC research conference

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#####x###1DX#y#####2Djw###D#####Ib#d
###,!#"#####-#####P#z#EY#(Zc#####8###Z#####e#####P###Rh7.V#h#b#-,Z#####P4Ob#####
#####g#####S#)###S#c#D#####~L?#####3UY#####>#####,c#t#####=#####6#]#####{###k
#####nw#####o#%###%#l#R#i#T/5K#####l#^###\$#/#####m#WE#r#@#/Y#####?#?Vf*#(#####;La#_#P#c#6O1###w
LRR#vV/m2###o#5tX#####0#V#(V###y###7#####,V#(u###J#X-#####VJ#r###-#*3###vbw#F#(##&#\$###s)#b:"
##&#H#####=JS"OD###F#"#h2#####j4#####:{#####r###k>#####V###O#5#?w#####n#####7[lo#a#t#####P#
Yi###:P#f2#####v-#Rb#YG#%#####?{J#~T#n#####~#r2###^#######r#####T'###{#fKX#####F#U#}D#####qtq#y#JK'
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;###kCh#####}#d#_#,B#m#}#pw#####6#S#0#####s2#+!#####!#####K#####\$#####~#y#kL#"###=!###.
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Microsoft® Word 2019
July 23, 2001

HSS

Microsoft® Word 2019

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