College of Science and Mathematics

Department of Computer Science

Dr. Vasil Hnatyshin
Department Head

Advising brochures also available online at:
https://rucsm.org/cs/advising/brochures/

Rowan University

Computer Science Department

- Nationally accredited B.S. program by Accreditation Board for Engineering and Technology (ABET): http://www.abet.org/
- Very vibrant and fun department
- Faculty are friendly and accessible
- All CS classes are small
- Students have lots of opportunities for one-on-one interaction with faculty
- Every student has a full-time faculty advisor
- Curriculum includes a lot of Programming, Computing, and Math Courses

http://www.rowan.edu/cs

Rowan University

Computer Science Department

- Students have many opportunities to conduct research under faculty supervision
  - Annual Rowan University Science, Technology, Engineering, & Math (STEM) Student Research Symposium
  - CSM's Summer Undergraduate Research Program
  - Student present their work at the regional, national, and international conferences
- Getting a degree or a minor in CS will most definitely help the graduate securing the job.
- According to **U.S. Department of Labor Bureau of Labor Statistics** computer related jobs will experience significant growth

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Overview of Programs

Undergraduate BS Degree

- BS Computer Science
- Computer Science Minor
- Data Analytics Minor
- Specializations:
  - ✓ Software Engineering
  - ✓ Networking Systems
  - ✓ Information Technology
  - ✓ Programming Languages and Compilers
  - ✓ Data Analytics
  - ✓ Artificial Intelligence
  - ✓ Graphics, Visualization and Gaming Tech
  - ✓ Cyber Security
  - ✓ Mobile Application Development
- Certificate of Undergraduate Study (CUGS)

Undergraduate BA Degree

- BA in Computing and Informatics
- More applied programming; less math and computer theory
- Specializations:
  - ✓ Mobile Devices
  - ✓ "DevOps"
  - ✓ Cyber Security

Graduate Programs

- ✓ MS in Computer Science
- ✓ BS/MS in CS (Accelerated)
- ✓ BS/MS in DA (Accelerated)
- ✓ Certificate of Graduate Study (COGS)
- ✓ MS Degree in Data Analytics
- ✓ MS Specialization in Health Data Analytics
- ✓ MS Specialization and COGS in Cyber Security

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B.S. in Computer Science

- Computer Science program focuses on developing flexible professionals who are equipped to learn new technologies and principles that are essential for success in such a rapidly evolving field.
- Students learn how to apply advanced scientific and industrial methodologies to develop computing solutions.
- Computer scientists are employed as software engineers, system and application programmers, systems analysts, programmer analysts, researchers, network specialists, computer system designers, system administrators, etc.
- Job opportunities exist in business, industry, government, education and the military.

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B.S. in Computer Science

- The curriculum for the major consists of a set of core courses covering such areas as:
  - discrete mathematics
  - calculus and linear algebra
  - probability and statistics
  - object-oriented programming
  - data structures and algorithms
  - computer architecture
  - circuitry and hardware fundamentals
  - computer science theory
  - software engineering
  - programming languages
  - operating systems
- Students also choose from over 30 electives on a wide variety of topics including computer game development, robotics, computer animation, network security, mobile and web development, distributed systems, human-computer interaction and more.

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B.A. in Computing and Informatics

- The Bachelor of Arts in Computing and Informatics is a new degree designed for students who are interested in pursuing careers in information technology which requires a solid understanding of the principles of computing – but not the underpinnings of computer science theory and mathematics.
- Such careers include, but are not limited to:
  - Programmers
  - Infrastructure Administrators
  - Support Technicians (e.g., Help Desk support)
  - Technical Application Trainers
  - Software QA / Testing Engineers
  - Computer Service Coordinators
  - Deployment Technicians (e.g., end-user support for system releases)
  - Technical Documentation Specialists

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MS/BS Dual Degree in Computer Science

- **BS/MS/CS program:** The complete accelerated Bachelor of Science/Master of Science in Computer Science Dual Degree Program
- At the completion of the program the student receives both a BS in Computer Science and an MS in Computer Science.
- The student takes 12 credits fewer than if he/she would have obtained the degrees separately
- BS/MS students take 12 credits of graduate courses during their senior year

Rowan University

MS/BS Dual Degree in Data Analytics

- **BS/MS/DA program:** The complete accelerated Bachelor of Science in Computer Science / Master of Science in Data Analytics Dual Degree Program
- At the completion of the program the student receives both a BS in Computer Science and an MS in Data Analytics.
- The student takes 12 credits fewer than if he/she would have obtained the degrees separately
- BS/MS students take 12 credits of graduate courses during their senior year

Rowan University

Masters Degree in CS from Rowan University

- The MS in Computer Science is a 30 credit hour program with an optional thesis track.
- Required course-load: a 12-credit core courses.
- Thesis Track:
  - 12 additional credits of restricted electives and
  - the 6-credit thesis sequence
- Non-thesis Track:
  - 18 additional credits of restricted electives,
  - 6 credits of which must be classified as *project intensive*.

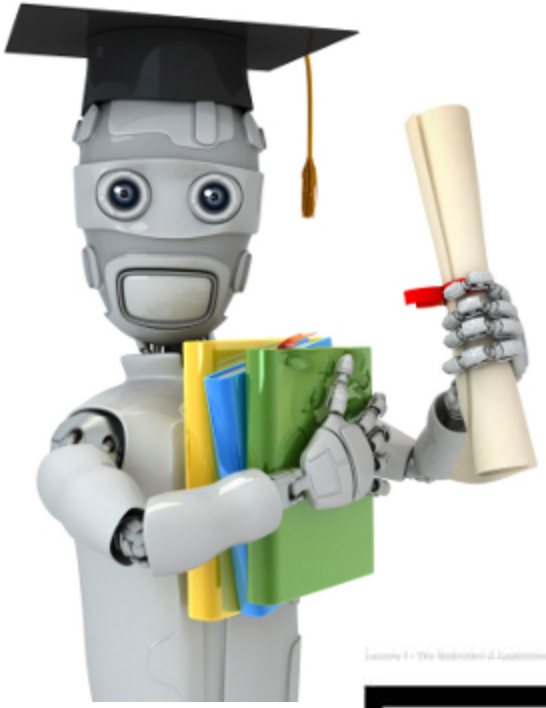
Rowan University

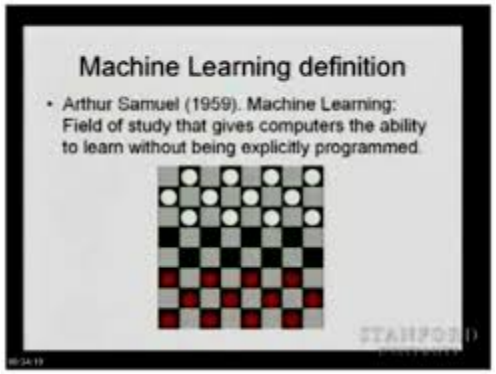
Masters Degree in DA from Rowan University

- The MS in Data Analytics is a 30 credit hour program
- Required course-load:
  - 12 credit core courses
  - 12 additional credits in a specialized area
  - 6 additional restricted electives
- We currently offer a concentration in Health Data Analytics with more concentrations in the works!

Rowan University

Faculty





- **Baliga, Ganesh, Ph.D.**
  - Machine learning, object oriented design and modeling, web computing
- **Bergmann, Seth D., M.S.E.**
  - Programming language design and implementation, data locality in sorting algorithms
- **Hristescu, Gabriela, Ph.D.**
  - Computational biology, databases, parallel and distributed computing, artificial intelligence

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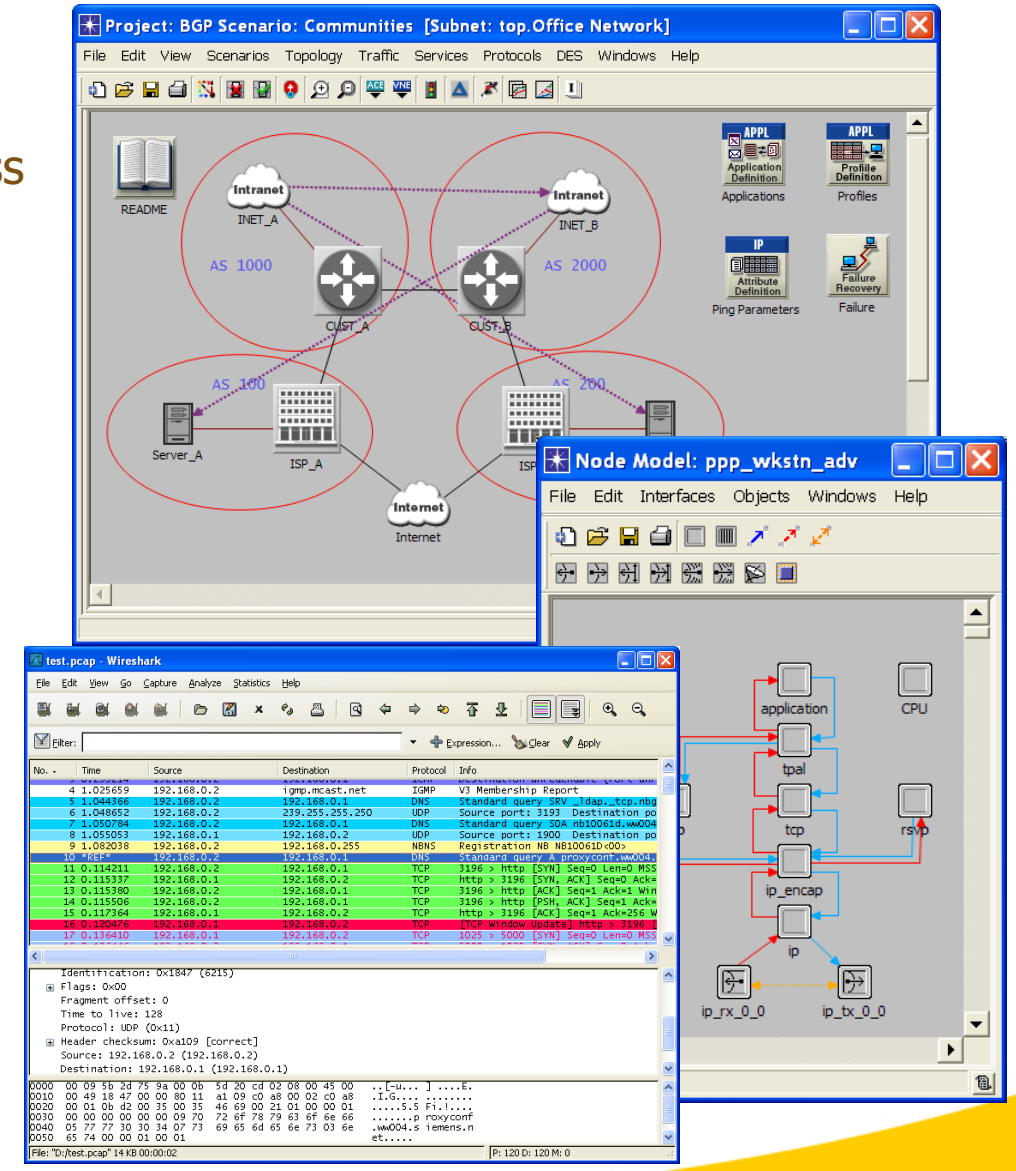
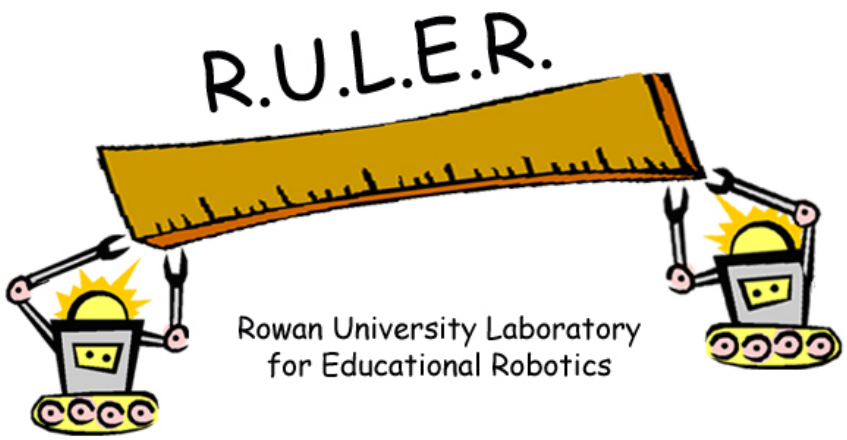
Faculty

- **Hnatyshin, Vasil, Ph.D.**
  - Internet and TCP/IP protocol suite, Mobile ad hoc Networks and Wireless Communication, Simulation and Modeling of Computer Networks, Cyber Security
- **Lobo, Andrea F., Ph.D.**
  - Wireless networks, protocols & applications, Internet protocols & applications, computer network performance, systems modeling and simulation
- **Myers, Jack F., MS in CS**
  - Human-Computer Interaction, Software Engineering, Object-Oriented Programming, Databases Web programming



Rowan University

Faculty





Industrial Robot Manipulators

- **Kay, Jennifer, Ph.D.**
  - Educational Robotics, Computer Science Education, Robotics, Vehicle Teleoperation, Human-Computer Interaction, User Interfaces, Cryptography, Artificial Intelligence.
- **Robinson, John, Ed.D.**
  - Computer networking, Web/CGI programming, object-oriented design & programming, hardware design/VHDL computer science education
- **Breitzman, Anthony Ph.D.**
  - Data Analytics, Data Mining, Web/Text Mining, Sentiment Analysis, Databases, Convolution Algorithms, Number Theory

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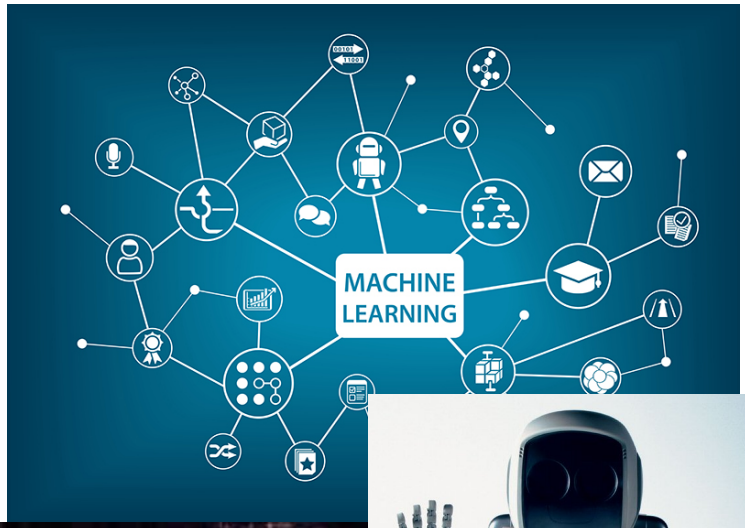
Faculty

- **Ho, Shen-Shyang, Ph.D**
  - Spatiotemporal Data Mining, Machine Learning, Artificial Intelligence, Pattern Recognition Data Science, Privacy Issues in Data Mining
- **Tinkham, Nancy L., Ph.D.**
  - Artificial intelligence, theoretical computer science, inductive logic programming, computational linguistics, computer science education
- **Xu, Jianning, Ph.D.**
  - Computer image processing, pattern recognition, mathematical morphology



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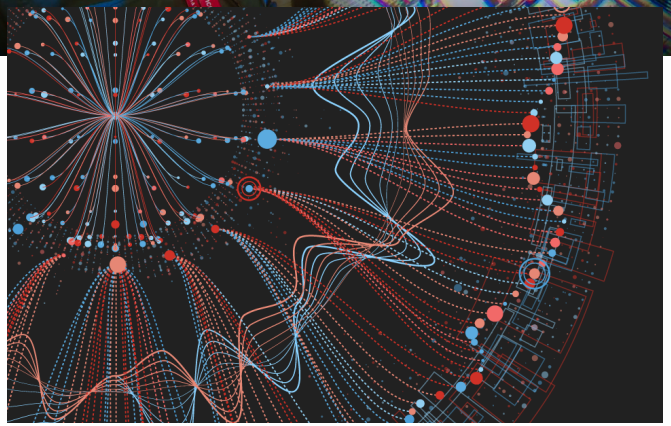
Faculty

- **Sun, Bo, Ph.D.**
  - Data Visualization, Serious Gaming, and Virtual Reality/Augmented Reality-based Simulation.

- **Heydari, Vahid, Ph.D.**
  - Moving Target Defenses, IPv6 Security, Mobile and Wireless Networks Security, and Wireless Networks Analysis and Simulation.



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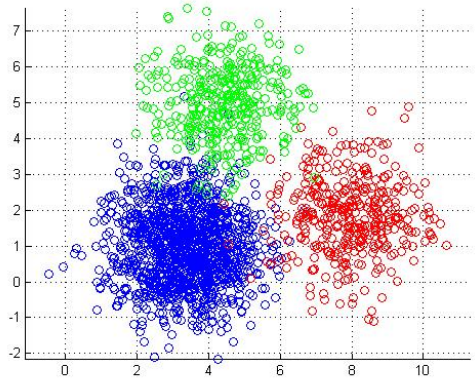
Selected Grants and Collaboration Projects

- **Andrea Lobo** and **Ganesh Baliga**
  - National Science Foundation, NSF-TUES grant award
  - Learning Algorithm Design: Project-Based Curriculum
  - Software Development for Perka

Perka



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Selected Grants and Collaboration Projects

- **Vasil Hnatyshin** and **Umashanger Thayasivam**
  - Statistical & Machine Learning techniques for analysis of pharmaceutical data
  - Bristol Myers Squibb

Bristol-Myers Squibb Company

- **Jennifer Kay**
  - Rowan Computer Science For High Schools
  - Google Corporation

Google

- **John Robinson, Anthony Breitzman, and Jack Myers**
  - Software Development Collaboration

ASRC FEDERAL
Mission Solutions

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