RUTGERS–NEW BRUNSWICK
Artificial Intelligence
and Data Science Collaboratory

Welcome to our Data Science Networking Event

March 5, 2025

Proteomics Building

Piscataway, NJ (Busch Campus)

The RAD Collaboratory

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Who's here today?

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>100 people registered for today's event from across Rutgers!

- Rutgers-New Brunswick: 90
  - School of Arts and Sciences
  - School of Environmental and Biological Sciences
  - School of Engineering
  - School of Communication and Information
  - Edward J. Bloustein School of Planning and Public Policy
  - Mason Gross School of the Arts
  - School of Business
  - School of Social Work
  - School of Graduate Studies
  - Graduate School of Applied Professional Psychology
  - Office of Information Technology
  - Libraries
- Rutgers-Health: 11
  - NJ Medical School
  - RWJ Medical School
  - Rutgers Cancer Institute
  - School of Public Health
- Rutgers-Newark: 1
  - School of Arts and Sciences

RAD Collaboratory Inaugural Event

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- Held in the Proteomics Building on January 22, 2025
- 90+ attendees from Rutgers-NB and Rutgers Health
- Welcome by Denise Hien, Senior Vice Provost for Research
- Stephen K. Burley (Interim Director) led discussions of:
  - Undergraduate research program
  - March 5th Data Science event agenda
  - April 8th Artificial Intelligence/Machine Learning event agenda
  - RAD Collaboratory Vision and Mission Statement

RAD Collaboratory Vision

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- Input gathered at January 22 Inaugural Event
- Ranking conducted through an online survey (n = 43)
- Top Three:
  - 3rd place: Bridging the gap between data and data science
  - 2nd place: Bringing Good Ideas Together for Good AI
  - **"Winner": Deep Learning, Deep Connections**

- **"Winning" RAD Collaboratory Mission Statement will be announced at the April 8th AI/ML Networking Event**

Hands-on Training in AI/Deep Learning

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- 1st tutorial held on February 18. Additional tutorials in the series scheduled for March 18, April 15, and April 29
- Led by Dr. Zhao Zhang, Assistant Professor
  Department of Electrical and Computer Engineering, SOE
- Received 70 applications from across Rutgers – graduate students, postdocs, and faculty (exceeded capacity, will be repeated in Fall 2025)

RAD Collaboratory Upcoming Events

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- Artificial Intelligence/Machine Learning Networking Event – April 8
  - Lightning talks focused on the development and application of AI/ML tools
  - Briefings on university, regional, and national cyberinfrastructure supporting AI/ML research
  - Brainstorming on federal, state, and private funding mechanisms for RAD partnerships

- Rutgers Day – April 26
  - Table on the Busch campus to showcase RAD Collaboratory's research to the greater New Brunswick community

- NJ Big Data Alliance – Research Collaboration Forum on March 14 & Annual Symposium on May 16
  - Research presentations by RAD Collaboratory affiliates
  - Table at symposium held at William Paterson University to showcase RAD Collaboratory amongst other academic institutions, governmental agencies, industry, and nonprofits and ad in program booklet to be distributed to all attendees

- Research Symposium – September TBD
  - Keynote Lecture
  - Lightning Talks
  - Panel Discussions
  - Student Poster Session
  - World Café to gather input on AI and DS research needs

Summer Undergraduate Research Fellowship

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- Hands-on summer research experience focused on AI and DS open to Rutgers rising Juniors and rising Seniors
- Timeline:
  - February: Call for faculty mentors
  - March: Call for student fellows
  - April: Student fellows paired with faculty mentors
  - Program Duration: May 27 to August 1 (10 weeks)
- Programming under development
  - Orientation
  - Social events
  - Lunch time webinars
- Expecting +/- 25 fellowships

PERC Overview

Platform for Education and Research Cores

Four Main Goals

Existing and New Research Cores	Experiential Learning	Vertical Teaching	Digital Credentialing
• Physical • Virtual	• Undergraduate Students • Graduate Students • Postdoctoral Researchers • External Workforce	• Faculty • Postdoctoral Researchers • Graduate Students	• Revenue Stream

Academic Master Plan
Pillar I: Scholarly Leadership
Pillar II: Innovative Research
Pillar III: Student Success
Pillar IV: Community Engagement

IMPACT

Life Sciences Alliance Task Force Report, June 2024

Research Experiences for Diverse Student Population
Community and Alumni Engagement
Industry and State Agency Partnerships
Broader Impacts for Large-Scale Funding

First Tranche of PERC Awardees

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- The Scarlet Vision Data Workshop will make use of Augmented Reality and Virtual Reality technology, in combination with GPU-enabled workstations and data analysis software, to support active learning through lectures and "virtual hands-on" interaction and exploration of data.

Scarlet Vision Data Workshop

Wade Trappe, SOE

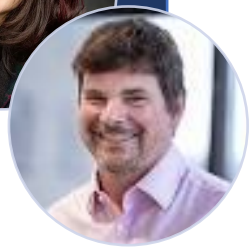
- Through this PERC, scientists will master the cryo-transmission electron microscopy workflow end-to-end. Hands-on experiments include vitrification, electron microscopy, automated data acquisition, and reconstruction of three-dimensional density maps.

CryoEM

Jason Kaelber, IQB
Stephen Burley, IQB, SAS

- Design Justice Labs (DJLs) will focus collaborative student research on the probing and prompting of these new generative technologies using templates recommended by data scientists, engaging input particular to Rutgers students, the local community, and the campus at large.

Critical AI



Lauren Goodlad, SAS
Matthew Stone, SAS

Today's Agenda

- Lightning talks from Rutgers researchers assembling and managing large data sets
- Briefings on Data Science best practices, cyberinfrastructure resources, and training opportunities
- Brainstorming on federal, state, and private funding mechanisms to support inter-disciplinary RAD partnerships