DOING GOOD AND DOING WELL THROUGH RESEARCH COLLABORATION WITH THE SCHOOL OF MANAGEMENT

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Agenda

- Meet School of Management (SOM) research faculty:
  - Haimonti Dutta
  - Indranil Goswami
  - Kyle Hunt
  - Ram Ramesh
  - M. Kim Saxton
  - Todd Saxton
  - Milind Sohoni
  - Raj Sharman
- Discover other SOM resources
- Exchange ideas for collaboration

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POLL 1

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POLL 2

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WELCOME FROM THE DEAN

Ananth V. Iyer
Dean and Professor
School of Management
University at Buffalo
160 Jacobs Management Center
Buffalo, NY 14260-4000

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Our areas of research

Enhancing Healthcare Operations

Improving Patient Flow

Resource Optimization

Improving Healthcare Communication

Understanding Healthcare Technology

Influencing Preventative Healthcare Behaviors

Promoting Patient Engagement

Innovation and Entrepreneurship in Healthcare

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Haimonti Dutta

- Focus in Machine Learning, Distributed Optimization and Large Scale Learning
- Research Interests – Application of machine learning, statistics, and probabilistic inference to Electronic Health Records (EHRs) to discover large-scale, consistent, patterns; use of unconstrained optimization methods to design scalable and efficient algorithms for noisy, multimodal (text, images, video) EHR data; use of distributed computing infrastructure for designing machine learning algorithms for healthcare
- Methodologies - Statistical Methods, Machine Learning.

(a) The micro electrode array, measuring 4mm x 4mm with 1 mm micro-electrodes arranged in a 10 x 10 grid.

(b) Intraoperative photograph of subdural grid and strip arrays and the implanted micro-electrode array at the Columbia University Medical Center (CUMC). Note that the micro-electrode array with its 96 contacts records from approximately the same brain area as a single subdural "macro-electrode".

(c) Intraoperative photograph of the micro-electrode array implantation procedure. The array is pneumatically inserted into the flat surface of an exposed gyrus within the epileptogenic zone using the wand shown in the center of the photo.

(a) Daytime

(b) Nighttime (note lack of color)

(c) Video time-locked to EEG. The vertical green dashed line indicates the timepoint in the EEG corresponding to the video frame currently being displayed.

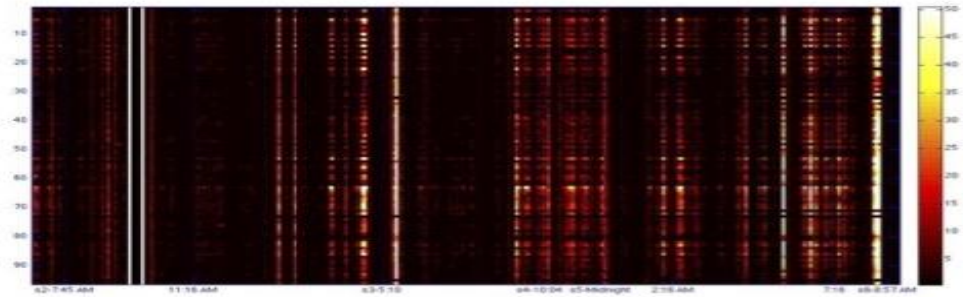

Figure 3: HFOs detected over a 12-hour period from midnight to noon. The Y-axis shows the channels and markings on the X-axis indicate times of seizure in this patient.

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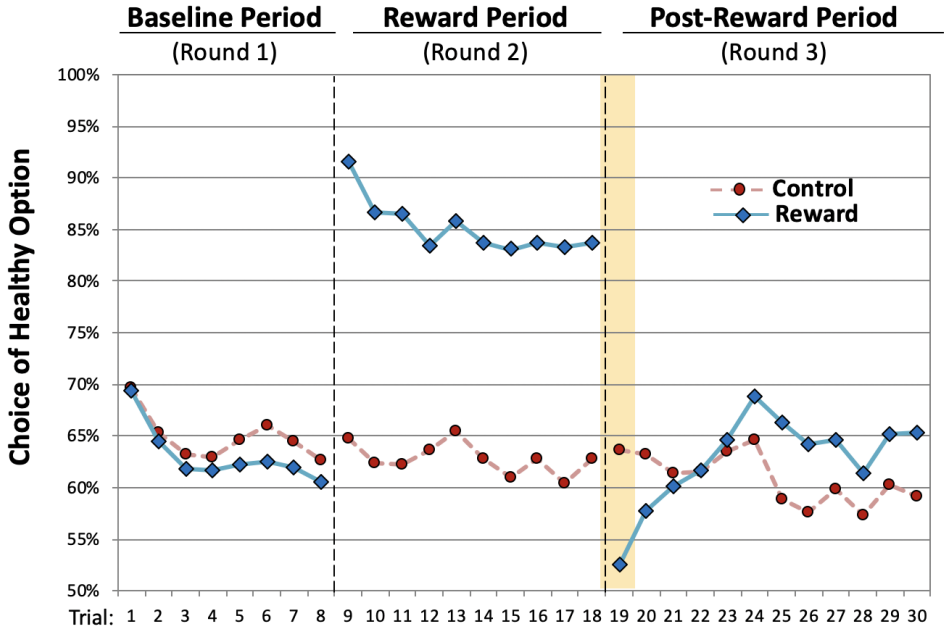
Indranil Goswami

- Focus – Nudges, Choice Architecture, Self-control Issues, Judgment and Decision Biases
- Research Interests – How external incentives affect motivation and compliance, the psychology of food labeling, effect of wearable technology on health outcomes, designing nudges to improve healthy choices
- Methodologies – Field and Lab Experiments, Secondary Data Analysis, Econometrics



Dynamic Effect of External Incentives on Healthy Choices

Kyle Hunt

- Focus in Management Science and Information Systems
- Research Interests – Optimizing health care operations, technological transformation in health care, health care economics, clinical trial planning and design
- Methodologies – Operations research (optimization, game theory, decision analysis), machine learning, behavioral methods (online/lab experiments)
- Related work – Aside from published work focused on strategic decision-making during pandemics, Dr. Hunt has ongoing work on the topic of clinical trial planning

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Ram Ramesh

- Focus in Management Information Systems
- Research Interests – Health Information Exchanges, Impact of technologies such as HIE, data analytics methodologies and resource optimization approaches to healthcare services, Clinical referral practices, Impact of HIE on referral patterns, Impact of HIE on patient flux at primary care (referrals, follow-ups, doctor-shopping behaviors), HIE as a multi-sided platform and its adoption and usage, behavioral analytics of healthcare systems and services
- Methodologies – Healthcare analytics, data science, resource optimization, econometrics, micro randomized trials, field experimentation

Influence of Health Information Exchanges on Patient Movement at Primary Care (authors: Saeede Eftekhari, Ram Ramesh)

Problem Specification: We examine the influence of Health Information Exchanges (HIEs) on patient flux at primary care. Two forms of flux are studied: *Random* and *Managed*. Random flux occurs when patients switch from their Primary Care Physicians (PCPs) to other PCPs of their own volition. Managed flux happens when patients are referred by their PCPs to specialists and when they return to their PCPs for follow-up care.
Practitioner Audience: Our findings inform physicians, policymakers, and system designers. It is essential for healthcare providers to be cognizant of how HIE affects their patient flux. Similarly, HIE platforms need to recognize how they could sustain their business when patient markets change due to their introduction.
Core Insight: Our study demonstrates the following significant effects of HIE: *empowerment* of patients to switch their PCPs, and enhancement of *competition* among member PCPs, *faster return* of patients for follow-up care to HIE member PCPs, and enhancement of *cooperation* among HIE member physicians.
Practical Implications: This study finds that while HIE increases patient influx to member PCPs, it also raises patient efflux from them, fostering competition among member PCPs and driving them towards higher quality services. Additionally, by expediting patient return for follow-up care to PCPs, HIE prevents patient leakage from PCPs, encouraging them to refer patients within the HIE network. These insights on improved competition and collaboration inform healthcare leaders and policymakers.

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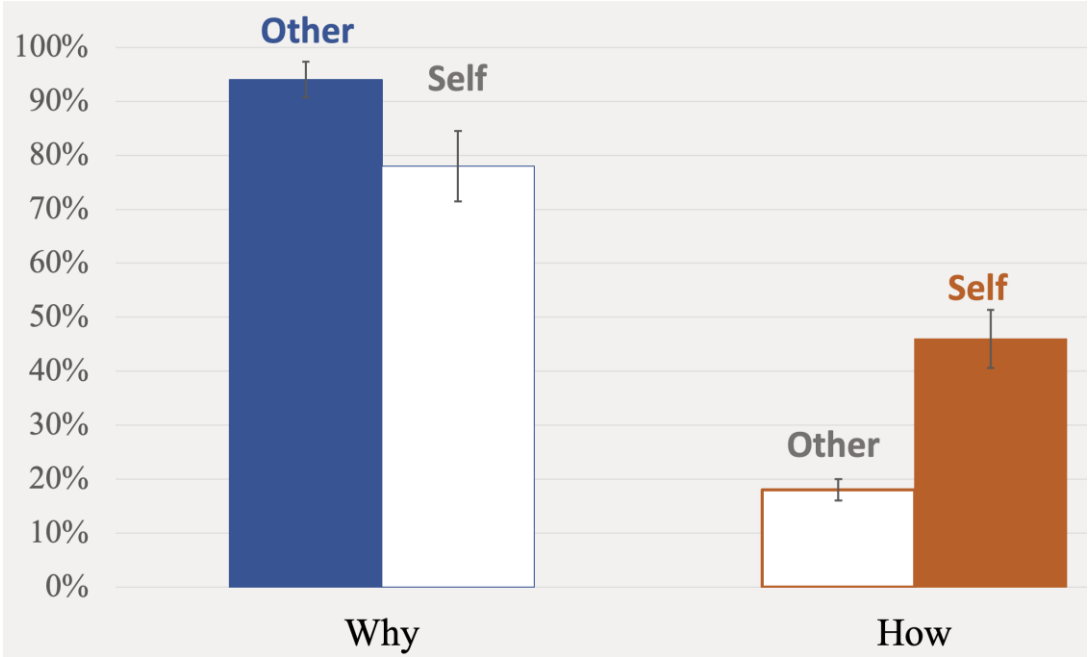
M. Kim Saxton

- Focus in Marketing, Entrepreneurship and Innovation
- Faculty Director of the Behavioral Research Lab
- Research Interests - Application of consumer decision making models, behavioral nudges, and segmentation strategies to improve preventative health care behaviors
- Methodologies – Experiments, Surveys, Twitter Sentiment, Research Design and Database Strategy

People view vaccines as psychologically distant



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Todd Saxton

- Focus in Entrepreneurship, Innovation and Strategy
- Faculty Lead, Life Science Entrepreneurship and Innovation Programs
- Research Interests – Health science entrepreneurship and innovation, commercializing research out of universities, and Health Behavior messaging
- Methodologies – Surveys, longitudinal research, Experiments

A Prosocial message is 10% points more effective

Table 4
Regression Results Predicting Likelihood of COVID-19 Vaccination from Study 3.

Variable	Estimate	SE	t	95 % CI LL	95 % CI UL	*p*
Constant	52.722	19.119	2.758	14.864	90.579	0.007
Prosocial or Cost	−10.997	4.982	−2.207	−20.861	−1.132	0.029
Political Orientation	−3.154	2.291	−1.377	−7.689	1.381	0.171
Age	−0.128	0.231	−0.555	−0.584	0.328	0.581
Gender	−1.418	5.139	−0.276	−11.593	8.757	0.783
Prosocial Tendency	−4.037	2.282	−1.768	−8.555	0.482	0.079
Financial Worry	3.313	1.792	1.849	−0.235	6.860	0.067

Dependent Variable: "The COVID-19 situation continues to change quickly. How likely do you think you are to get the vaccine in the next six months?".

Milind Sohoni

- Area: Operations Research / Management
- Research Interests: Supply Chain Analytics, Transportation and Logistics, **Healthcare Service Design/Analytics (Public Health)**, Nonprofit Operations
- Methodologies: Combinatorial and computational optimization, empirical modeling, game-theoretical modeling, Statistical Learning Models.
- Sample published healthcare-related work:

  S. Deo and M. Sohoni. “Optimal decentralization of early infant diagnosis of HIV in resource-limited settings”. In: Manufacturing & Service Operations Management 17.2 (2015), pp. 191–207.

  S. Deo, M. Sohoni, J. Gambhir, and P. Arora. “Innovation in Community Delivery of TB Care in India”. In: Harvard Business Publishing Case Study: ISB013 (2013).

Work-in-progress:

- NIH proposal to study operational risk in clinical trials
- Health-equity: Risk stratification of black pregnant women using social determinants of health
- NCDs in Ghana

Raj Sharman

- Research Interests – the intersection of (a) Healthcare and (b) Information Systems, Management Science, and AI technologies.
- Primarily interested in developing technology such as Chatbots to improve patient safety and other initiatives that empower patients.
- Also interested in improving the quality of care though the use of HIE, and Accountable Care Organizations:
  - Especially the use of patient navigator
  - Addressing patient needs, including the Social Determinants of Health

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Behavioral Research Lab

Research facility where faculty collect and analyze data for the purpose of publishing top-tier, impactful academic research and meeting private industry needs:

- Quantitative Techniques including surveys and database analysis
- Qualitative Techniques
- Adding Physiologic Measures including Eye Tracking, Facial Coding, and Galvanic Skin Response

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Behavioral Research Lab iMotions Demo Day
Thursday, December 12, 2024

Come test out the system for yourself and hear how it works on North Campus at the Jacobs Management Center.

- 11:00-11:45am **Hands-on demonstration sessions**
- 11:45am – 1:15pm **Lunch, Talks and Q&A**
- 1:15-2:00pm **Hands-on demonstration sessions**

RSVP HERE

Four ways that we can collaborate on research with you

1. Leverage our methodological skills in existing projects:
   - Machine Learning and Statistical Learning Models
   - Combinatorial and Computational Optimization
   - Econometrics and other Advanced Statistical approaches
   - Game Theory and Game-Theoretical Modeling
   - Secondary Data Analysis and Database Analytics
   - Experimental Design both in the Lab and in the Field
   - Survey Design
2. Develop new projects and grants including SBIR/STTR projects to commercialize innovation
3. Explore the cost effectiveness of existing intervention alternatives
4. Access our students and their strong database and analytical skills

We can publish in either Management or Medical journals

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SPECIFIC TOPICS SOM RESEARCHERS ARE INTERESTED IN DISCUSSING

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OTHER RESOURCES

Center for Leadership and Organizational Effectiveness

Dorothy M. Siaw-Asamoah, Executive Director

CLOE strives to create more effective leaders and organizations through a variety of programs:

- Leadership Coaching Certificate
- Leadership Accelerator
- Custom Programs
  - Leadership Development
  - Coaching & Mentoring
  - Employee Engagement
  - Team Effectiveness
  - Organizational Change and Innovation

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Learn more: https://management.buffalo.edu/cel

Center for Entrepreneurial Leadership

Susan Steffan, Executive Director

- Programming for business owners – from emerging entrepreneurs to multi-generational, multi-million-dollar companies
- >1,700 program alumni, including many doctors, dentists, pharmacists, etc.
- > 200 business owners attend CEL programs annually
- Connects students to businesses for experiential projects and other learning opportunities
- Offers access to pool of businesses and business owners for research, grant opportunities, etc.
- Located at the UB Gateway Building downtown

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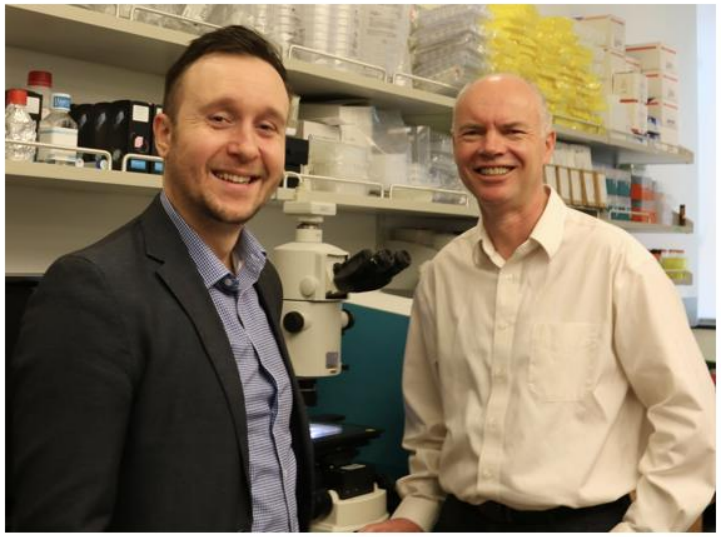
New Centers launching this year:

- ✓ Center for Supply Chain Analytics
- ✓ Center for Marketing Analysis
- ✓ Center for AI Business Innovation

SCAN hopes to bring 200 more companies from across the three-region territory into the semiconductor supply chain by 2035, in addition to the 100 or so already participating, Iyer said.

"A lot of this is like a big funnel," Iyer said. "You've got to tell a lot of people, a subset of them will get excited and join."

Sen. Charles E. Schumer announces $40 million in federal funding for a "semiconductor superhighway" in upstate New York



NEWS

Department of Energy three-year grant for AI-assisted biomedical research

The U.S. Department of Energy has awarded $1.5 million to a joint Hauptman-Woodward Medical Research Institute and University at Buffalo research project that will use artificial intelligence to study how cells and molecules respond to low doses of radiation. Dr. Edward Snell, Chief Scientific Officer at Hauptman-Woodward Medical Research Institute, and Dominic Sellitto, clinical assistant professor of management science and systems in the UB School of Management, will serve as co-principal investigators on the research.

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Submit project requests online:
https://management.buffalo.edu/faculty/projects-clinic/community-partners.html

Student - Community Projects

Led by Mike Krupski:

- Oishei Childrens Hospital Optimization Project - students built a simulation model to overcome bottlenecks and improve patient flow.
- UBMD Location Repository – students organized a central repository and map of locations, capabilities, hours, etc.
- UBMD Surgery - students are collaborating on a plan to bring medical tourism for elective bariatric surgery to Buffalo.

Community Partners

At the Projects Clinic, our mission is to drive innovation and catalyze success for businesses in the Buffalo region and beyond.

Contact Us

With a unique blend of academic excellence and real-world experience, we offer innovative consulting services tailored to address the distinct challenges faced by organizations in today's ever-evolving business landscape.

Team Specialties

Our team includes both graduate and undergraduate School of Management students from diverse academic backgrounds and areas of specialization, including:

- Data science
- Marketing
- Finance
- Operations and Supply Chain Management
- Management Information Systems
- Consulting
- Business analytics

What to Expect From Us

A team of students, operating with oversight and guidance from School of Management faculty, will develop solutions to the challenges you face in your organization. Our commitment is to provide actionable recommendations that drive success and foster growth.

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QUESTIONS FOR ANY OF OUR RESEARCHERS?

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BREAKOUT ROOMS

1 – Ramesh, Raj, Haimonti

2 – Milind, Kyle and Indranil

3 – Kim and Todd