

# SUMMARY OF 2013 UB NATIONAL SUMMER TRANSPORTATION INSTITUTE

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July 8 – 12, 2013



**New York State  
Department of  
Transportation**



**Federal  
Highway  
Administration**



**UB School of  
Engineering and  
Applied Sciences**



**University at Buffalo**

*The State University of New York*

# Goal of NSTI

- *“To support the inclusion of high school students, from diverse backgrounds, within National Summer Transportation Institutes that result in an increase in the number of students pursuing transportation related careers”*



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The State University of New York



# Closing Remarks



Associate Dean for Research and Graduate Education, School of Engineering and Applied Sciences, and Professor of Department of Industrial and Systems Engineering



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# Introduction to Federal Highway Administration (FHWA)

Christine Thorkildsen  
Kara Parnett

Civil Rights Program



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# 2013 UB NSTI Overview

- Five-day non-residential summer program.
- Program Curriculum: 8 lectures, 4 projects, 3 field trips and 3 enhancement sessions.
- 20 out of 21 high school students finished the program
- 8 – 11 grade
- 12 different middle/high schools
- 7 female and 13 male
- 5 minority students



# NSTI Program Curriculum

4 Lectures (45 min each)	Career Opportunities in Transportation
	Hazmat Transportation and Safety
	Transportation Practice in NY State
	Railway Engineering
4 Projects with lectures (1.5 hr – 3 hr each)	Traffic Data Collection and Signal Optimization
	Human Factors and Driving Simulator
	Multi-modal Traffic Signal Control
	Bridge Design
3 Field trips (3.5 hr each), 5 hosts	Land transportation.
	• Bus garage at Niagara Frontier Transportation Authority (NFTA)
	• Traffic operation center at Niagara International Transportation Technology Coalition (NITTEC)
	Water transportation.
	• Erie canal cruise at Lockport
	Air transportation
	• Air Control Tower at Buffalo Niagara International Airport
	• Field Tour of Buffalo Niagara International Airport
3 Enhancement activities (1.5 hr each)	Leadership, Team Build and Communication Skills
	College Preparation and Admission Process
	Computer lab and PowerPoint Presentation Preparation

# Academic: Lectures

- Career Opportunities in Transportation (Mon)

**Athena Hutchins**

Executive Director

Niagara International Transportation  
Technology Coalition (NITTEC)

- Discuss various opportunities within the transportation career, including government, industry and academia.



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# Academic: Lectures

- Safety in Hazmat Transportation (Wed)

**Changhyun Kwon**

Assistant Professor

Department of Industrial & Systems Engineering, UB

- Introduce transportation safety and security issues associated with the transportation of hazardous materials.
- Learn the current status of hazmat transportation, and how transportation engineers can help reduce risk





# Academic: Lectures

- Transportation Practice in NY State (Thu)

**Susan Surdej**

Assistant to the Regional Director  
Regional Public Information Officer  
NYS Department of Transportation -  
Region 5

- Introduce mission, current transportation practice and future development of NYS Department of Transportation



# Academic: Lectures

- Railway Engineering (Fri)

**Garvie Freeman**

Supervisor, Metro Rail Division  
Niagara Frontier Transportation Authority  
(NFTA)/Metro System

- Introduce how NFTA runs the metro system in Buffalo



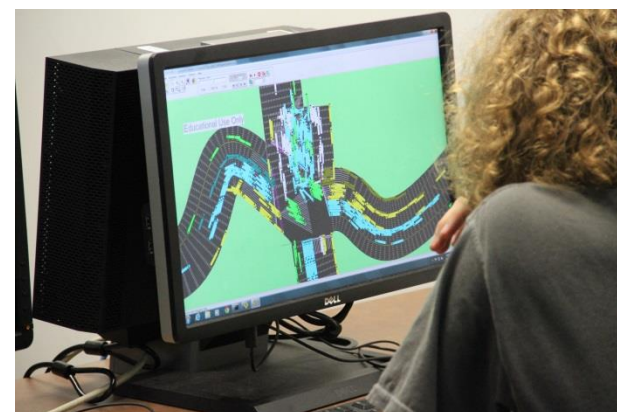
# Academic: Lectures and Projects

- Highway Transportation (Tue)
  - Project: Traffic Simulation and Signal Optimization

## Adel Sadek

Professor and Director of Graduate Studies  
Civil, Structural and Environmental Engineering, UB

- Collect real-world traffic volume data at an intersection
- Design and optimize traffic signal plans by SYHCRON





# Academic: Lectures and Projects

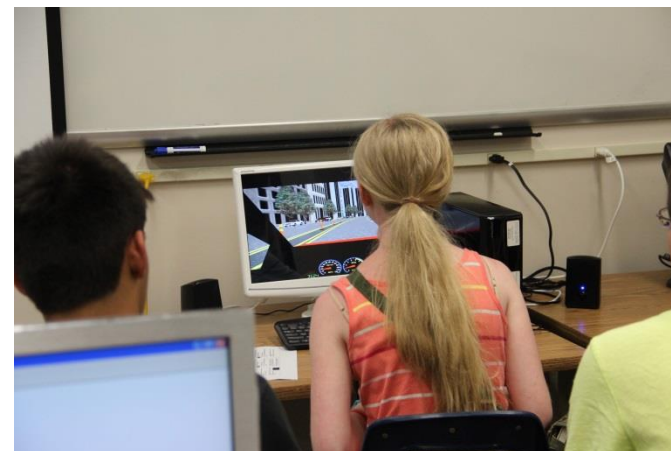
- Traffic Safety and Human Factors (Wed)
  - Project: Driving Simulator

## Jingyan Wan

Ph.D. Candidate

Department of Industrial & Systems Engineering, UB

- Learn how researchers use driving simulation laboratories to safely conduct human factors research,
- Develop and test “driving” scenarios using UB’s state-of-the-art driving simulator.



## Academic: Lectures and Projects

- Multi-modal Traffic Signal Control (Wed)
  - Project: Manual multi-modal signal control

### Nan Ding

Ph.D. Candidate

Department of Industrial & Systems Engineering, UB

- Learn how to be a police officer!
- Control multimodal traffic at an intersection, including pedestrians, buses and passenger cars.
- Compete with results from police officer



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# Academic: Lectures and Projects

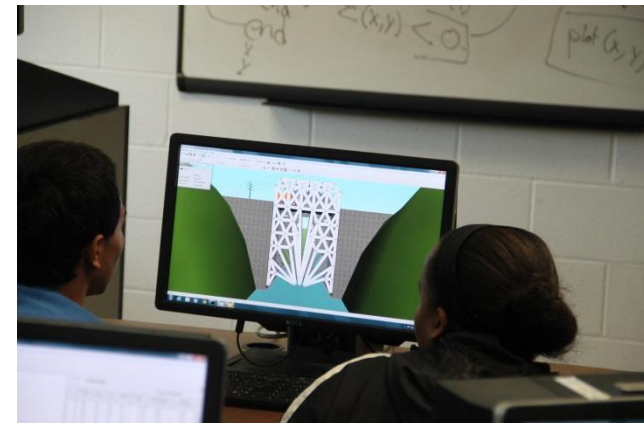
- Construction and Transportation Infrastructure (Thu)
  - Project: Bridge Design

**Mettupalayam V. Sivaselvan & Jongmin Shim**

Assistant Professor

Department of Civil, Structural and Environmental Engineering, UB

- Introduce basic knowledge of building a bridge
- Design your own bridge with lowest costs





# Field Trips

- Trip 1: Land transportation (Tue):
  - Bus garage at Niagara Frontier Transportation Authority (NFTA)
  - Traffic operation center at Niagara International Transportation Technology Coalition (NITTEC)





# Field Trips

- Trip 2: Water transportation (Wed):
  - Erie canal at Lockport
  - “Locking through” and being raised the 49 ft. elevation





# Field Trips

- Trip 3: Air transportation (Thu)
  - Airport Control Tower
  - AirField Tour

**Brady Zdrojewski**  
Support Specialist

**Thomas C. Dames**  
Airfield Superintendent,



# Enhancement

- Leadership, Team Build and Communication Skills (Mon)

**Jude Butch & Terri Budek**  
Leadership Programming  
Coordinator  
Center for Student Leadership  
& Community Engagement





# Enhancement

- College Preparation and Admission Process (Mon)

**Amanda Casali**

Admissions Advisor

Office of Admissions, UB



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# Enhancement

- Computer lab and PowerPoint Presentation Preparation (Fri)

**Ming Ni & Charles Asamoah**  
NSTI Staff





# Student Presentation

NO	FIRST NAME	LAST NAME
1	Madeline	Bell
2	Owen	Collins
3	Andrew	Gonzales
4	Tatyiana	Gordon
5	Amanda	Horner
6	Avryn	Jackson-Bonus
7	Wesley	Lewis
8	Nathan	Martens
9	Sean	McDonough
10	Ryan	Meek
11	Marisa	Mezzio
12	Matthew	Minotti
13	Emma	Ouweleen
14	Steven	Paganelli
15	Jesse	Rieman
16	Garrett	Schie
17	Jeffrey	Simet
18	Jordan	Tick
19	Isabel	Urbanski-Farrell
20	Monica	Wild



