



Institute for Sustainable Transportation & Logistics (ISTL) Annual Progress Report May 2014

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1. Institute for Sustainable Transportation & Logistics (ISTL) Brief Overview:

The Institute for Sustainable Transportation and Logistics (ISTL) was envisioned to serve as an umbrella which brings together faculty and students from all across UB interested in transportation and logistics research. ISTL is jointly led by the School of Engineering and Applied Sciences (SEAS) and the School of Management (SOM), and houses research programs focused on transportation, logistics and Supply-Chain Management (SCM), offers a new interdisciplinary master's degree (along with a certificate) in Sustainable Transportation and Logistics, and engages in an numerous outreach for community engagement and fostering partnership with governmental agencies, the industry, and other academic institutions (both domestic as well as international. The institute was designed to leverage existing faculty from SEAS (specifically, Civil, Structural & Environmental Engineering (CSEE), Industrial & Systems Engineering (ISE), and Computer Science & Engineering (CSE)) and SoM (specifically from Operations Management and Strategy (OMS)). Additional faculty members from other disciplines (e.g. economics, geography, urban and regional planning, mechanical & aerospace engineering, and electrical engineering) are affiliated with the institute. Besides leveraging existing faculty, the initiative is in the process of hiring a total of 7 net new faculty hires (4 in SEAS and 3 in SoM). This report will briefly highlight some of the recent progress and accomplishments of ISTL, and tie these to some of the metrics that were established in the proposal.

2. ISTL Establishment

Great progress has been made toward establishing ISTL. In this section, we briefly highlight the core and affiliated faculty now constituting ISTL, discuss the achievements of the hiring process, the hiring of an outreach and operations coordinator, the development of a website for ISTL, and the assembling of an External Advisory Board for the Institute.

2.1 Core and Affiliated Faculty

At the current moment, ISTL is comprised of a total of 19 core faculty members (4 from CSEE , 5 from ISE, 5 from CSE, and 5 from OMS). Besides the 19 core faculty members, there are 6 additional faculty members affiliated with ISTL drawn from the departments of Economics, Geography, Urban & Regional Planning, Mechanical & Aerospace Engineering, and Electrical Engineering. In other words, the total number of core and affiliated ISTL faculty at the moment are 25 faculty members coming from 9 different departments and four different schools across UB.

2.2. Hiring Process

5 new faculty (out of a total of 7 faculty lines promised to ISTL over the three year period of the E-fund) have been successfully hired since the establishment of ISTL. These hires are listed in Table 1 below, along with the institution where they received their Ph.D. degree, their primary departments at UB and their areas of expertise.

Table 1. Faculty Successfully Hired

Start Date	Name	Ph.D. Institution	Hiring Department	Area
Fall 2013	Dr. Panos Anastasopoulos	Purdue University	Civil Engineering (SEAS)	Infrastructure management, traffic safety, econometrics, advanced statistical modeling
	Dr. Jee Eun (Jamie) Kang	UC Irvine	Industrial & Systems Engineering (SEAS)	Network design for alternative-fueled vehicles, activity-based travel modeling, Operations Research
	Dr. Jurrian De Jong	Ohio State University	Operations & Management Strategy (SoM)	Health-care supply chain management, buyer-supplier relationship, operations management, statistics
Fall 2014	Dr. Wen Dong	MIT	Computer Science (SEAS)	Big Data Analytics, Cyber Physical Systems, Agent-based modeling
	Dr. Mike Wei	Washington University	Operations & Management Strategy (SoM)	Supply chain management; game theoretic operations models; revenue management and dynamic pricing; strategic consumer behavior; social networks

2.3 ISTL Staff

In fall 2014, Ms. Jennifer Giegel joined ISTL as the Institute's Outreach and Operations Coordinator. Ms. Giegel has a wide range of experience in webpage development and maintenance, outreach, partnership building, and project management. She works part-time for ISTL and part-time for the Shared Instrumentation Initiative.

2.4 Office and Lab Space

Office space in Ketter 204 has been secured to serve as the headquarters for ISTL, along with a high-tech educational lab in Jacobs which will be utilized to teach some classes for the ISTL new interdisciplinary degree in Sustainable Transportation and Logistics.

2.5 Web Presence

A website has been developed for ISTL (<http://www.buffalo.edu/istl>). The website provides background information about ISTL, the research performed, the Institute's educational initiatives, news, and upcoming events.

2.6. External Advisory Board

An External Advisory Board has been established for ISTL to help advise the Institute on matters related to educational, research, and the transportation and logistics industry. The EAB is envisioned to play a critical role, as well, in the outreach and partnership initiatives of ISTL. Below is a listing of the current EAB members and their positions.

1. Jack Ampuja, President and CEO, Supply Chain Supply Chain Optimizers and co-Chair of the Logistics Council of Buffalo Niagara Partnership
2. Dave Duchscherer, Chairman, Wendel
3. Thomas George, Surface Transportation Director, Niagara Frontier Transportation Authority (NFTA)
4. Athena Hutchins, Executive Director NITTEC
5. Darrell Kaminski, Regional Director, NYSDOT District 5
6. Tim Mathien, Director, ROAR Logistics

7. Dr. Stephen Still, Managing Director, Seabury APG - Aviation Planning & Technology
8. Jessica Windham, Director of Logistics, Perry Ellis International

3. Research Achievements

One of the major research achievements of ISTL so far has been the awarding of UB's first ever U.S. Department of Transportation's University Transportation Center. Specifically, thanks to the University's investment in ISTL, we were able to secure one of only 33 nationally funded centers. The focus of the Center, which is called *TransInfo*, is on Transportation Informatics and harnessing the power of Big Data to improve transportation system performance. The Center's overall budget is around **\$4.25 million**, over a four year period. UB is the leading this of the consortium which is made of: Rensselaer Polytechnic Institute, George Mason University, and University of Puerto Rico – Mayaguez, along with CUBRC. Other research achievements of the Institute's faculty include:

- The success of several of the new hires in securing external funding
- Dr. Chang Kwon of ISE receiving the NSF CAREER Award
- Prof. Chunming Qiao receiving the SUNY Chancellor's Award for Excellence
- Prof. Rajan Batta being named a SUNY Distinguished Professor
- Prof. Nallan Suresh's doctoral students receiving the 2012 ISM Doctoral Dissertation Award

4. Educational Achievements

A key component of ISTL's educational vision is a signature *trans-disciplinary* M.S. degree in Sustainable Transportation and Logistics (STL). The proposed curriculum for this new degree has been developed and is envisioned to consist of a core of 5 classes (three taught by SEAS, one by CSEE, a second by ISE, and a third by CSE, and two taught by SoM). Students will then choose either the transportation track or the logistics track. So far, we have had the Letter of Intent for the new degree approved by SUNY, and have selected three outstanding academicians to serve as reviewers for the degree application, and submitted their names to SUNY. These reviewers are:

1. Prof. Samer Madanat, Xenel Professor of Engineering, Chair, and Director for Institute of Transportation Studies, UC-Berkeley
2. Prof. Douglas M. Lambert, Raymond E. Mason Chair in Transportation and Logistics; Ohio State University
3. Prof. Ali Haghani, Professor, University of Maryland

5. Outreach Activities

- ISTL, in combination with TransInfo, has started a bi-weekly seminar series. A number of distinguished speakers were invited to the series last year including speakers from RPI, Penn State, UC-Irvine, Purdue and Cornell University.
- We visited IBM in September 2013 to discuss possible partnership opportunities in the area of Big Data and Supply Chain Management.
- We hosted transportation researchers from Xerox in March 2014, and discussed with them potential collaboration opportunities
- We are in discussions with NITTEC, GBNRTC and NYSDOT on possibly hosting their Big Data by taking advantage of the Center for Computational Research (CCR) capabilities
- We managed to arrange for internships for some of our students with a number of organizations including IBM, NITTEC, GBNRTC, and HDR.
- We sponsored the Transportation Summit event, which took place on May 2 here in Buffalo and had distinguished speakers including Congressman Brian Higgins, FHWA Deputy Administrator, and NYS Secretary of Transportation.
- We are working, in collaboration with CII-Institute of Logistics in India and USF, on a series of industry-academic events to benefit pharmaceutical industry executives and academics

Appendix A. Mapping of Accomplishments against ISTL's 3-year Objectives

3- Year Objectives	Accomplishments
Increase the number of ladder faculty and improve student/faculty ratio through the hiring of an additional seven new faculty members (4 in SEAS and 3 in SoM)	As mentioned above, we already successfully hired 5 out of the total 7 hires we have for ISTL
Submit center-type grants including an IGERT proposal to NSF, and a University Transportation Center (UTC) to the U.S. Department of Transportation	A University Transportation Center (UTC) grant has already been secured. Moreover, we have been selected to submit one of UB's two proposals to the NSF Research Traineeship (NRT) program for this year.
Submit 20 research proposals to NSF, USDOT, FHWA, TRB, DoE, DoD, and other federal and state agencies as well as to private industry (e.g., railroad and trucking industry).	ISTL faculty has submitted more than 20 research proposals so far to NSF, USDOT, FHWA, NCHRP, FRA, Xerox, and others
Submit 30 peer-reviewed publications in scientific journals or conference proceedings.	The number of transportation-related publications submitted by ISTL core and affiliated faculty far exceed 30.
Secure approval for the new interdisciplinary M.S. degree in Transportation and Logistics	The LOI has been approved, and the external reviewers selected.
Fund 15 – 20 different graduate students on externally funded projects	The number funded (partial and full) of graduate students working on transportation and logistics exceeds 15.
Graduate at least 4 Ph.D. students	This year, we have 2 transportation Ph.D. student from CSEE (Yunjie Zhao and Jingie Hu), and a third from CSE (Aditya Wagh) graduating in June or September 2014. We are expecting at least three more next year.
Establish an Advisory Board for ISTL, with members drawn from several local and global corporations, transportation governmental organizations and the trucking and rail industries.	Advisory Board established with currently 8 distinguished members as previously mentioned.
Offer students the opportunity for international experience through UB's branch campus at the Singapore Institute of Management during summer-time residencies. Collaborate with international academic institutions on joint research initiatives.	Currently seeking partnership opportunities with universities in Canada, Belgium, Greece, China, and others.
Hold two workshops or conferences on a theme related to Transportation & Logistics	Transportation Summit sponsored on May 2, 2014. Plans are underway for a workshop on Big Data in August/September time frame