

Tufts T-Tripods Launch Event

January 31, 2020

Morning Session: Location: Breed Hall, 51 Winthrop Street (Medford)

8am-8:30am Registration and Breakfast

8:30am-9am University Welcomes: Chaired by Abani Patra, DISC Director:

- Caroline Genco, Vice Provost for Research
- Tony Monaco, President of Tufts University
- Nadine Aubry, Provost of Tufts University
- Jianmin Qu, Dean of the School of Engineering
- Jim Glaser, Dean of the School of Arts and Sciences
- Remarks by Abani Patra, Director of DISC

9-9:15am Lenore J. Cowen, Dept. of Computer Science, and Dept. of Mathematics, Tufts University “Welcome and Overview of the Structure of T-Tripods”

9:15-10am Donna Slonim, Dept. of Computer Science, Tufts University and Dept. of Immunology TUSM, “*Anomaly Detection for Precision Medicine*”

10am - 10:45am Ethics Panel Discussion, chaired by Peter Levine (Tisch College, Tufts University) (Participants: Susan Landau (Tufts CS/Fletcher School), Peter Levine (Tisch College, Tufts Civic Studies), Nick Seaver (Dept. of Anthropology, Tufts University), Andrew Williams (TUSM))

10:45-11am BREAK

11am- 11:45am: Caterina Stamoulis, Department of Medicine (Pediatrics), Harvard Medical School and Division of Adolescent Medicine, Boston Children’s Hospital , “*Next-Generation Neuroscience: Studying the Brain with Big Data in Ecologically-Valid Settings*”

BREAK FOR LUNCH 12-1:30pm (invited speakers lunch in Coolidge Room, Ballou Hall)

Afternoon Breakout Sessions: 1:30-5pm

Session 0: Foundations of Data Science: Chair: Misha Kilmer: Olin 011	Session 1: Biological and Biomedical Data: Chair: Giovanni Widmer. Dowling 745A	Session 2: Education and Cognitive Science: Chair: Eric Miller: Cabot 702
Session 3: Smart Cities: Design and Development. Chair Laurie Baise: Cabot 703	Session 4: Computational Humanities: Language & Music. Chair: Greg Crane: Olin 012	Session 5: Broadening Participation/Data Science for All. Chair: Ellise LaMotte: Dowling 745B

Breakout Session 0: Location: Olin 011

Foundations of Data Science

Chaired by Misha Kilmer, Dept. of Mathematics, Tufts University

1:30-2pm Misha Kilmer, Dept. of Mathematics, Tufts University: *"Tensor Decompositions for Compression and Analysis of Multiway Data"*

2-2:30pm Mike Hughes, CS Dept. University: *"Prediction-Constrained Probabilistic Models"*

2:30-3pm Shuchin Aeron, ECE Dept., Tufts University: *"Unlabeled Sensing and Unsupervised Change Point Detection: A View Through the Lens of Optimal Transport"*

3-3:15pm BREAK

3:15-3:45pm Liping Liu, CS Dept, Tufts University: *"Graph Neural Networks and their Applications in Spatial Data Modeling"*

3:45-4:15pm James Murphy, Dept. of Mathematics, Tufts University: *"Data-Dependent Distances for Unsupervised and Active Learning"*

4:15-4:45pm Xiaozhe Hu, Dept. of Mathematics, Tufts University, *"A Multilevel Subgraph Preconditioner for Graph Laplacians"*

4:45-5pm Wrap Up and Discussion of Next Steps

Breakout Session 1: Location: Dowling 745A

Biological and Biomedical Data

Chaired by Giovanni Widmer, Tufts Veterinary School

1:30-2 Jose Ordovas, JM-USDA-HNRCA at Tufts University: *"Big Data and Precision Nutrition"*

2-2:30 Greg Carter, The Jackson Laboratory: *"Complex Disease Analysis in Humans and Mice"*

2:30-3 Mingyang Lu, The Jackson Laboratory: *"Deciphering the Design Principles of Gene Regulatory Circuits Driving Cellular State Transitions"*

3-3:15 BREAK

3:15-3:45 David Kent, Tufts CTSI, TUSM: *"Predicting the Effects of Treatments in Individual Patients"*

3:45-4:15 Michael Chin, TUSM: *"Multi-Omics Approaches to Human Hypertrophic Cardiomyopathy"*

4:15-4:45 Giovanni Widmer, Tufts Veterinary School: *"Dissecting The Complexity of Bacterial Populations and Its Relevance to the Host"*

4:45-5pm Wrap Up and Discussion of Next Steps

Breakout Session 2: Location: Cabot 702

Education and Cognitive Science

Chaired by Eric Miller, ECE Dept., Tufts University

1:30-1:50: Marina Bers, Dept. of Child Development, Tufts University: *"Coding in Early Childhood: Storytelling or Puzzle Solving?"*

1:55-2:15: Alva Couch, CS Dept., Tufts University: *"An Ecosystem for Data Science Education at Tufts"*

2:15-2:40: David Hammer, Dept of Education, Tufts University: *"An Example of Qualitative Analysis I Hope Machines can Learn"*

2:40-3: Hannah Sevian, Dept. of Chemistry, UMass Boston: *"Wish for Machine-Based Ethnographic Synthesis of Empirical Signals during Productive Struggles in Learning"*

3-3:20pm Ayanna Thomas, Dept. of Psychology, Tufts University: *"Breaking the Barrier of Test-Day Anxiety"*

3:20-3:40pm Ira Caspari, Dept. of Chemistry, UMass Boston: *"Analyzing Reasoning, Personal Interactions, and Sociocultural Context"*

3:40-4pm Kristen Wendell, Dept. of Mechanical Engineering, Tufts: *"Exploring Knowledge Construction Discourse in Engineering Learning Environments"*

4-5pm Informal discussion, led by Eric Miller and David Hammer

Breakout Session 3: Location: Cabot 703

Smart Cities: Design and Development

Chaired by Laurie Baise, Dept. of Civil and Environmental Engineering, Tufts University

1:30-1:55pm Laurie Baise, Dept. of Civil and Environmental Engineering, Tufts University: *"Images and Signals for Damage Detection of City Infrastructure"*

1:55-2:20pm Shan Jiang, Dept. of UEP, Tufts University: *"Sustainable Urban Mobility for Smart Cities"*

2:20-2:45pm Justin Hollander, Dept. of UEP, Tufts University: *"Designing Smart Cities: A Role for Unobtrusive Community Engagement"*

2:45-3:10pm Bhaskar Chakravorti, Dean of Global Business, Fletcher School, Tufts University: *"Designing the Smart City: Global Lessons from Designing Smart Societies"*

3:10-3:35pm Break

3:35-4:00pm Adam Storeygard, Dept. of Economics, Tufts University: *"Satellite and Smartphone Data in the Economics of Place"*

4:00-4:25pm Jonathan Lamontagne, Dept. of Civil and Environmental Engineering, Tufts University: *"Adaptive Control of Reservoir Systems Confronting Uncertainty"*

4:25-5pm Open Discussion

Breakout Session 4: Location: Olin 012

Computational Humanities

Chaired by Greg Crane, Department of Classics, Tufts University

1:30-1:55pm Greg Crane, Dept. of Classics, Tufts University: *"Beyond (Machine) Translation: Language Hacking and New Approaches to a Hyperlingual World"*

1:55-2:20pm Anna Rumshisky, Dept. of Computer Science, UMASS Lowell: *"Can Human Language AI Learn a Modular Representation for Language Inputs?"*

2:20-2:45pm Derry Wijaya, Dept. of Computer Science, Boston University: *"Detecting Media Framing"*

2:45-3:10pm Break

3:10-3:35pm Joe Paradiso, MIT Media Lab: *"Mapping the Sensate World: Data as the Canvas of Future Artists"*

3:35-4:00 Anna Kijas, Tisch Library, Tufts: *"Beyond Listening: Music as Data"*

4:00-4:25 James Intrilligator, Dept. of Mechanical Engineering, Tufts University: *"Do You See What I'm Sayin'?: A Personal Journey Through Synesthesia"*

4:25-5pm: Open Discussion

Breakout Session 5: Location: Dowling 745B

Broadening Participation

Chaired by Ellise LaMotte, Center for STEM Diversity, Tufts University

This TRIPODS Broadening Participation session will provide participants with ideas and best practices, used by other local higher education institutions. The session's goal is to have an interactive dialog about broadening participation strategies that can be shared and used by all who attend. The session will comprise of two parts. The first part (**1:30-2:30pm**) will consist of a panel discussion with our colleagues from Northeastern University, Boston University, Massachusetts Institute of Technology and Harvard. During the panel discussion the panelist will share their experiences as they pertain to broadening participation initiatives. The second part of the session (**2:30-5pm**) will consist of group work as participants discuss their involvement in broadening participation, the initiatives that worked and those the posed challenges. Through these two activities it is our goal for the participants to walk away with some broadening participation ideas and initiatives they can use as they submit grant and research proposals.

Panelists are:

Richard Harris, Assistant Dean, Academic Scholarship, Mentoring and Outreach & Director of NU Program in Multicultural Engineering, Diversity Programs, Northeastern University

Wynter Duncanson, Assistant Dean of Outreach and Diversity, Lecturer (BME), Boston U.

Sheila Thomas, Dean for Academic Programs and Diversity, Harvard University

Reimi Hicks, Manager of Outreach Programs, Office of Engineering Outreach, MIT