GRAPH DRAWING AND NETWORK VISUALIZATION
SEPTEMBER 24-27, 2017

WELCOME TO BOSTON!

Alumni Center
Northeastern University
716 Columbus Avenue
Boston, MA 02120

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Northeastern University
College of Computer and Information Science

CONFERENCE SCHEDULE

All speaker presentations will be held in the Alumni Center. Coffee, food breaks, and poster sessions will take place in the Alumni Center and Faculty Club.

Key
Track 1: T (Theory) Paper/Ts (Theory) Short Paper
Track 2: A (Applied) Paper

Sunday, September 24, 2017

7:00pm   Welcome Reception and Registration

Monday, September 25, 2017

8:30am   Breakfast and Registration
9:00am   Opening
Session 1   **Straight-Line Representations (M. Nöllenburg)**
9:10am   Aligned Drawings of Planar Graphs – T
Tamara Mchedlidze, Marcel Radermacher, and Ignaz Rutter
9:30am   On the Edge-Length Ratio of Outerplanar Graphs – Ts
Sylvain Lazard, William Lenhart, and Giuseppe Liotta
9:50am   On Vertex- and Empty-Ply Proximity Drawings – T
*Patrizio Angelini, Steven Chaplick, Felice De Luca, Jiri Fiala, Jaroslav Hancl,
Niklas Heinsohn, Michael Kaufmann, Stephen Kobourov, Jan Kratochvil, and
Pavel Valtr*
10:10am   An Interactive Tool to Explore and Improve the Ply Number of Drawings – A
Niklas Heinsohn and Michael Kaufmann
10:30am   Experimental Analysis of the Accessibility of Drawings with Few
Segments – A
Philipp Kindermann, Wouter Meulemans, and André Schulz
10:50am   Coffee Break
Session 2   **Obstacles and Visability (R. Fulek)**
11:20am   Obstacle Numbers of Planar Graphs – T
Patrice Ossona de Mendez, Pavel Valtr, and John Gimbel
11:40am   Grid Obstacle Representations with Connections to Staircase-Guarding – Ts
Therese Biedl and Saeed Mehrabi
12:00pm   Reconstructing Generalized Staircase Polygons with Uniform Step
Length – T
Nodari Sitchinava and Darren Strash
12:20pm   3D Visibility Representations of 1-Planar Graphs – Ts
*Patrizio Angelini, Michael Bekos, Michael Kaufmann, and Fabrizio
Montecchiani*
12:40pm   Lunch Break

Session 3	**Invited Talk (F.Frati)**
2:00pm	Fun with Recursion and Tree Drawings
	Timothy M. Chan
3:00pm	Poster Pitches
3:15pm	Poster Exhibition and Coffee Break
Session 4	**Topological Graph Theory (C. Tóth)**
4:00pm	Lombardi Drawings of Knots and Links – T
	Philipp Kindermann, Stephen Kobourov, Maarten Löffler, Martin Nöllenburg, André Schulz, and Birgit Vogtenhuber
4:20pm	Arrangements of Pseudocircles: Triangles and Drawings – T
	Stefan Felsner and Manfred Scheucher
4:40pm	Drawing Bobbin Lace Pattern Graphs, or, Finding Fundamental Cycles for a Subclass of Periodic Graph Embeddings – T
	Veronika Irvine and Therese Biedl
5:00pm	Many Touchings Force Many Crossings – Ts
	Janos Pach and Geza Toth
5:20pm	Thrackles: An Improved Upper Bound – Ts
	Radoslav Fulek and Janos Pach
5:45pm - 7:15pm	Graph Drawing Live Challenge

Tuesday, September 26, 2017

8:30am	Breakfast and Registration
Session 5	**Orthogonal Representations and Book Embeddings (I. Rutter)**
9:00am	On Smooth Orthogonal and Octilinear Drawings: Relations, Complexity and Kandinsky Drawings – T
	Michael A. Bekos, Henry Förster, and Michael Kaufmann
9:20am	EPG-Representations with Small Grid-Size – T
	Therese Biedl, Martin Derka, Vida Dujmović, and Pat Morin
9:40am	Mixed Linear Layouts of Planar Graphs – T
	Sergey Pupyrev
10:00am	Upward Partitioned Book Embeddings – T
	Hugo Akitaya, Erik Demaine, Adam Hesterberg, and Quanquan Liu
10:20am	Experimental Evaluation of Book Drawing Algorithms – A
	Jonathan Klawitter, Tamara Mchedlidze, and Martin Nöllenburg
10:40am	Coffee Break
Session 6	**Evaluations (D. Archambault)**
11:10am	Visual Similarity Perception of Directed Acyclic Graphs: A Study on Influencing Factors – A
	Kathrin Ballweg, Margit Pohl, Günter Wallner, and Tatiana von Landesberger
11:30am	GiViP: A Visual Profiler for Distributed Graph Processing Systems – A
	Alessio Arleo, Walter Didimo, Giuseppe Liotta, and Fabrizio Montecchiani
11:50am	Drawing Big Graphs Using Spectral Sparsification – A
	Peter Eades, Quan Nguyen, and Seok-Hee Hong
12:10pm	Revisited Experimental Comparison of Node-Link and Matrix Representations – A **(Best Paper - Track 2)**
	Mershack Okoe, Radu Jianu and Stephen Kobourov
12:35pm	Lunch Break
Session 7	**Invited Talk (C. Dunne)**
2:00pm	TBA
	Alessandro Vespignani
3:00pm	Coffee Break
Session 8	**Tree Drawings (P. Kindermann)**
3:30pm	Improved Bounds for Drawing Trees on Fixed Points with L-Shaped Edges – T
	Therese Biedl, Timothy M. Chan, Martin Derka, Kshitij Jain, and Anna Lubiw
3:50pm	On Upward Drawings of Trees on a Given Grid – Ts
	Therese Biedl and Debajyoti Mondal
4:10pm	Simple Compact Monotone Tree Drawings – Ts
	Antonios Symvonis and Anargyros Oikonomou
4:30pm	Visualizing Co-Phylogenetic Reconciliations – T
	Tiziana Calamoneri, Valentino Di Donato, Diego Mariottini, and Maurizio Patrignani
5:00pm	Business Meeting
6:00pm	Break
6:30pm	Conference Dinner

Wednesday, September 27, 2017

8:30am	Breakfast and Registration
Session 9	Graph Layout Designs (W. Didimo)
9:00am	Anisotropic Radial Layout for Visualizing Centrality and Structure in Graphs – A
	Mukund Raj and Ross T. Whitaker
9:20am	Computing Storylines with Few Block Crossings – A
	Thomas C. Van Dijk, Fabian Lipp, Peter Markfelder, and Alexander Wolff
9:40am	MLSEB: Edge Bundling Using Moving Least Squares Approximation – A
	Jieting Wu, Jianping Zeng, Feiyu Zhu, and Hongfeng Yu
10:00am	Drawing Dynamic Graphs Without Timeslices – A
	Paolo Simonetto, Daniel Archambault, and Stephen Kobourov
10:20am	Coffee Break
Session 10	Point-Set Embeddings (P. Angelini)
10:50am	Colored Point-Set Embeddings of Acyclic Graphs – T
	Emilio Di Giacomo, Leszek Gasieniec, Giuseppe Liotta, and Alfredo Navarra
11:10am	Planar Drawings of Fixed-Mobile Bigraphs – T
	Michael Bekos, Felice De Luca, Walter Didimo, Tamara Mchedlidze, Martin Nöllenburg, Antonios Symvonis, and Ioannis Tollis
11:30am	Ordered Level Planarity, Geodesic Planarity, and Bi-Monotonicity – T **(Best Paper - Track 1)**
	Boris Klemz and Günter Rote
11:55am	Non-Crossing Paths with Geographc Constraints – Ts
	Rodridgo Silveira, Bettina Speckmann, and Kevin Verbeek
12:15pm	Lunch Break

Session 11	**Special Representations (F. Montecchiani)**	
1:40pm	Planar L-Drawings of Directed Graphs – T	
	Steven Chaplick, Markus Chimani, Sabine Cornelsen, Giordano Da Lozzo, Martin Nöllenburg, Maurizio Patrignani, Ioannis G. Tollis, and Alexander Wolff	
2:00pm	NodeTrix Planarity Testing with Small Clusters – T	
	Emilio Di Giacomo, Giuseppe Liotta, Maurizio Patrignani, and Alessandra Tappini	
2:20pm	The Painter's Problem: covering a grid with colored connected polygons – T	
	Arthur van Goethem, Irina Kostitsyna, Marc Van Kreveld, Wouter Meulemans, Max Sondag, and Jules Wulms	
2:40pm	Triangle-Free Penny Graphs: Degeneracy, Choosability, and Edge Count – Ts	
	David Eppstein	
3:00pm	Coffee Break	
Session 12	**Beyond Planarity (S. Kobourov)**	
3:30pm	1-Fan-Bundle-Planar Drawings of Graphs – T	
	Patrizio Angelini, Michael Bekos, Michael Kauffman, Philipp Kindermann, and Thomas Schneck	
3:50pm	Gap-Planar Graphs – Ts	
	Sang Won Bae, Jean-Francois Baffier, Jinhee Chun, Peter Eades, Kord Eickmeyer, Luca Grilli, Seok-Hee Hong, Matias Korman, Fabrizio Montecchiani, Ignaz Rutter, and Csaba Toth	
4:10pm	Beyond Outerplanarity – Ts	
	Steven Chaplick, Myroslav Kryen, Giuseppe Liotta, Andre Löffler, and Alexander Wolff	
4:30pm	The Effect of Planarization on Width – T	
	David Eppstein	
4:50pm	Closing and Awards	
5:20pm		

CONTACT

If you need any assistance regarding the conference, feel free to contact us.

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GETTING TO NORTHEASTERN UNIVERSITY

DRIVING

From the north (via Route I-93 or Route 1)

Take the Storrow Drive exit, and proceed to the Fenway exit. Follow signs for Boylston Street inbound, and bear right onto Westland Avenue. Turn right onto Massachusetts Avenue, proceed to the third traffic light, and turn right onto Columbus Avenue. The Renaissance Parking Garage is at 835 Columbus Avenue.

From the west (via Route I-90, Massachusetts Turnpike)

Take Exit 22 (Copley Square), and bear right. Proceed to the first traffic light, and turn right onto Dartmouth Street. Take the next right onto Columbus Avenue. The Renaissance Parking Garage is at 835 Columbus Avenue.

From the west (via Route 9)

Proceed east on Route 9; it will become Huntington Avenue. Turn right onto Ruggles Street. At the fourth traffic light, turn left onto Tremont Street. At the second set of lights, turn left onto Melnea Cass Boulevard, and then turn left onto Columbus Avenue. The Renaissance Parking Garage is at 835 Columbus Avenue.

From the south (via I-93, Route 3)

Take Exit 18 (Massachusetts Avenue/Roxbury/Frontage Road). Turn left at the third light, staying in one of the two left lanes. Proceed straight onto Melnea Cass Boulevard. Continue for approximately two miles and turn left onto Columbus Avenue. The Renaissance Parking Garage is at 835 Columbus Avenue.

GUEST AND VISITOR PARKING

Visitors to the University are expected to park in the *Renaissance Park Garage* or the *Gainsborough Garage*. The rate structures are managed by the garages and subject to change without prior notice. The University assumes NO liability for lost or stolen property or damage to any vehicle while it is parked on campus in one of our facilities.

Renaissance Park and Gainsborough Garages Hourly Rates

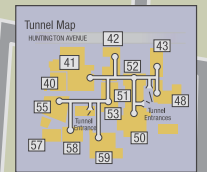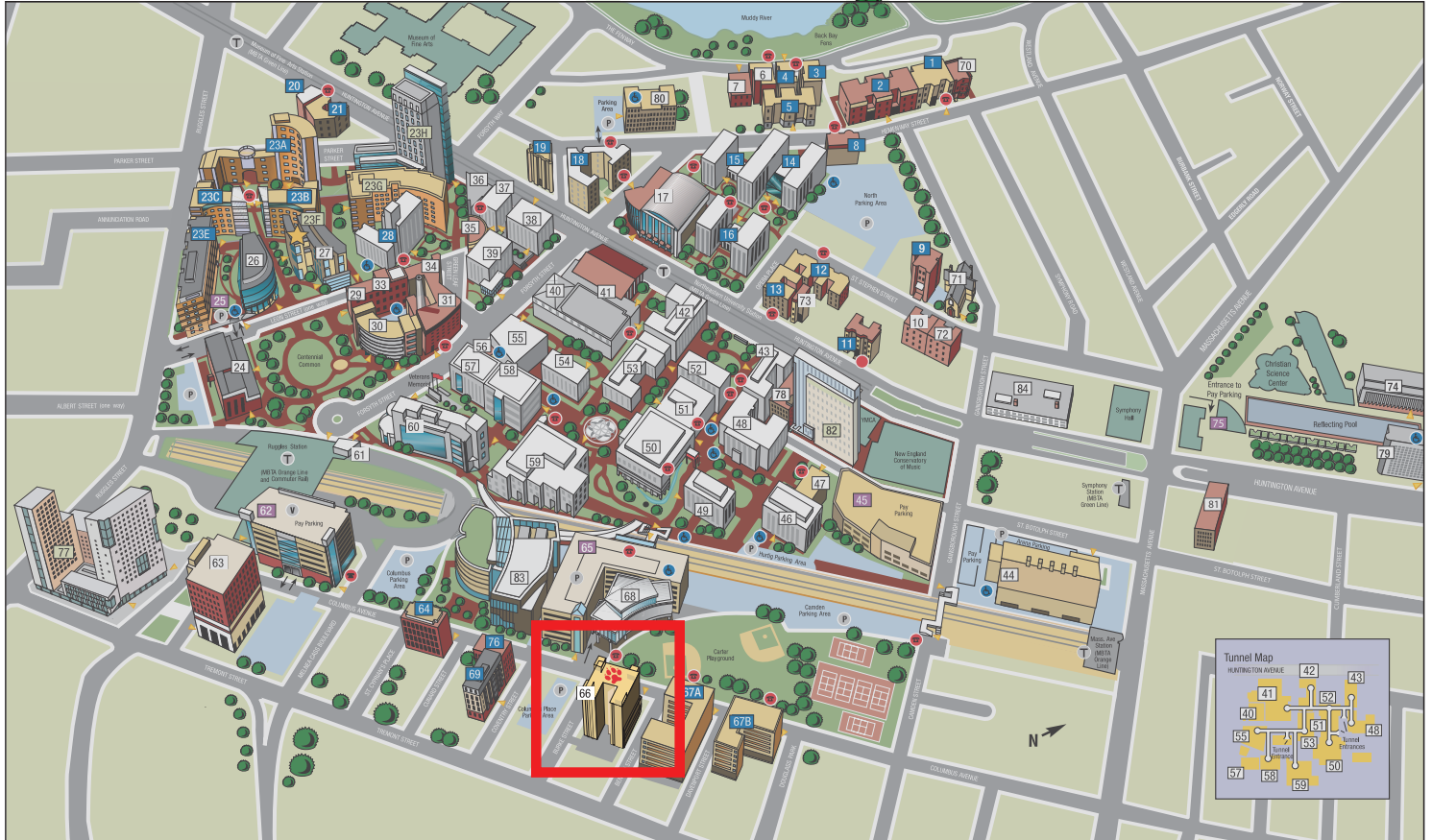|		
0-1 Hour	—	$12
1-2 Hours	—	$20
2-3 Hours	—	$24
3-4 Hours	—	$28
4-8 Hours	—	$30
8-12 Hours	—	$32
12-24 Hours	—	$35

PUBLIC TRANSPORTATION

Northeastern is accessible by subway via the Green Line of the MBTA. From downtown Boston, take the "E" train outbound to the Northeastern stop, the first stop above ground.

The campus can also be reached from downtown via the Orange Line by taking any train going outbound to Forest Hills and getting off at Ruggles Station.

Commuter rail lines connect with the Orange Line at Ruggles Station, Back Bay Station, and North Station.

Academic and Service Buildings

- 66 Alumni Center at Columbus Place (CP)
- 61 Architecture Studio (RG)
- 70 Asian American Center (AC)
- 68 Badger & Rosen SquashBusters Center (SB)
- 40 Barletta Natatorium (BN)
- 26 Behrakis Health Sciences Center (BK)
- 51 Blackman Auditorium (AUDL)
- 41 Cabot Physical Education Center (CB)
- 7 Cahners Hall (CA)
- 36 Cargill Hall (CG)
- 72 Catholic Center (CC)
- 54 Churchill Hall (CH)
- 66 Columbus Place and Alumni Center (CP)
- 47 Cullinane Hall (CN)
- 50 Curry Student Center (CSC)
- 6 Cushing Hall (CU)
- 57 Dana Research Center (DA)
- 39 Dockser Hall (DK)
- 43 Dodge Hall (DG)
- 82 East Village (EV)
- 60 Egan Engineering/
  Science Research Center (EC)
- 52 Ell Hall (EL)
- 71 Fenway Center (FC)
- 55 Forsyth Building (FR)
- 78 Hastings Hall at the YMCA (YMC)
- 53 Hayden Hall (HA)
- 10 Hillel-Frager (HF)
- 33 Holmes Hall (HO)
- 46 Hurtig Hall (HT)

- 83 Interdisciplinary Science and
  Engineering Complex (ISEC)
  (under construction)
- 77 International Village (INV)
- 35 Kariotis Hall (KA)
- 38 Knowles Center (KN)
- 34 Lake Hall (LA)
- 56 Latino/a Student Cultural Center (LC)
- 17 Marino Recreation Center (MC)
- 44 Matthews Arena (MA)
- 29 Meserve Hall (ME)
- 48 Mugar Life Sciences Building (MU)
- 31 Nightingale Hall (NI)
- 27 O'Bryant African American Institute (AF)
- 63 Renaissance Park (RP)
- 42 Richards Hall (RI)
- 49 Robinson Hall (RB)
- 73 ROTC Office (RO)
- 24 Ryder Hall (RY)
- 30 Shillman Hall (SH)
- 58 Snell Engineering Center (SN)
- 59 Snell Library (SL)
- 37 Stearns Center (ST)
- 23 West Village F, G, H (WV)
- 74 101 Belvidere (BV)
- 80 140 The Fenway (TF)
- 79 177 Huntington (177)
- 81 236 Huntington (236)
- 84 271 Huntington (271)

Residence Buildings

- 21 Burstein Hall (BU)
- 67 Davenport Commons A, B (DC)
- 82 East Village (EV)
- 77 International Village (INV)
- 1 Kennedy Hall (KDY)
- 4 Kerr Hall (KH)
- 12 Levine Hall and
  St. Stephen Street Complex (LV)
- 9 Light Hall (LH)
- 5 Loftman Hall and
  153 Hemenway Street (LF)
- 3 Melvin Hall (MH)
- 20 Rubenstein Hall (464)
- 2 Smith Hall (SM)
- 16 Speare Hall (SP)
- 14 Stetson East (SE)
- 15 Stetson West (SW)
- 23 West Village Residence Complex
  A, B, C, E (WV)
- 23 West Village Residence
  Complex F, G, H (WV)
- 18 White Hall (WH)
- 28 Willis Hall (WI)
- 69 10 Coventry Street (CV)
- 8 142–148 Hemenway Street (142–148)
- 11 319 Huntington Avenue (319)
- 13 337 Huntington Avenue (337)
- 19 407 Huntington Avenue (407)
- 76 768 Columbus Avenue (768)
- 64 780 Columbus Avenue (780)

Parking Garages

- 65 Columbus Parking Garage (CPG)
- 75 Belvidere Parking Garage (BVG)
- 45 Gainsborough Parking Garage (GG)
- 62 Renaissance Park Garage (RPG)
- 25 West Village Parking Garage (WPG)

Legend

- # Academic and Service Buildings
- # Academic/Service-Residence Buildings
- # Residence Buildings
- # Parking Garages
- Ⓟ Parking (permit required)
- Ⓥ Visitor Parking
- Handicapped Parking
- ► Handicapped-Accessible Entrance
- Emergency Telephone
- Ⓣ MBTA Station
- ★ Visitor Center
- Alumni Center at Columbus Place
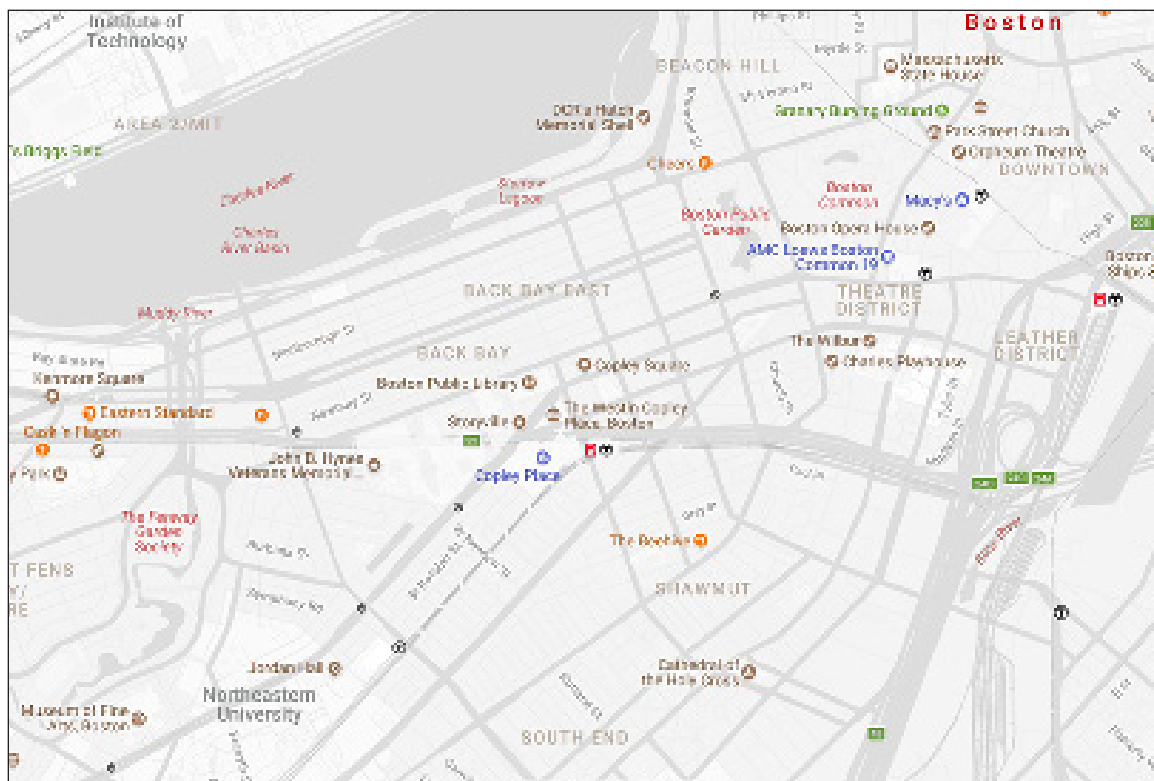
THINGS TO DO AROUND CAMPUS

One of the country's greatest walking cities, having Boston in your backyard opens you up to a cultural hub, with so much to see and do. Take a short walk or hop on the easy-to-use public transportation system (the "T") to explore popular nearby destinations.

ON CAMPUS
- 99 Adirondack chairs to relax in
- 400+ student organizations
- 1.4M+ Hours of student community service since 2006
- 13,000+ lectures, gallery shows, performances, and concerts each year
- 6 Green Quads on campus
- 73 acres of urban, tree-lined campus
- 20 cafes, restaurants, and dining facilities

OFF CAMPUS
You're walking distance from some of the best spots in Boston. Take a look!

Boston National Historic Park • Boston Tea Party Ship & Museum • Franklin Park Zoo • Hampshire House • Hard Rock Café • Isabella Stewart Gardner Museum • John F. Kennedy Library and Museum • John Joseph Moakley United States Courthouse • Mary Baker Eddy Library • Museum of Afro-American History • Museum of Fine Arts • Museum of Science • New England Aquarium • Prudential Skywalk • Symphony Hall • TD Garden • U.S.S. Constitution Museum