# Student Information Package

for the 2014 North American School of Information Theory in Toronto (June 18-21)

## Contents



## 1 Location

Lodging for students is provided at **The New College Residence** (40 Willcocks Street).

The IT school itself will take place at **The Bahen Centre for Information Technology** (40 St. George Street) with lectures located in room **BA-1160**, and poster sessions taking place in the Bahen Lobby

## 2 Arrival

If you arrive in Toronto by plane, transportation from **Pearson International Airport** to downtown is available by

- Subway (closest subway stations to the UofT campus are **Queens Park Station** and **St. George Station**. Cost is $3)
- Limousine or by taxi (approximately $60 one-way)
- Bus service to downtown hotels (approximately $14 one-way or $24 round-trip)
- Renting a car at the airport

Travel to downtown can take anywhere from 30 minutes to one-and-a-half hours depending upon traffic.

For attendants arriving from **Billy Bishop Airport**, a complimentary express shuttle bus to Union Subway Station is available in addition to the limousine/taxi/car-rental options above.

For attendants traveling **by car**, parking is available across College St. from the Institute (cash only), the underground at the Centre for Addiction and Mental Health (CAMH) (entry on Spadina Ave., just north of College St.), and underground at the Bahen Centre for Information Technology (entry on Huron Street, just north of College).

If you arrive in Toronto **by inter-city bus**, St. Patrick Station is the closest subway station to the Bay & Dundas Toronto Bus Terminal.

If you arrive in Toronto **by train**, Union Station connects underground with The Union subway station.

# 3 Registration

Students can **check into** their rooms on **Tuesday, June 17** at **The New College Residence** (40 Willcocks Street).

The workshop **registration** will begin on **Tuesday, June 17** from **4-6 p.m.** at **The Fields Institute** (222 College Street).

Registration will also be available from **June 18-21** at **8:00 a.m.** in the lobby of **The Bahen Centre for Information Technology** (40 St. George Street) outside lecture room **BA-1160**.

# 4 Maps

See attached map or visit the NASIT website and click on maps to venues and residence.
http://www.fields.utoronto.ca/programs/scientific/13-14/infotheory/

# 5 Poster Sessions and 30-Second Madness

**Location: lobby of The Bahen Centre for Information Technology (40 St. George Street)**

In addition to a poster session, students should also prepare a **30-sec talk** that they will present during 30-Second Madness. During this quick and fun event, each student presenting a poster will have a 30-second opportunity prior to the poster session to describe/advertise the content of their poster. For example: "My name is ABC, and my poster is a tutorial on XYZ. In this poster you will learn how to ..." Students should line up to present their talk in the the order specified by the poster listings at the end of this document.

Posters should fit within a **6 ft (width)** $\times$ **2.5 ft (height) area**, which can approximately fit twelve letter-sized sheets of paper. They will be posted using Velcro tape, which will be provided. Students are encouraged to have their posters printed beforehand, however a variety of independent printing stores are located near the university along College Street.

# 6 WiFi

Eduroam is available for attendants of participating universities. New College also offers free wired internet access, but students are required to bring their own ethernet cable.

Other methods TBD

# 7 Meals

Both lunch and a continental breakfast are provided at The Bahen Centre. The cost of breakfast at the New College Residence is $7.

In general, students are responsible for their own dinner. However, we do plan to organize optional social events at which food will be provided

# 8 Social Programs

In addition to the regular NASIT program, there will also be evening activities planned by the UofT students and NASIT organizing committee. We hope to see you at these fun and interactive events.

Wednesday, June 18th
Student board game night and SET tournament: free food, board games and prizes!

Description: Are you ready to match wits against other students in a game of patterns, deduction, and speed? Then come out to **Ready**, **SET**, **Go**, where the exciting card game, SET, will be played **tournament** style. The tournament will be accompanied by other fast-moving, mind-bending **card/board games**. This is a terrific opportunity to meet other students attending NASIT, and to learn some new games. If you aren't convinced yet, we forgot to mention that there will be **prizes** for the finalists, and **free food** for everybody!

Thursday, June 19th
Evening BBQ at Toronto Islands (weather permitting): free food, scenic views of lake Ontario and iconic views of Toronto downtown.

Description: The Toronto Islands are a chain of small islands in the city of Toronto, Ontario. Comprising the only group of islands in the western part of Lake Ontario, the Toronto Islands are located just offshore from the city centre and are connected to the mainland by several ferry services. The islands are a popular recreational destination, and are home to a small residential community and to the Billy Bishop Toronto City Airport. Join us for a **BBQ** with other fellow NASIT attendees: throw a **frisbee**, kick a **soccer ball**, or just explore these surreal pockets of tranquility located just minutes away from the bustling Toronto downtown.

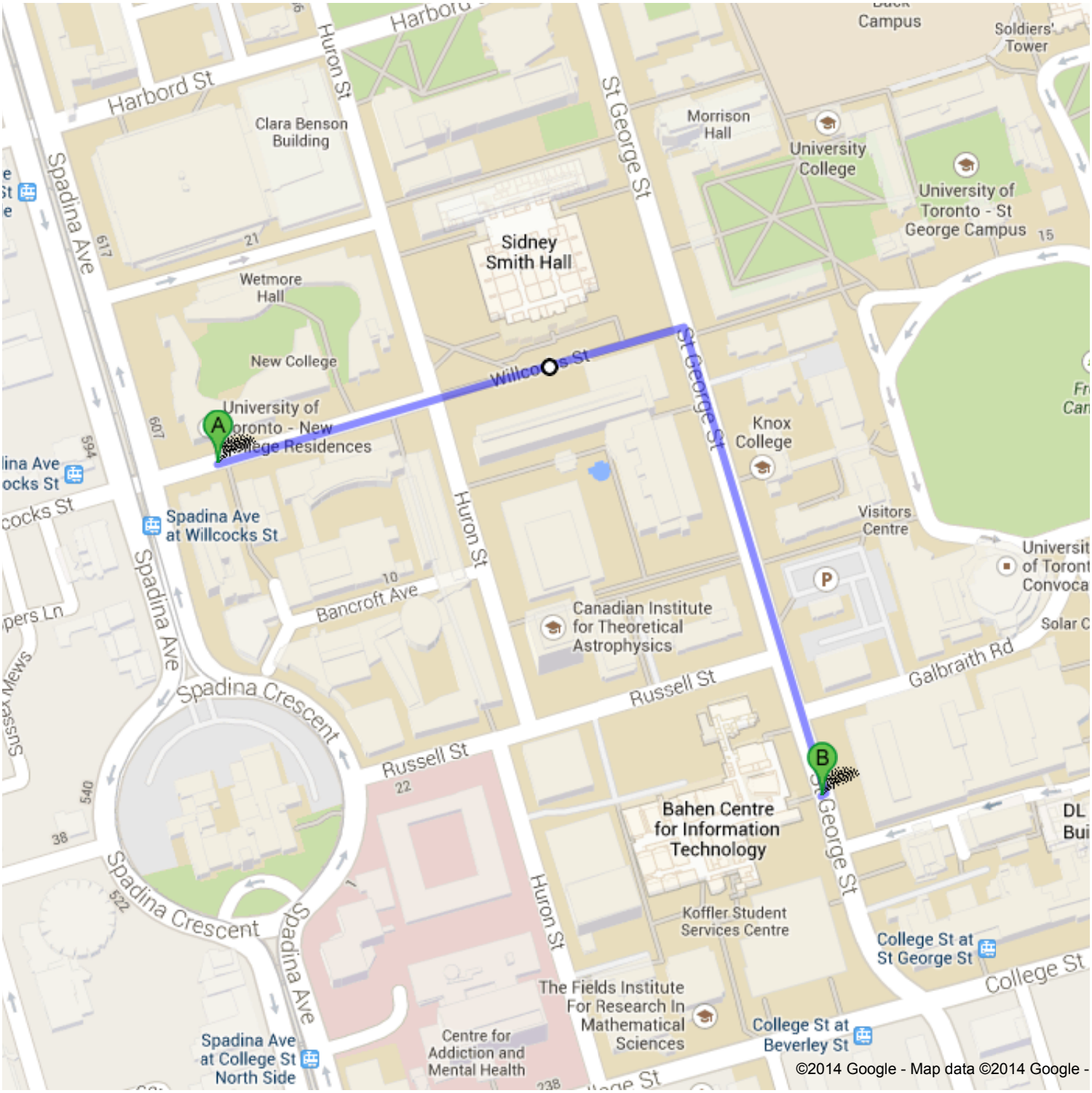
Friday, June 20th
The reception will be in the Bahen Lobby following the industry panel.

**Stay tuned for further details**

Google

**Directions to Bahen Centre for Information Technology**
40 St George St, Toronto, ON M5S 2E4
**550 m** – about **6 mins**

**Walking directions are in beta.**
Use caution – This route may be missing sidewalks or pedestrian paths.



**University of Toronto - New College Residences**
40 Willcocks St, Toronto, ON M5S 1C6

| | | |
|---|---|---|
| | 1. Head **east** on **Willcocks St** toward **Huron St**<br>About 3 mins | go 270 m<br>total 270 m |
|  | 2. Turn right onto **St George St**<br>About 3 mins | go 270 m<br>total 550 m |
|  | 3. Turn right | go 2 m<br>total 550 m |

**Bahen Centre for Information Technology**
40 St George St, Toronto, ON M5S 2E4

These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.



Directions weren't right? Please find your route on maps.google.ca and click "Report a problem" at the bottom left.

# Program at a Glance

| | Wedesday | Thursday | Friday | Saturday |
|---|---|---|---|---|
| 8-8:15 | Registration & | Registration & | Registration & | Registration & |
| 8:15-8:30 | Breakfast | Breakfast | Breakfast | Breakfast |
| 8:30-8:45 | (in Bahen Lobby) | (in Bahen Lobby) | (in Bahen Lobby) | (in Bahen Lobby) |
| 8:45-9 | Opening remarks | | | |
| 9-9:30 | Lecture 1a | Lecture 3a | Lecture 5a | Lecture 6a |
| 9:30-10 | in BA-1160 | in BA-1160 | in BA-1160 | in BA-1160 |
| 10-10:30 | coffee break | coffee break | coffee break | coffee break |
| 10:30-11 | Lecture 1b | Lecture 3b | Lecture 5b | Lecture 6b |
| 11-11:30 | in BA-1160 | in BA-1160 | in BA-1160 | in BA-1160 |
| 11:30-12 | 30-sec madness | | | |
| 12-12:30 | Lunch & | Lunch & | Lunch & | |
| 12:30-1 | Poster A | Poster B | Poster C | |
| 1-1:30 | in BA lobby | in BA lobby | in BA lobby | |
| 1:30-2 | | | | |
| 2-2:30 | | | | |
| 2:30-3 | Lecture 2a | Lecture 4a | Workshop & | |
| 3-3:30 | in BA-1160 | in BA-1160 | Industry Panel | |
| 3:30-4 | coffee break | coffee break | in BA-1160 | |
| 4-4:30 | Lecture 2b | Lecture 4b | | |
| 4:30-5 | in BA-1160 | in BA-1160 | | |
| 5-5:30 | | | Reception | |
| 5:30-6 | Social programming | Social programming | (in Bahen Lobby) | |
| 6-6:30 | | | | |
| 6:30-7 | | | | |
| 7-- | | | | |

**Lecturers:**

1. Prof. Alon Orlitsky
2. Prof. En-hui Yang
3. Prof. Andrea Goldsmith
4. Prof. Brendan Frey
5. Prof. Henry Pfister
6. Prof. Robert Calderbank

Wednesday

| No. | Full Name | University/Affiliation | Topic | Title |
|---|---|---|---|---|
| 1 | Abou Saleh, Ahmad | Queen's University | Shannon Theory | Source-Channel-State Transmission for Fading channels with Correlated Interference |
| 2 | Chou, Remi | Georgia Institute of Technology | Shannon Theory | Secret-key generation under computational, bandwidth, and uncertainty constraints |
| 3 | Kadhe, Swanand | Texas A&M University | Shannon Theory | Weakly Secure Regenerating Codes for Distributed Storage |
| 4 | Ayoughi, Seyed Arvin | University of Toronto | Network Information Theory | A Review of Capacity Results for the Relay Channel |
| 5 | Etezadi, Farrokh | University of Toronto | Network Information Theory | Two results on Real-Time Streaming of Markov Sources over Burst-Erasure Channels |
| 6 | Khezeli, Kia | McMaster University | Network Information Theory | A Source-Channel Separation Theorem with Application to the Source Broadcast Problem |
| 7 | Li, Simon | University of Toronto | Network Information Theory | Privacy in Smart Metering Systems |
| 8 | Noorzad, Parham | California Institute of Technology | Network Information Theory | Cooperation in MACs: Can Low-Rate Cooperation Yield a Large Gain? |
| 9 | Vaezi, Mojtaba | McGill | Network Information Theory | Superposition Coding-Based Capacity Regions for Cognitive Interference Channels |
| 10 | Al-Tous, Hanan | United Arab Emirates University | Wireless | Resource Allocation for Two-Sources Single-Relay AF-OFDMA Systems |
| 11 | Badiei Khuzani, Masoud | University of Waterloo | Wireless | On online Energy Harvesting in Multiple Access Communication Systems |
| 12 | Dai, Binbin | University of Toronto | Wireless | Sparse Beamforming Design for Network MIMO System with Per-Base-Station Backhaul Constraints |
| 13 | Hassanzadeh, Parisa | NYU Polytechnic School of Engineering | Wireless | On communications in the wideband regime |
| 14 | Kocak, Mustafa Anil | NYU Polytechnic Institute | Wireless | Communicating Lists Over a Noisy Channel |
| 15 | Minasian, Arin | University of Toronto | Wireless | Energy Harvesting for Relay-Assisted Communications |
| 16 | Jamal, Nadia | University of Waterloo | Wireless | Throughput Scaling of MIMO Channels with Imperfect CSIT in the Low SNR Regime |
| 17 | Wu, Xianwen | University of Arkansas | Wireless | Optimal Scheduling of Collaborative Sensing in Energy Harvesting Sensor Networks |
| 18 | Zhu, Caiyi | University of Toronto | Wireless | Approximate Bounds for Limited Backhaul Uplink Multicell Processing with Single-User Compression |
| 19 | Bibard, Jerome | University of Waterloo | Coding Theory | Low-Density Lattice Codes (LDLC) |
| 20 | Chen, Junyu | The Chinese University of Hong Kong | Coding Theory | A Polynomial Construction of Sector-Disk Codes |
| 21 | Ebrahimzadeh, Ehsan | Univerity of California, LA | Coding Theory | Data Reconciliation With Unknown Error Profile |
| 22 | Huang, Kechao | Sun Yat-sen University | Coding Theory | Performance Comparison of Non-Binary LDPC Block and Spatially Coupled Codes |
| 23 | Liu, Siyu | University of Toronto | Coding Theory | Kotter Interpolation in Skew Polynomial Rings |
| 24 | Mahmood, Rafid | University of Toronto | Coding Theory | Characterizing Low-Delay Streaming Codes for the Gilbert-Elliott Erasure Channel |
| 25 | Tan, Louis | University of Toronto | Coding Theory | Successive Segmentation-based Coding for Broadcasting over Erasure Channels |
| 26 | Wang, LeLe | UCSD | Coding Theory | Universal polarization |
| 27 | Barot, Suhail | University of Toronto | Other/Power Systems | Minkowski Sum Aggregation of Demand Response Resources |
| 28 | Li, Xingguo | University of Minnesota | Other/Signal Processing | Locating Salient Regions in Images from Adaptive Compressive Samples |
| 29 | Srikantha, Pirathayini | University of Toronto | Other/Game theory | Secure Distributed Routing in Cyber-Enabled Power Systems via Network Formation Games |
| 30 | Xu, He | University of Toronto | Other/Quantum | high speed Quantum random number generator with quantum phase fluctuation. |
| 31 | Zhang, Dejiao | University of Michigan | Other/Compressed Sensing | Grassmannian Rank-One Update Subspace Estimation via Compressive Sensing |
| 32 | Ghavami, Siavash | University of Tehran/University of Toronto | Other/Biological Communication | Information Theoretic Analysis of Energy Efficient Neurons with Biologically Plausible Constraints |

Thursday

| No. | Full Name | University/Affiliation | Topic | Title |
|---|---|---|---|---|
| 1 | Asoodeh, Shahab | Queen's University | Shannon Theory | Privacy Capacity and Randomness Extraction |
| 2 | Deng, Mo | MIT | Shannon Theory | TBD |
| 3 | Satpathy, Sanket | Princeton University | Shannon Theory | Secure Coordination with a Two-Sided Helper |
| 4 | Bawre, Jamel | KNUST | Network Information Theory | TBD |
| 5 | Farag, Michael | Boston University | Network Information Theory | The Symmetric Ergodic Capacity of Phase-Fading three-user Interference Channels to within a Constant Gap |
| 6 | Koken, Erman | University of California, Riverside | Network Information Theory | On robustness of Gaussian digital analog source-channel coding with bandwidth-mismatch |
| 7 | Liu, Jingbo | Princeton University | Network Information Theory | Key Capacity for Product Sources with Application for Stationary Gaussian Processes |
| 8 | Patil, Pratik | University of Toronto | Network Information Theory | Hybrid Compression and Data-Sharing Strategy for the Downlink Cloud Radio-Access Network |
| 9 | Xu, Rui | McMaster University | Network Information Theory | Information Channels with Common Information |
| 10 | Amirnavaei, Fatemeh | UOIT | Wireless | The Achievable Average Rate- Outage Probability Trade off Curve In Two-hop Block Fading Channels |
| 11 | Chen, Hao | University of Kansas | Wireless | Cognitive radio |
| 12 | Ghimire, Jagadesh | University of Waterloo | Wireless | Impact of Limited Backhaul Capacity on User Scheduling in Heterogeneous Networks |
| 13 | Hosseini, Kianoush | University of Toronto | Wireless | Large-Scale MIMO versus Network MIMO for Multicell Interference Mitigation |
| 14 | Li, Yan | University of Kansas | Wireless | DoA Estimation and Capacity Analysis for 3D Massive MIMO Systems |
| 15 | Ramezanikebrya, Ali | University of Toronto | Wireless | Likelihood-Based Modulation Classification for Multiple-Antenna Receiver |
| 16 | Sohrabi, Foad | University of Toronto | Wireless | Survey on Hybrid Precoding in Large-Scale MIMO Systems with Limited RF Chains |
| 17 | Yuan, Zhong Lin | University of Toronto | Wireless | A literature review of Multi-user Massive MIMO |
| 18 | Beheshti, Seyed Parsa | Queen's University | Coding Theory | MAP Decoding of Correlated Sources over Soft-Decision Orthogonal Multiple Access Fading Channels with Memory |
| 19 | Blake, Christopher | University of Toronto | Coding Theory | On the Area-Time Complexity of Capacity Approaching LDPC Codes |
| 20 | Chen, Yao | University of Waterloo | Coding Theory | New Bounds and Constructions of Algebraic Manipulation Detection Codes |
| 21 | Fan, Bing | University of California, San Diego | Coding Theory | Iterative Detection and Turbo Equalization for 2D- ISI Channels |
| 22 | Huo, Fei | University of Waterloo | Coding Theory | Zero Correlation Zones of Binary/QAM Golay Sequences and Their applications |
| 23 | Liu, Xishuo | UW-Madison | Coding Theory | ADMM decoding of non-binary LDPC codes in F2m |
| 24 | McNutt, David | Dalhousie University | Coding Theory | Threshold Saturation for Coupled Scalar Recursions Using Lyapunov's Method |
| 25 | Vakilinia, Kasra | UCLA | Coding Theory | Short-Blocklength Non-Binary LDPC Codes with Feedback-Dependent Incremental Transmissions |
| 26 | Wood, Richard | Queen's University | Coding Theory | Real Time Coding with an Adaptive Quantizer |
| 27 | Datta Gupta, Syamantak | University of Waterloo | Other/Causality | Inferring causal dependences |
| 28 | Lipor, John | University of Michigan, Ann Arbor | Other/Sensor Networks | Robust Blind Calibration via Total Least Squares |
| 29 | Suresh, Ananda Theertha | University of California, San Diego | Other/Learning | Optimal Discrete Probability Estimation |
| 30 | yang, Jun | Queen's University | Other/Probability | Lower Bounds on the Probability of a Finite Union of Events |
| 31 | Roy Feng | University of Waterloo | Wireless | Vulnerability Analysis and Countermeasures for WiFi-based Location Services and Applications |

Friday

| No. | Full Name | University/Affiliation | Topic | Title |
|---|---|---|---|---|
| 1 | Basciftci, Yuksel | The Ohio State University | Shannon Theory | Private Broadcasting with Probing Cost |
| 2 | Gao, Yuguang | Cornell University | Shannon Theory | Phase transition in the number partitioning problem |
| 3 | Shkel, Yanina | UW-Madison | Shannon Theory | Channel Coding with Unequal Message Protection |
| 4 | Dong, Zheng | McMaster University | Network Information Theory | Towards a General Formula for Degrees of Freedom of the Interference Channel |
| 5 | He, Wenbo | Boston University<br>Sick Kids Hospital, Peter Gilgan | Network Information Theory | Uplink-Downlink Duality for Integer-Forcing: Effective SINRs and Iterative Optimization |
| 6 | Lankarany, Milad | Center for Research and Learning | Network Information Theory | Multiplexed coding of low and high frequency signals by populations of spiking neurons |
| 7 | Nan, Ting-Ting | University of Wisconsin-Madison | Network Information Theory | TBD |
| 8 | Sahebalam, Assadallah | FERDOWSI UNIVERSITY OF MASHHAD | Network Information Theory | TBD |
| 9 | Zhiyan, Wang | The Chinese University of Hong Kong | Network Information Theory | Mutual Information Rate of Two-way Relay ISI Channel with Physical-layer Network Coding |
| 10 | Belaifa, Salah | AEK Communication Laboratory | Wireless | Information Theory in GSM Network / Evolution of Error Control Code in Cellular Communications Systems (1G, 2G, 3G and 4G) |
| 11 | Chen, Meng-Hsi | University of Toronto | Wireless | On Cooperative and Malicious Behaviors in Multirelay Fading Channels |
| 12 | Hammad, Eman | University of Toronto | Wireless | Distributed Cooperation Dynamics for Microgrid Networks |
| 13 | Shahrbaf Motlagh, Meysam | University of Waterloo | Wireless | On Lossy Joint Source-Channel Coding In Energy Harvesting Single-User Communication Systems: An Online Continuous-Time Regime |
| 14 | Liu, Tang | University of Illinois at Chicago | Wireless | Sum DoF of asymmetric MIMO interference channel |
| 15 | Sadr, Sanam | University of Toronto | Wireless | Joint Tier Association and Spectrum Partitioning for Maximum Rate Coverage in Multi-tier Heterogeneous Networks |
| 16 | Sridharan, Gokul | University of Toronto | Wireless | Degrees of Freedom of MIMO Cellular Networks: Decomposition and Linear beamforming Design |
| 17 | Zhu, Bingcheng | University of British Columbia<br>Okanagan Campus | Wireless | Performance Bounds of Multi-branch Receptions Over Arbitrarily Correlated Rician Fading Channels |
| 18 | Benaddi, Tarik | Centre National d'Etudes Spatiales (CNES) | Coding Theory | Asymptotic Design of Systematic IRA Ensemble Codes for Continuous Phase Modulation |
| 19 | Bolkema, Jessalyn | University of Nebraska - Lincoln | Coding Theory | An Introduction to Polar Codes |
| 20 | Disckson, Ernest Paul | Dalhousie University | Coding Theory | Improving Joint Random Access Satellite Communications through Iterative Demodulation and Channel Estimation |
| 21 | Goldberg, Adina | University of Toronto | Coding Theory | Privacy versus security in the joint design of secure sketch biometric systems |
| 22 | Lian, Mengke | Texas A&M University | Coding Theory | TBD |
| 23 | Mahdaviani, Kaveh | University of Toronto | Coding Theory | Delay sensitive data streaming under channel erasure and delayed feedback |
| 24 | Singh, Manpreet | University of Waterloo | Coding Theory | FPGA Optimizations for Decoding of Low-Density Parity-Check Codes |
| 25 | Vasista Stinivasan Ranganathan, Sudarsan | University of California, Los Angeles | Coding Theory | Design of High-Rate Irregular Non-binary LDPC Codes Using Algorithmic Stopping-Set Cancellation |
| 26 | Zhang, Lei | University of Toronto | Coding Theory | Analysis of spatially-coupled product codes under iterative syndrome decoding |
| 27 | Lalitha, Anusha | University of California, San Diego | Other/Hypothesis Testing | Social Learning and Distributed Hypothesis testing |
| 28 | Markopoulos, Panagiotis | University at Buffalo, The State University of New York | Other/Signal Processing | A New Paradigm in Machine Learning and Signal Processing: Optimal L1-Principal Component Analysis |
| 29 | Wang, Weina | Arizona State University | Other/Security | A Minimax Distortion View of Non-Interactive Differential Privacy |
| 30 | Yao, Jiyun | Lehigh University | Other/Security | On the Privacy-Cost Tradeoff of Battery Control Mechanisms in Demand Response |
| 31 | Zhao, Wanyao | University of Toronto | Other/Security | Secret-key Agreement over Noncoherent Fading Channel |