

# MANOS PAPAGELIS

YORK UNIVERSITY, LASSONDE SCHOOL OF ENGINEERING  
ELECTRICAL ENGINEERING & COMPUTER SCIENCE (LAS 3050)  
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## RESEARCH INTERESTS

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Data mining, graph mining, big data analytics, machine learning, knowledge discovery

## EDUCATION

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- APR 2015      **PH.D., UNIVERSITY OF TORONTO, CANADA**  
Department of Computer Science  
Thesis: Understanding and improving online social interactions and processes: methods, algorithms & applications
- MAR 2005      **M.SC., UNIVERSITY OF CRETE, GREECE**  
Department of Computer Science  
Specialization area: (a) information systems, (b) computer networks and telecommunications  
Thesis: Crawling the algorithmic foundations of recommendation technologies
- JUN 2002      **B.SC., UNIVERSITY OF CRETE, GREECE**  
Department of Computer Science  
Thesis: Study and implementation of user-based recommendation algorithms and their role in the formation of online virtual communities

## ACADEMIC APPOINTMENTS

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- JUL 2016 – PRESENT      **ASSISTANT PROFESSOR, YORK UNIVERSITY, TORONTO, CANADA**  
Lassonde School of Engineering  
Department of Electrical Engineering & Computer Science
- AUG 2015 – JUL 2016      **LECTURER & POSTDOCTORAL FELLOW, UNIVERSITY OF CALIFORNIA, BERKELEY**  
UC Berkeley School of Information (iSchool)  
Professional Master of Information and Data Science (MIDS) program
- SEP 2010 – APR 2015      **SESSIONAL LECTURER, UNIVERSITY OF TORONTO, CANADA**  
Department of Computer Science

## RECOGNITIONS (HONORS & AWARDS)

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- JUN 2018      19TH IEEE INTERNATIONAL CONFERENCE ON MOBILE DATA MANAGEMENT (IEEE MDM 2018) – **Best Paper Award**
- JAN 2018      26TH ACM INTERNATIONAL CONFERENCE ON INFORMATION AND KNOWLEDGE MANAGEMENT (ACM CIKM 2017) – **Outstanding Reviewer Award**
- AUG 2015 – JUL 2016      UNIVERSITY OF CALIFORNIA, BERKELEY – Postdoctoral Fellowship
- JAN 2011      ELSEVIER ENGINEERING APPLICATIONS OF AI – **Top Cited Article 2005-2010 award**
- JAN 2011 – DEC 2012      UNIVERSITY OF TORONTO – Platform Computing Graduate Fellowship in CS
- SEP 2005 – SEP 2010      UNIVERSITY OF TORONTO – Graduate Fellowship
- JUN 2010 – AUG 2010      YAHOO! RESEARCH – Research Internship Fellowship
- MAY 2009 – JUL 2009      YAHOO! RESEARCH – Research Internship Fellowship
- SEP 2004 – MAY 2005      EUROPEAN UNION – “Innovative Ideas Worth Funding” Award – Online Conference Management System
- FEB 2005 – JUL 2005      FOUNDATION OF RESEARCH & TECHNOLOGY, HELLAS (FORTH) – Training and Specialization Fellowship
- FEB 2003 – JAN 2005      FOUNDATION OF RESEARCH & TECHNOLOGY, HELLAS (FORTH) – Graduate Fellowship
- SEP 2002 – FEB 2003      FOUNDATION OF RESEARCH & TECHNOLOGY, HELLAS (FORTH) – Training and Specialization Fellowship

## OTHER EMPLOYMENT HISTORY

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SEP 2005 – AUG 2017	<b>SYSTEM ARCHITECT &amp; ENGINEER, ONLINE SERVICE, SELF-EMPLOYED</b> Design, development and distribution of a World-class online conference management system (www.confious.com)
SEP 2012 – JUL 2015	<b>RESEARCH FELLOW AND SOFTWARE ARCHITECT, UNIVERSITY OF TORONTO, CANADA</b> Department of Computer Science / Department of Civil Engineering Interdisciplinary research project on sustainable buildings and big data
SEP 2005 – APR 2015	<b>RESEARCH FELLOW/ASSISTANT, UNIVERSITY OF TORONTO, CANADA</b> Department of Computer Science Research interests in data mining, graph mining, databases, knowledge discovery
SEP 2005 – SEP 2010	<b>TEACHING ASSISTANT, UNIVERSITY OF TORONTO, CANADA</b> Department of Computer Science Courses: introduction to databases, software engineering, web programming, information systems analysis and design, computer science for the sciences, software tools and systems programming, data base management systems.
JUN 2010 – AUG 2010	<b>RESEARCH INTERN, YAHOO! RESEARCH, BARCELONA, SPAIN</b> Usage Mining and Link Analysis Group Research related to (i) influence maximization in online social media, (ii) graph augmentation algorithms
MAY 2009 – JUL 2009	<b>RESEARCH INTERN, YAHOO! RESEARCH, BARCELONA, SPAIN</b> Social Media Group Research related to (i) social influence in online social media, (ii) models of user credibility in online social media
JUN 2005 – JUL 2005	<b>VOLUNTEER INSTRUCTOR, MUNICIPALITY OF HERAKLION, CRETE, GREECE</b> Course: Introduction to computing
JAN 2003 – JAN 2005	<b>TEACHING ASSISTANT, UNIVERSITY OF CRETE, GREECE</b> Department of Computer Science Courses: data base management systems, web programming, business process and workflow management systems
SEP 2002 – AUG 2005	<b>RESEARCH FELLOW, FOUNDATION OF RESEARCH AND TECHNOLOGY HELLAS (FORTH), GREECE</b> Institute of Computer Science (ICS), Information Systems Laboratory Research related to (i) personalization, (ii) recommendation algorithms, (iii) information integration
OCT 1999 – SEP 2001	<b>CO-FOUNDER &amp; SOFTWARE ENGINEER, ATLANTIS GROUP</b> R&D Group at the Department of Computer Science, University of Crete, Greece Design and development of web portals and mobile services

## RESEARCH & PROFESSIONAL AFFILIATIONS

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2016 – PRESENT	Member	EECS Department Faculty, Lassonde School of Engineering, York University
2016 – PRESENT	Member	Graduate Program in Electrical Engineering & Computer Science, York University
2016 – PRESENT	Member/PI	Data Mining Lab, EECS Department, York University
2016 – PRESENT	Member/Co-PI	BRAIN Alliance (Big Data Research, Analytics, Information Networks)
2017 – PRESENT	Member/Co-PI	Data Visualization and Analytics Training Program (NSERC CREATE DAV)
2019 – PRESENT	Member/Co-PI	Dependable Internet of Things Applications (NSERC CREATE DITA)
2016 – PRESENT	Member/Co-PI	Center for Innovation in Computing @ Lassonde (IC@L)
2019 – PRESENT	Member	AI at York University (AI@YorkU)
2016 – PRESENT	Member	Association for Computing Machinery (ACM)
2016 – PRESENT	Member	Institute of Electrical and Electronics Engineers (IEEE)

# PROFESSIONAL CONTRIBUTION & STANDING

## PUBLICATIONS SUMMARY AND CITATION ANALYSIS (AS OF APR 2020)

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Number of citations (by Google scholar):	<b>1150+</b>
H-index (by Google scholar):	<b>13</b>
Number of Publications:	<b>40</b>
- <i>Journal articles (peer-reviewed):</i>	7
- <i>Conferences papers (peer-reviewed):</i>	24
- <i>Workshop papers (peer-reviewed):</i>	5
- <i>Magazine articles (peer-reviewed):</i>	1
- <i>Theses:</i>	3
- <i>Patents (granted):</i>	1
Number of submitted/under review:	<b>5</b>
- <i>Journal articles (peer-reviewed):</i>	1
- <i>Conferences papers (peer-reviewed):</i>	2
- <i>Patents (applied for):</i>	2
Invited talks / Keynote talks	<b>6</b>
Software releases	<b>6</b>
Technical reports (non-referred)	<b>3</b>
Citation analysis (by Google scholar):	<a href="http://goo.gl/3bi9m">http://goo.gl/3bi9m</a>

## INVITED LECTURES / KEYNOTE TALKS

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DATE	TALK TITLE
JUL 6TH, 2019	Large-scale Mining of Dynamic Networks (Google Canada)
JUN 28TH, 2019	Large-scale Mining of Dynamic Networks (NSERC CREATE Data Analytics & Visualization Summer School)
MAY 28TH, 2019	Fast and Accurate Mining of Evolving & Trajectory Networks. Keynote at the International Workshop on Dynamics On and Of Complex Networks 2019 (DOOCN-XII)
MAY 9TH, 2019	Big Data Analytics. (NSERC CREATE Dependable Internet of Things Applications, Integrative Course 2019)
DEC 17TH, 2018	Trajectory Network Mining. (University of Warwick, UK)
JUL 6TH, 2018	End-to-end Graph Analytics. (NSERC CREATE Data Analytics and Visualization Summer School)

## LIST OF PUBLICATIONS<sup>1</sup>

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### JOURNAL ARTICLES (PEER-REVIEWED)

[J8] \*Zhao, X., Papagelis, M., An, A., \*Chen, B. X., Liu, J., & Hu, Y. (2020). Optimized elastic synchronization model for distributed deep learning. **Submitted.**

[J7] \*Heidari, F. & Papagelis, M. (2019). EvoNRL: Evolving network representation learning based on random walks. Elsevier Applied Network Science (**APNS**) Journal, Vol 5, No 18. (**Special Issue on Machine Learning with Graphs**).

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<sup>1</sup> (\*) An asterisk in front of a name indicates a student co-author, supervised either directly or in the scope of a research project/course.

- [J6] \*Sawas, A., \*Abuolaim, A., \*Afifi, M. & Papagelis, M. (2019). A versatile computational framework for group pattern mining of pedestrian trajectories. *GeoInformatica*, Vol. 23, Issue 4, 501-531. (**impact factor: 2.091**).
- [J5] El-Diraby, T., Krijnen, T., & Papagelis, M. (2017). BIM-based collaborative design and socio-technical analytics of green buildings. *Automation in Construction (AiC)*, 82, 59-74. (**impact factor: 4.032**).
- [J4] Papagelis, M. (2015). Refining social graph connectivity via shortcut edge addition. *ACM Transactions on Knowledge Discovery from Data (ACM TKDD)*, Vol. 10, Issue 2, Article No 12. (**impact factor: 1.895**).
- [J3] Papagelis, M., Das, G., & Koudas, N. (2013). Sampling online social networks. *IEEE Transactions on Knowledge and Data Engineering, (IEEE TKDE)* Vol. 25, Issue 3, 662-676. (**impact factor: 3.438**).
- [J2] Doerr, M., & Papagelis, M. (2007). A method for estimating the precision of place name matching. *IEEE Transactions on Knowledge and Data Engineering (IEEE TKDE)*, Vol. 19, Issue 8, 1089-1101. (**impact factor: 3.438**).
- [J1] Papagelis, M., & Plexousakis, D. (2005). Qualitative analysis of user-based and item-based prediction algorithms for recommendation agents. *Engineering Applications of Artificial Intelligence (EAAI)*, 18(7), 781-789. (**impact factor: 2.819 / Elsevier EAAI top cited article 2005-2010 award**).

#### CONFERENCE PAPERS (PEER-REVIEWED)

- [C26] \*Pechlivanoglou, T., \*Alsaed, M. & Papagelis, M. (2020). MRSweep: Distributed in-memory sweep-line for scalable object intersection problems. **Submitted**.
- [C25] \*Agrawal, A., An, A. & Papagelis, M. (2020). Leveraging transitions of emotions for sarcasm detection. In Proceedings of the 43rd ACM International Conference on Research and Development in Information Retrieval. (**ACM SIGIR 2020**). In Press. Accepted: Apr 22, 2020.
- [C24] \*Costa, E. N., \*Pechlivanoglou, T. & Papagelis, M. (2020). OL-HeatMap: Effective density visualization of multiple overlapping rectangles. **Submitted**.
- [C23] \*Babanejad, N., \*Agrawal, A., An, A., & Papagelis, M. (2020). A comprehensive analysis of preprocessing for word representation learning in affective tasks. In Proceedings of the 58th Annual Meeting of the Association for Computational Linguistics (**ACL 2020**). In Press. Accepted: Apr 4, 2020.
- [C22] \*Mehmood, S. & Papagelis, M. (2020). Learning semantic relations of geographic areas based on trajectories. In Proceedings of the 21st IEEE International Conference on Mobile Data Management (**IEEE MDM 2020**). In Press. Accepted: Mar 31, 2020.
- [C21] \*Pechlivanoglou, T., \*Chu, V., & Papagelis, M. (2019). Efficient mining and exploration of multiple axis-aligned intersecting objects. In Proceedings of the 19th IEEE International Conference on Data Mining, pp. 1276-1281 (**IEEE ICDM 2019**).
- [C20] \*Zhao, X., Papagelis, M., An, A., \*Chen, B. X., Liu, J., & Hu, Y. (2019). Elastic bulk synchronous parallel model for distributed deep learning. In Proceedings of the 19th IEEE International Conference on Data Mining, pp. 1504-1509 (**IEEE ICDM 2019**).
- [C19] \*Heidari, F. & Papagelis, M. (2018). EvoNRL: Evolving network representation learning based on random walks. In Proceedings of the 7th International Conference on Complex Networks and Their Applications, pp. 457-469 (**Complex Networks 2018**).
- [C18] \*Pechlivanoglou, T. & Papagelis, M. (2018). Fast and accurate mining of node importance in trajectory networks. In Proceedings of the 6th IEEE International Conference on Big Data, pp. 781-790 (**IEEE BigData 2018**).
- [C17] \*Agrawal, A., An, A., & Papagelis, M. (2018). Learning emotion-enriched word representations. In Proceedings of the 27th International Conference on Computational Linguistics, 950-961 (**COLING 2018**).
- [C16] \*Sawas, A., \*Abuolaim, A., \*Afifi, M. & Papagelis, M. (2018). Tensor methods for group pattern discovery of pedestrian trajectories. In Proceedings of the 19th IEEE International Conference on Mobile Data Management, pp. 76-85 (**IEEE MDM 2018**). (**best paper award**).

- [C15] \*Sawas, A., \*Abuolaim, A., \*Afifi, & M., Papagelis, M. (2018). Trajectolizer: interactive analysis and exploration of trajectory group dynamics. In Proceedings of the 19th IEEE International Conference on Mobile Data Management, pp. 286-287 (**IEEE MDM 2018**).
- [C14] El-Diraby, T., Krijnen, T. F., & Papagelis, M. (2016). Green 2.0: socio-technical analytics of green buildings. In Proceedings of the International Conference on Smart Infrastructure and Construction, 10 pages, (**ICSIC 2016**).
- [C13] Papagelis, M., Krijnen, T. F., Elshenawy, M., Konomi, T., Fang, R., & El-Diraby, T. (2016). Green2. 0: enabling complex interactions between buildings and people. In Proceedings of the 19th ACM Conference on Computer Supported Cooperative Work and Social Computing Companion, pp. 77-80 (**ACM CSCW 2016**).
- [C12] Papagelis, M. (2015). Refining social graph connectivity via shortcut edge addition. In Proceedings of the 13rd Hellenic Data Management Symposium (**HDMS 2015**).
- [C11] Redmond, A., El-Diraby, T., & Papagelis, M. (2015). Employing an exploratory research stage to evaluate green building technologies for sustainable systems. In Proceedings of the International Conference on Civil, Structural and Transportation Engineering (**ICCSTE 2015**).
- [C10] Papagelis, M., Bonchi, F., & Gionis, A. (2011). Suggesting ghost edges for a smaller world. In Proceedings of the 20th ACM International Conference on Information and Knowledge Management, pp. 2305-2308 (**ACM CIKM 2011**).
- [C9] Papagelis, M., Murdock, V., & van Zwol, R. (2011). Individual behavior and social influence in online social systems. In Proceedings of the 22nd ACM conference on Hypertext and hypermedia, pp. 241-250 (**ACM HyperText 2011**).
- [C8] Papagelis, M., Bansal, N., & Koudas, N. (2009). Information cascades in the blogosphere: a look Behind the Curtain. In Proceedings of the 3rd AAAI International Conference on Web and Social Media, pp. 292-295 (**ICWSM 2009**).
- [C7] Papagelis, A., Papagelis, M., & Zaroliagis, C. (2008). Enabling social navigation on the web. In Proceedings of the 3rd IEEE/WIC/ACM International Conference on Web Intelligence and Intelligent Agent Technology, pp. 162-168 (**IEEE WI-IAT 2008**).
- [C6] Papagelis, A., Papagelis, M., & Zaroliagis, C. (2008). Iclone: towards online social navigation. In Proceedings of the 19th ACM conference on Hypertext and Hypermedia, pp. 237-238 (**ACM HyperText 2008**).
- [C5] Papagelis, M., Plexousakis, D., & Nikolaou, P. N. (2005). Confious: managing the electronic submission and reviewing process of scientific conferences. In Proceedings of the 6th International Conference on Web Information Systems Engineering, pp. 711-720 (**ACM WISE 2005**).
- [C4] Papagelis, M., Plexousakis, D., & Kutsuras, T. (2005). Alleviating the sparsity problem of collaborative filtering using trust inferences. In Proceedings of the 3rd International Conference on Trust Management, pp. 224-239 (**iTrust 2005**).
- [C3] Papagelis, M., Rousidis, I., Plexousakis, D., & Theoharopoulos, E. (2005). Incremental collaborative filtering for highly-scalable recommendation algorithms. In Proceedings of the 15th International Symposium on Methodologies for Intelligent Systems, pp. 553-561 (**ISMIS 2005**).
- [C2] Papagelis, M., & Plexousakis, D. (2004). Qualitative analysis of user-based and item-based prediction algorithms for recommendation systems. In Proceedings of the 3rd Hellenic Data Management Symposium (**HDMS 2004**).
- [C1] Papagelis, M., & Plexousakis, D. (2003). Recommendation based discovery of dynamic virtual communities. In Proceedings of the 15th International Conference on Advanced Information Systems Engineering, pp. 197-200 (**CAiSE 2003**).

#### WORKSHOP PAPERS (PEER-REVIEWED)

- [W5] \*Babanejad, N., \*Agrawal, A., Davoudi, H., An, A., & Papagelis, M. Leveraging emotion features in news recommendations. In Proceedings of the 7th International Workshop on News Recommendation and Analytics. (**INRA / ACM Recommender Systems 2019 Workshops**).

[W4] \*Chen, B. X., \*Sahdev, R. \*Wu, D., \*Zhao, X., Papagelis, M., & Tsotsos, J. K. (2018). Scene classification in indoor environments for robots using context based word embeddings. In Proceedings of the IEEE International Conference on Robotics and Automation - Multimodal Robot Perception Workshop, 6 pages (**ICRA 2018 Workshops**).

[W3] Das, G., Koudas, N., Papagelis, M., & Puttaswamy, S. (2008). Efficient sampling of information in social networks. In Proceedings of the 2008 ACM Workshop on Search in Social Media (SSM), pp. 67-74 (**ACM Conference on Information and Knowledge Management 2008 Workshops**).

[W2] Doerr, M., & Papagelis, M. (2004). Precision estimation for matching place names to a digital gazetteer. In proceedings of the 3rd European NKOS Workshop: User-centred approaches to Networked Knowledge Organization Systems/Service (**ECDL 2004/NKOS Workshops**).

[W1] Papagelis, M., & Plexousakis, D. (2004). Qualitative analysis of user-based and item-based prediction algorithms for recommendation agents. In Proceedings of the International Workshop on Cooperative Information Agents, pp. 152-166 (**CIA 2004**).

#### MAGAZINE ARTICLES (PEER-REVIEWED)

[M1] Papagelis, M., & Plexousakis, D. (2006). CONFIOUS: Conference Management System with Intelligence, Power and Style. ERCIM NEWS Magazine, Vol. 64, Jan, 2006.

#### TECHNICAL REPORTS (NON-REFEREED)

[TR3] Papagelis, M., Bansal, N., & Koudas, N. (2009). Engagement and reaction in the blogosphere. Supplementary material of the article "Papagelis, M., Bansal, N., & Koudas, N. (2009). Information cascades in the blogosphere: a look behind the curtain. In Proceedings of the 3rd AAAI International Conference on Web and Social Media, pp. 292-295 (ICWSM 2009)."

[TR2] Doerr, M., & Papagelis, M. (2004). Description of application based on the Alexandria digital gazetteer protocol. Available online at the Alexandria Digital Library (2004).

[TR1] Papagelis, M., & Plexousakis, D. (2003). Recommendation based discovery of dynamic virtual communities. Movie Recommendation System (MRS) Overview.

#### THESES

[T3] Papagelis, M. (2015). Understanding and improving online social interactions and processes: methods, algorithms & applications. Ph.D. thesis, Department of Computer Science, University of Toronto, Canada.

[T2] Papagelis, M. (2005). Crawling the algorithmic foundations of recommendation technologies. M.Sc. thesis, Department of Computer Science, University of Crete, Greece.

[T1] Papagelis, M. (2003). Study and implementation of user-based recommendation algorithms and their role in the formation of online virtual communities. B.Sc. thesis, Department of Computer Science, University of Crete, Greece.

#### INTELLECTUAL PROPERTY

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##### PATENTS (APPLIED FOR)

[P3] El-Diraby, T., Papagelis, M., Krijnen, T. (2016). Systems and methods for sustainability and social interaction analysis in building information modeling. Pub. No.: WO/2019/000083. Intern. App. No.: PCT/CA2018/050779. International Filing Date: 26.06.2018.

[P2] Murdock, V., van Zowl, R., Papagelis, M. (2012). Measuring or Estimating User Credibility. US Patent App. 12/898,644, 2012.

##### PATENTS (GRANTED)

[P1] Murdock, V., van Zowl, R., Papagelis, M. (2016). Media or content tagging determined by user credibility signals". US Patent 9,529,822.

SOFTWARE RELEASES

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DATE	NAME	BRIEF DESCRIPTION	URL
2020	MRSWEEP	A distributed in-memory version of the popular sweep-line algorithm for finding axis-aligned geometric object intersections (overlaps). Implemented using MapReduce in Apache Spark.	<a href="https://github.com/tipech/mrsweep">https://github.com/tipech/mrsweep</a>
2020	OL-HEATMAP	A novel heatmap-like visualization method for effective density visualization of the overlaps of multiple intersecting axis-aligned objects (line-segments in $1D$ , rectangles in $2D$ , cuboids in $3D$ , etc.).	<a href="https://github.com/tipech/overlapGraph">https://github.com/tipech/overlapGraph</a>
2019	ZIPLINE	An optimization method for materializing ElasticBSP. ElasticBSP is an efficient method for training deep learning models in a distributed environment.	<a href="https://github.com/xingzhao0/ElasticBSP">https://github.com/xingzhao0/ElasticBSP</a> (currently confidential due to an NDA)
2019	SLIG	An efficient method for finding information about the overlaps of multiple intersecting axis-aligned objects (line-segments in $1D$ , rectangles in $2D$ , cuboids in $3D$ , etc.).	<a href="https://github.com/tipech/overlapGraph">https://github.com/tipech/overlapGraph</a>
2019	EVONRL	A deep learning method for obtaining continuous low-rank representations of an evolving graph/network.	<a href="https://github.com/farzana0/EvoNRL">https://github.com/farzana0/EvoNRL</a>
2018	SLOT	An efficient method for profiling nodes in trajectory networks (dynamic networks defined by trajectories). Metrics include node degree, triangle membership and connected components – defined as a function of time.	<a href="https://github.com/tipech/trajectory-networks">https://github.com/tipech/trajectory-networks</a>

# TEACHING (LECTURING, SUPERVISION, COMMITTEE MEMBERSHIP)

## UNDERGRADUATE TEACHING

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### UNDERGRADUATE COURSES DEVELOPED

TERM/YEAR	COURSE CODE	COURSE NAME & DESCRIPTION
FALL 2016	EECS 4414	<b>INFORMATION NETWORKS</b> Information networks are effective representations of pairwise relationships between objects. Examples include technological networks (e.g., World Wide Web), online social networks (e.g., Facebook), biological networks (e.g., Protein-to-Protein interactions), and more. The study of information networks is an emerging discipline of immense importance that combines graph theory, probability and statistics, data mining and analysis, and computational social science. This course provides students with both theoretical knowledge and practical experience of the field by covering models and algorithms of information networks and their basic properties. In addition, analysis of information networks provides the means to explore large, complex data coming from vastly diverse sources and to inform computational problems and better decisions.
FALL 2016	EECS 4415	<b>BIG DATA SYSTEMS</b> Storing, managing, and processing datasets is foundational to both computer science and data science. The enormous size of today's data sets — and the specific requirements of modern applications — necessitated the growth of a new generation of data management systems, where the emphasis is put on distributed and fault-tolerant processing. New programming paradigms have evolved, an abundance of information platforms offering data management and analysis solutions have appeared, and a number of novel methods and tools have been developed. This course introduces the fundamentals of big-data storage, retrieval, and processing systems. As these fundamentals are introduced, exemplary technologies are used to illustrate how big data systems can leverage very large data sets that become available through multiple sources and are characterized by diverse levels of volume (terabytes, billion records), velocity (batch, real-time, and streaming), and variety (structured, semi-structured, and unstructured). The course aims to provide students with both theoretical knowledge and practical experience of the field by covering recent research on big-data systems and their basic properties. Students consider both small and large datasets because both are equally important and justify different trade-offs.

### UNDERGRADUATE COURSES TAUGHT

COURSE CODE	COURSE NAME	TERM / YEAR
EECS 3421	Introduction to Databases	W19, F19
EECS 4415	Big Data Systems	F18, F19
EECS 4414	Information Networks	W18
EECS 2031	Software Tools	W18

## GRADUATE TEACHING

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### GRADUATE COURSES DEVELOPED

TERM / YEAR	COURSE CODE	COURSE NAME & DESCRIPTION
WINTER 2017	EECS 6414	<b>DATA ANALYTICS &amp; VISUALIZATION</b> Data analytics and visualization is an emerging discipline of immense importance to any data-driven organization. This is a project-focused course that provides students with knowledge on tools for data mining and visualization and practical experience working with data mining and machine learning



algorithms for analysis of very large amounts of data. It also focuses on methods and models for efficient communication of data results through data visualization.

FALL 2016	EECS 6413 (currently listed as EECS 4414/5414)	INFORMATION NETWORKS Information networks are effective representations of pairwise relationships between objects. Examples include technological networks (e.g., World Wide Web), online social networks (e.g., Facebook), biological networks (e.g., Protein-to-Protein interactions), and more. The study of information networks is an emerging discipline of immense importance that combines graph theory, probability and statistics, data mining and analysis, and computational social science. This course provides students with both theoretical knowledge and practical experience of the field by covering models and algorithms of information networks and their basic properties. In addition, analysis of information networks provides the means to explore large, complex data coming from vastly diverse sources and to inform computational problems and better decisions.
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#### GRADUATE COURSES TAUGHT

COURSE CODE	COURSE NAME	TERM/YEAR
EECS 6414	Data Analytics and Visualization	F17, W19, W20
EECS 6413	Information Networks	W17

#### SUMMARY OF COURSE EVALUATIONS

The table below provides a summary of my course evaluations. The score reported is the score in **the overall instructor effectiveness question** of the evaluation form. The normalized score is provided (out of 100%) to improve readability/comparisons. York University's scoring is out of 7. **Detailed course evaluations are provided as separate files.**

ACADEMIC INSTITUTION	COURSE CODE	COURSE LEVEL	SEMESTER	TOTAL STUDENT ENROLMENT	NORMALIZED SCORE (100%)
York University	EECS6414	Graduate	W20	40	pending
York University	EECS6414	Graduate	W19	24	<b>87.7%</b>
York University	EECS6414	Graduate	F17	18	<b>89.3%</b>
York University	EECS6413	Graduate	W17	3	<b>100%</b>
York University	EECS4415	Undergraduate (4 <sup>th</sup> )	F19	44	<b>94.4%</b>
York University	EECS4415	Undergraduate (4 <sup>th</sup> )	F18	38	<b>95.0%</b>
York University	EECS4414	Undergraduate (4 <sup>th</sup> )	W18	8	<b>100%</b>
York University	EECS3421	Undergraduate (3 <sup>rd</sup> )	F19	98	<b>90.2%</b>
York University	EECS3421	Undergraduate (3 <sup>rd</sup> )	W19	92	<b>93.0%</b>
York University	EECS2031	Undergraduate (2 <sup>nd</sup> )	W18	122	<b>~90-100%<sup>2</sup></b>

<sup>2</sup> This range is reflecting scores in course-level questions; instructor scores were not collected that year due to union strike disruptions.

SUPERVISION SUMMARY (JUL 2016 – PRESENT)

PROGRAM & DEGREE	#CURRENT	#GRADUATED	#TOTAL
EECS Ph.D.	3	0	3
EECS MSc	3	4	7
EECS M.A.Sc.	1	0	1
EECS MScAI	1	0	1
EECS Grad Research Project/Collaboration <sup>3</sup>	0	11	11
EECS Undergrad	2	13	15
<b>#Total</b>	<b>10</b>	<b>28</b>	<b>38</b>

GRADUATE SUPERVISION

GRADUATE STUDENTS SUPERVISED

DATES	STUDENT NAME	DEGREE	PROGRAM	THESIS TOPIC
SEP 2019 - PRESENT	Tilemachos Pechlivanoglou	Ph.D.	EECS	Machine learning with graphs (TBD)
SEP 2019 – PRESENT	Shaikh Quader (Co-supervised)	Ph.D.	EECS	Machine learning models for query optimization (TBD)
SEP 2017 – PRESENT	Nastaran Babanejad (Co-supervised)	Ph.D.	EECS	Emotion-aware recommendation algorithms (TBD)
SEP 2019 – PRESENT	Mahta Shafieesabet	M.Sc.	EECS	Streaming graph mining (TBD)
SEP 2019 – PRESENT	Fazel Arasteh	M.A.Sc.	EECS	Reinforcement learning for trajectory data mining (TBD)
SEP 2019 – PRESENT	Ali NematiChari	M.Sc.	EECS	Machine learning models for trajectory data mining (TBD)
SEP 2019 – PRESENT	Adrian Winkler	MScAI	EECS	Machine learning models for Autonomous Vehicles (TBD)
MAY 2019 – FEB 2020	Eric Niloy Costa	M.Sc.	EECS	Effective density visualization of multiple overlapping axis-aligned objects
SEP 2018 – PRESENT	Hoorieh Marefat (Co-supervised)	M.Sc.	EECS	Distributed anomaly detection over large tensors
JAN 2018 – APR 2020	Saim Mehmood	M.Sc.	EECS	Learning semantic relationships of geographical areas based on trajectories
SEP 2017 – AUG 2019	Tilemachos Pechlivanoglou	M.Sc.	EECS	Sweep-line extensions to the multiple object intersection problem: methods and applications in graph mining

<sup>3</sup> Includes: (i) EECS6400 – Graduate Research Project course (I'm supervising a research project for 8 months that is different to MSc thesis); (ii) EECS6002 – Reading course (focused readings and research on a topic); (iii) Ad hoc research collaboration with a student.

SEP 2017 – AUG 2019	Farzaneh Heidari	M.Sc.	EECS	Evolving network representation learning based on random walks
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#### GRADUATE STUDENT PROJECTS (EECS6002, EECS6400, RESEARCH COLLABORATIONS)

DATES	STUDENT(S) NAME	DEGREE	PROGRAM	PROJECT/READING COURSE
JAN 2019 – AUG 2019	Javad Sayehvad	M.A.Sc.	EECS	EECS6400 - Distributed edge computing via k-nearest nodes in 5G networks
JAN 2019 – AUG 2019	Soroush Sheikh Gargar	M.A.Sc.	EECS	EECS6400 - Trajectory-based relational inference using graph-based latent models
JAN 2018 – DEC 2018	Nasim Razavi, Vincent Chu	M.Sc.	EECS	Research Collaboration – Trajectory behavior analytics
SEP 2017 – APR 2019	Abdullah Sawas, Abdullah Abuolaim, Mahmood Afifi	M.Sc.	EECS	Research Collaboration – Pedestrian trajectory group mining
SEP 2017 – APR 2018	Bao Xin Chen, Raghavender Sahdev	M.Sc.	EECS	Research Collaboration – Scene classification using context-based word embeddings
APR 2017 – AUG 2017	Shima Khoshraftar	P.h.D.	EECS	EECS6002 – Anomaly detection in dynamic and streaming graphs
SEP 2017 – APR 2018	Ali Zargar Shabestari	M.A.Sc.	EECS	EECS6400 – A genetic algorithm approach for the orienteering problem

#### SUPERVISORY COMMITTEE MEMBERSHIP

DATES	STUDENT NAME	DEGREE	PROGRAM	THESIS	ROLE
AUG 2019 – PRESENT	Farzin Zaker	Ph.D.	EECS	Machine Learning Models for Learning End-to-end Latency of Distributed IoT Infrastructures	Supervisory Committee
JUL 2019 – PRESENT	Enas Altarawneh	Ph.D.	EECS	TBD (Machine Learning, Robotics and Vision)	Supervisory Committee
JUL 2019 – PRESENT	Hossein Pourmodheji	Ph.D.	EECS	Data Streams and Online Deep Learning	Supervisory Committee
APR 2019 – PRESENT	Xuyang Han	M.Sc.	ESS	Data Exploration and Data Mining on Crowdsourced Geospatial Data using Visual Analytics	Supervisory Committee
SEP 2017 – PRESENT	Ali Zargar Shabestari	M.A.Sc.	EECS	Load-balancing Algorithms for Managing Distributed IoT Resources and Infrastructures	Supervisory Committee
SEP 2017 – APR 2019	Dekun (Jack) Wu	M.Sc.	EECS	Deep Learning Approach to Open-domain Factoid Question Answering from Knowledge Graph	Supervisory Committee
SEP 2017 – AUG 2019	Yangguang Li	M.Sc.	EECS	Optimizing Python Applications' Performance via Configuration Tuning	Supervisory Committee
SEP 2017 – PRESENT	Shima Khoshrafta	Ph.D.	EECS	Anomaly Detection in Dynamic Graphs	Supervisory Committee

SEP 2017 – MAY 2018	Ameeta Agrawal	Ph.D.	EECS	Enriching Affect Analysis Through Emotion and Sarcasm Detection	Supervisory Committee
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#### EXAMINING COMMITTEE MEMBERSHIP

DATES	STUDENT NAME	DEGREE	PROGRAM	THESIS	ROLE
SEP 2019	Mahdi Biparva	Ph.D.	EECS	Top-Down Selection in Convolutional Neural Networks	<b>Chair,</b> Examining Committee
AUG 2019	Kang Zhao	M.Sc.	ESS	Using Deep Neural Networks for Automatic Building Extraction with Boundary Regularization from Satellite Images	Internal, Examining Committee
MAY 2018	Forouqsadat Khonsari	M.Sc.	EECS	Mining Large-Scale News Articles for Predicting Forced Migration via Machine Learning Techniques	<b>Chair,</b> Examining Committee
NOV 2018	Nima Shahbazi	Ph.D.	EECS	Discovery and Effective Use of Frequent Itemset Mining and Association Rules in Datasets	<b>Chair,</b> Examining Committee

#### UNDERGRADUATE SUPERVISION (DIRECTED READING, RESEARCH ASSISTANTSHIPS/ASSOCIATES, LAB VOLUNTEERING)

DATES	STUDENT(S) NAME	WHAT	PROGRAM	PROJECT/READING COURSE
MAY 2020 – AUG 2020	Kenneth Tjhia	Research Intern (NSERC USRA)	EECS	Learning active paths in streaming graphs
MAY 2020 – AUG 2020	Jing Li	Research Intern (LURA)	EECS	Epidemic Dynamics on Digitally Traced Contact Networks
SEP 2019 – APR 2020	Aamir Ahmad	CS Project (EECS 4088)	EECS	Gait identification and analysis using machine learning through a mobile app
SEP 2019 – APR 2020	Hassaan Abid	CS Project (EECS 4088)	EECS	Gait identification and analysis using machine learning through a mobile app
SEP 2019 – APR 2020	Sami Tarazi	CS Project (EECS 4088)	EECS	Learning active paths in streaming graphs
SEP 2019 – APR 2020	Andrew Jaramillo	CS Project (EECS 4088)	EECS	Machine learning based optimization for database workloads
MAY 2019 – AUG 2019	Kenneth Tjhia	Research Intern (NSERC USRA)	EECS	Learning interactions of moving objects using variational auto-encoders
MAY 2019 – AUG 2019	Mahmoud Alsaeed	Research Intern (LURA)	EECS	Distributed sweep-line algorithm for scalable geometric object intersection analytics
JAN 2019 – APR 2019	Ragheb Abunahla	CS Project (EECS 4080)	EECS	Sentiment and emotion analysis of song lyrics for music recommendations systems
JAN 2019 – APR 2019	Praise Ayorinde	CS Project (EECS 4080)	EECS	Building code-based github user profiles for automatic project expert recommendations
MAY 2018 – AUG 2018	Hao (Leslie) Li	Directed Reading (EECS 4070)	EECS	Network representation learning

MAY 2018 – AUG 2018	Yi Yao	Volunteer	EECS	Trajectory data mining
MAY 2018 – AUG 2018	Jay Cen	Volunteer	EECS	Trajectory data mining
MAY 2018 – AUG 2018	Minghong (Sophia) Xu	Volunteer	EECS	Network representation learning
MAY 2017 – AUG 2018	Andrew Jaramillo	Volunteer	EECS	Mining city neighborhood dynamics

#### STUDENT AWARDS / RECOGNITIONS

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SUMMER 2020	Kenneth Tjhia	Undergraduate Student Research Award (USRA)	NSERC
SUMMER 2020	Jing Li	Lassonde Undergraduate Research Award (LURA)	LASSONDE SCHOOL OF ENGINEERING
SUMMER 2019	Kenneth Tjhia	Undergraduate Student Research Award (USRA)	NSERC
SUMMER 2019	Mahmoud Alsaeed	Lassonde Undergraduate Research Award (LURA)	LASSONDE SCHOOL OF ENGINEERING
DEC 2018	Tilemachos Pechlivanoglou	IEEE BigData 2018 Student Travel Award	IEEE INTERNATIONAL CONFERENCE ON BIGDATA 2018
JUN 2018	Abdullah Sawas, Abdullah Abuolaim, Mahmood Afifi	IEEE MDM 2018 Best Paper Award	19TH IEEE INTERNATIONAL CONFERENCE ON MOBILE DATA MANAGEMENT

# SERVICE (COMMITTEE MEMBERSHIP, EDITORIAL ACTIVITY, LEADERSHIP)

## COMMITTEE MEMBERSHIP

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### COMMUNITY LEVEL (GREATER TORONTO AREA)

- 2018 – 2019 Ad hoc Program Advisory Committee (PAC) Member, Durham College Honors Bachelor in Artificial Intelligence
- 2018 – 2019 Judge, American Statistical Association DataFest Challenge at University of Toronto (DataFest@UofT)

### UNIVERSITY LEVEL (YORK UNIVERSITY)

- 2017 – 2020 Organizer, Grad Course of NSERC CREATE Data Analytics and Visualization (DAV)
- 2018 – 2019 Organizer, Hackathon of NSERC CREATE Dependable Internet of Things Applications (DITA)
- 2018 – 2019 Organizer, Integrative Course of NSERC CREATE Dependable Internet of Things Applications (DITA)

### FACULTY LEVEL (LASSONDE SCHOOL OF ENGINEERING)

- 2018 – 2019 Project Supervisor, ENG4000 (Final Year Undergraduate Project)  
Topic: Creating a Database Solution for the UNESCO Chair Research  
Team: Andrew Ferreira, Asma Hassan, Dan Sheng, Eric Dao, Shahriar Ahmed Dhrubo

### DEPARTMENT LEVEL (ELECTRICAL ENGINEERING AND COMPUTER SCIENCE)

- 2019 – 2020 Coordinator, Department Seminars (Computer Science)
- 2019 – 2020 Member, Faculty Hiring Search Committee (Computer Science – AI/ML/Vision)
- 2019 – 2020 Member, Tenure & Promotion Adjudication Committee
- 2019 – 2020 Member, Industry Partnership Program Committee
- 2018 – 2019 Member, Faculty Hiring Search Committee (Computer Security)
- 2018 – 2019 Member, Industry Partnership Program Committee
- 2018 – 2019 Member, Graduate Admissions Committee
- 2017 – 2018 Member, Markham Campus Planning Committee
- 2017 – 2018 Member, Industry Partnership Program Committee
- 2017 – 2018 Member, Tenure & Promotion File Preparation Committee (FPC)
- 2017 – 2018 Member, Graduate Admissions Committee

### REVIEWER FOR RESEARCH FUNDING AGENCIES

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- 2019 National Science and Engineering Research Council Discovery Grants (NSERC DG)
- 2018 Mitacs Accelerate Entrepreneur (MITACS ACCELERATE)
- 2017 The Canada-Israel Industrial Research and Development Foundation (CIIRDF)

### ACADEMIC JOURNAL EDITORIAL ACTIVITIES (REVIEWER / EXTERNAL REVIEWER)

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- 2019/8 – PRESENT Associate Editor, Computational Intelligence (COIN)
- 2020/01- PRESENT Reviewer, IEEE Transactions on Intelligent Systems Technology (TIST)
- 2016/5 – 2019/8 Reviewer, IEEE Transactions on Knowledge and Data Engineering (TKDE)
- 2017/4 – 2019/6 Reviewer, ACM Transactions on the Web (TWEB)
- 2015/10 – 2019/5 Reviewer, ACM Transactions on Knowledge Discovery from Data (TKDD)
- 2019/8 – 2019/11 Reviewer, Journal of Combinatorial Optimization (JOCO)
- 2018/4 – 2018/6 Reviewer, IEEE Internet of Things (IoT)
- 2018/8 – 2018/9 Reviewer, IEEE Networking Letters (NL)
- 2014/6 – 2017/9 Reviewer, The Proceedings of the VLDB Endowment (PVLDB)
- 2017/5 – 2017/6 Reviewer, Springer Machine Learning (MACH)

2017/4 – 2017/5	Reviewer, Computer and Informatics (CAI)
2012/9 – 2020/01	Reviewer, Social Network Analysis and Mining (SNAM)
2016/7 – 2016/9	Reviewer, Internet Mathematics (IM)
2016/1 – 2016/3	Reviewer, Applied Network Science (ANS)
2015/2 – 2015/11	Reviewer, Knowledge and Information Systems (KAIS)
2014/12 – 2015/1	Reviewer, ACM Transactions on Internet Technology (TOIT)
2014/9 – 2014/10	Reviewer, IEEE Journal of Selected Topics in Signal Processing (J-STSP)
2014/1 – 2014/3	Reviewer, ACM Transactions on Database Systems (TODS)
2013/5 – 2013/6	Reviewer, Frontiers of Computer Science (FCS)
2012/12 – 2013/2	Reviewer, Information Sciences (IS)
2012/7 – 2012/9	Reviewer, IEEE Transactions on Information Forensics and Security (TIFS)
2007/5 – 2011/4	Reviewer, International Journal on Artificial Intelligence Tools (IJAIT)
2006/6 – 2006/7	Reviewer, Information Systems (IS)

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#### CONFERENCE PROGRAM COMMITTEE MEMBER / REVIEWER

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2021	Program Committee Member, 14 <sup>th</sup> ACM International Conference on Web Search and Data Mining (ACM WSDM 2021)
2020	Program Committee Member, 29 <sup>th</sup> ACM International Conf. on Information and Knowledge Management (ACM CIKM 2020)
2020	Program Committee Member, 43 <sup>rd</sup> Intern. Conf. on Research and Development in Information Retrieval (ACM SIGIR 2020)
2020	Program Committee Member, 1 <sup>st</sup> Asia-Pacific chapter of the Association for Computational Linguistics and the 9 <sup>th</sup> International Joint Conference on Natural Language Processing (AAACL-IJCNLP)
2020	Program Committee Member, 30 <sup>th</sup> International Conference on Computer Science and Software Engineering (CASCON 2020)
2019	Program Committee Member, 29 <sup>th</sup> International Conference on Computer Science and Software Engineering (CASCON 2019)
2018	Program Committee Member, 25 <sup>th</sup> ACM Conference on Information and Knowledge Management (ACM CIKM 2018)
2018	Reviewer, 44 <sup>th</sup> International Workshop on Graph-Theoretic Concepts in Computer Science (WG 2018)
2018	Program Committee Member, 23 <sup>rd</sup> IEEE Symposium on Computers and Communications (IEEE ISCC 2018)
2017	Program Committee Member, 26 <sup>th</sup> ACM Conference on Information and Knowledge Management (ACM CIKM 2017)
2017	Reviewer, 16 <sup>th</sup> International Symposium on Experimental Algorithms (SEA 2017)
2017	Program Committee Member, 22 <sup>nd</sup> IEEE Symposium on Computers and Communications (IEEE ISCC 2017)
2015	Reviewer, 31 <sup>st</sup> IEEE International Conference on Data Engineering (IEEE ICDE 2015)
2015	Reviewer, 18 <sup>th</sup> International Conference on Extending Database Technology (EDBT 2015)
2014	Reviewer, 17 <sup>th</sup> International Conference on Extending Database Technology (EDBT 2014)
2014	Reviewer, 20 <sup>th</sup> ACM International Conference on Knowledge Discovery and Data Mining (ACM KDD 2014)
2013	Reviewer, 19 <sup>th</sup> ACM International Conference on Knowledge Discovery and Data Mining (ACM KDD 2013)
2012	Reviewer, 23 <sup>rd</sup> ACM Conference on Hypertext and Social Media (ACM HyperText 2012)
2010	Reviewer, 19 <sup>th</sup> International World Wide Web Conference (WWW 2010)
2010	Reviewer, 19 <sup>th</sup> ACM Conference on Information and Knowledge Management (ACM CIKM 2010)
2010	Reviewer, 21 <sup>st</sup> ACM Conference on Hypertext and Social Media (ACM HyperText 2010)
2008	Reviewer, 14 <sup>th</sup> ACM International Conference on Knowledge Discovery and Data Mining (ACM KDD 2008)
2007	Reviewer, 13 <sup>th</sup> ACM International Conference on Knowledge Discovery and Data Mining (ACM KDD 2007)
2005	Reviewer, 4 <sup>th</sup> International Semantic Web Conference (ISWC 2005)
2004	Reviewer, 3 <sup>rd</sup> International Semantic Web Conference (ISWC 2004)

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#### WORKSHOP PROGRAM COMMITTEE MEMBER / REVIEWER

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2011	Program Committee Member, 3 <sup>rd</sup> International Workshop on Search and Mining User-generated Content (ACM SMUC 2011)
2010	Program Committee Member, 2 <sup>nd</sup> International Workshop on Search and Mining User-generated Content (ACM SMUC 2010)
2009	Program Committee Member, 1 <sup>st</sup> International Workshop on Monitoring Social Media (MSM 2009)

2017 – 2019

**Program Proposal Lead, Professional Master of Data Science Program**

The Lassonde School of Engineering (in collaboration with other Faculties at York University) is preparing a proposal for a new Professional Master of Data Science program. The program will be designed to meet a rapidly growing demand for professionals who can work effectively with data at scale – data scientists – and to train leaders in data science that can assume key positions in business, government, or non-profit organizations.

2017 – 2019

**Program Proposal Co-Writer, Industrial BSc Program**

The EECS department has developed an industry partnership option for the Honours B.A. and Honours B.Sc. programs in computer science. Part of the education for students in this option is delivered through experiential learning at an industry partner's site. An industry partnership option allows students to receive a complete academic education, while at the same time gain valuable work experience that will enhance their knowledge on technical issues and improve their post-graduation employability.

2017 – 2018

**Program proposal Co-Writer, EECS Markham proposal**

Member of the working group tasked to prepare a white paper (proposal) for the EECS department's programs centered at the new Markham campus.