Amar Viswanathan Kannan

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A doctoral candidate in Computer Science at the Tetherless World Constellation under Prof.James A. Hendler, RPI. My thesis is titled *A methodology for reformulating failing Knowledge Graph queries using schema-data and instance-data awareness*, where contextual reformulations are suggested for failing graph queries. I have also recently started working on Knowledge Graph Correction and Evaluation for Biomedical Knowledge Graphs. In addition to my thesis I have worked on Sentiment Analysis, Information Extraction, Event and Entity Summarization.

Research Interests

- Knowledge Graph Query Reformulation and Knowledge Graph Search
- Knowledge Graph Error Detection, Evaluation and Correction
- Question Answering over Knowledge Graphs
- Analyzing and finding patterns in data and Graph data

Education

Academic Qualifications

- **Rensselaer Polytechnic Institute** — **Troy, New York**
  PhD Computer Science — *2011–2017(Early Fall)*
- **Rensselaer Polytechnic Institute** — **Troy, New York**
  M.S. Computer Science , CGPA 3.9 — *2011–2017*
- **Computer Science and Engineering** — **Anna University**
  B.E., Chennai, India — *2003-2007*
- **Udacity Nanodegree** — **Udacity,Online Verified Degree**
  Machine Learning Engineer — *2016–2017*

Employment

- **Rensselaer Polytechnic Institute** — **Troy**
  Research Assistant — *August 2011– current*
- **IBM T.J. Watson Research Center** — **Yorktown Heights**
  Summer Research Intern — *Summer 2015*
- **IBM T.J. Watson Research Center** — **Yorktown Heights**
  Summer Research Intern — *Summer 2014*
- **Infosys Technologies Limited** — **Bengaluru**
  Senior Systems Engineer, Infosys Labs — *October 2007– July 2011*

Research Projects

- **Pragmatics and Instance Data Aware Querying in Knowledge Graphs:** *Fall 2014 - Current*
  The focus of my work is on providing contextual non zero responses to *failed* Knowledge Graph queries using a *Schema- and Data-Aware Framework*.
- **Question Answering Systems, Watson and Beyond:** *Fall 2013 - Summer 2014*
  I worked on the mini-watson system deployed at RPI aimed at making Watson understand linked government data (RDF based Knowledge Graph).
- **RDF Type Providers using F#:** *Spring 2013*
  I worked on an implementation which would allow us to access RDF data from any RDF graph.The problem was non trivial because it required the type provider to make inference about data types on the fly and one had to work that out through the rdf:type .
- **Large Scale Text Analysis of International Open Government Metadata:** *Summer 2013*
  I worked on the textual understanding of the metadata collected by the IOGDS project and analyzed the textual metadata using traditional Named Entity Recognition and Information Retrieval measures. The results were also presented in different visualizations developed using d3.js. The current page is here.
- **Foresight and Understanding from Scientific Exposition:** *Summer 2012*
  Project deals with developing automated systems that aid in assessment and prediction of technical emergence in areas using published scientific, technical and patent literature. I worked on developing plug-ins to visualize such information which was available. jQuery and Lucene were used as front end and IR tool respectively.

Computer Skills

- **Programming Languages:** Proficient in: Java and Python,
  Have used C++ and C.
- **Web Front-End:** XHTML, CSS, Bootstrap, jQuery, d3.js.
- **Ontology Development:** Protégé
- **Tools, libraries and :** NLTK, scikit-learn, numpy, pandas, Stanford Natural Language Toolkit, Virtuoso, Apache Jena,

Publications

[Viswanathan et al., 2017]Viswanathan, A., Michaelis, J. R., de Mel, G. R., and Hendler, J. (2017). In context query reformulation for failing sparql queries. In *Ground/Air Multisensor Interoperability, Integration, and Networking for Persistent ISR VIII*. SPIE.

[Viswanathan, 2016]Viswanathan, A. (2016). Pragmatic reformulation in knowledge graphs. In *AAAI-16 Doctoral Consortium*. AAAI.

[Viswanathan et al., 2016]Viswanathan, A., De Mel, G., and Hendler, J. (2016). Pragmatics and discourse knowledge graphs. In *AAAI-16 Workshop on Symbiotic Cognitive Systems*. AAAI.

[Balakrishnan et al., 2013]Balakrishnan, R., Vasudevan, B. G., Viswanathan, A., Raghunathan, P. V., and Ravindran, U. (2013). Methods for analyzing user opinions and devices thereof. US Patent App. 13/946,832.

[Erickson et al., 2013]Erickson, J. S., Viswanathan, A., Shinavier, J., Shi, Y., and Hendler, J. A. (2013). Open government data: A data analytics approach. *IEEE Intelligent Systems*, (5):19–23.

[Viswanathan et al., 2011]Viswanathan, A., Venkatesh, P., Vasudevan, B. G., Balakrishnan, R., and Shastri, L. (2011). Suggestion mining from customer reviews.

[Hussain et al., 2009]Hussain, T., Balakrishnan, R., and Viswanathan, A. (2009). Semantic wiki aided business process specification. In *Proceedings of the 18th international conference on World wide web*, pages 1135–1136. ACM.

Poster Presentations and Talks

2016

- Amar Viswanathan, Pragmatics Aware Querying in Heterogeneous Knowledge Graphs, Thirtieth AAAI Conference on Artifical Intelligence, Doctoral Consortium 2016, Phoenix, AZ (USA) 02/12/2016
- Amar Viswanathan, Geeth de Mel, James A .Hendler, Pragmatics and Discourse in Knowledge Graphs, Workshop on Symbiotic Cognitive Systems at the Thirtieth AAAI Conference on Artificial Intelligence, 2016, Phoenix, AZ(USA) 02/12/2016

2015

- Amar Viswanathan, Geeth de Mel, James A. Hendler, Pragmatic Query Reformulation and Answer Generation in Knowledge Graphs, IBM Cognitive Computing Symposium 2015, RPI, Troy, NY 11/09/2015. (Poster Session)
- Amar Viswanathan, Pragmatic Query Reformulation in Heterogeneous Knowledge Graphs, IBM Intern Talk and Poster Session, 2015, IBM, Yorktown Heights, NY, 08/22/2015

2014

- Amar Viswanathan, Not Elementary, My dear Watson.."- Extending Watson for Question Answering on Linked Open Data, IBM Cognitive Computing Symposium 2014, IBM, Yorktown Heights, NY 10/30/2014 (Poster Session)
- Amar Viswanathan, Semi Supervised Pattern Summarization of Client Resolution Data, IBM Summer Intern Poster Event 2015, IBM, Yorktown Heights, NY, 08/22/2014 (Poster Session), Public talk on 08/06/2014

2013

- John Erickson, Amar Viswanathan, Josh Shinavier, Yongmei Shi, James A. Hendler, Text Analysis of International Open Government Data, NY State Health Data Codeathon, RPI, Troy, NY, 12/20,2013