NJIT | Institute for Data Science

Institute for Data Science Spring 2021 Seminar Series

For Spring 2021 the Seminar Series is held Wednesdays at 4 PM Eastern Time. The series includes data science thought leaders from academia and industry. For additional information about the event and to see a link to the previous seminars recorded please visit our events page and sign up to receive notifications for future events.

OVERVIEW:

- Data Science Seminar Series
- Center Announcements and Updates
- PhD Announcements

Center for Big Data

Cybersecurity Research Center

Structural Analysis of Biomedical Ontologies Center (SABOC)

DATA SCIENCE SEMINAR SERIES

New Jersey Institute of Technology's Institute for Data Science invites you to our Spring 2021 seminar series, held Wednesdays at 4 PM Eastern Time. The series includes data science thought leaders from academia and industry.

https://datascience.njit.edu/events/

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https://njit-institute-for-data-science.eventbrite.com/

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January 27 - **Steven Skiena, Stony Brook University**

February 3 - **Tanya Berger-Wolf, The Ohio State University**

February 10 - **Jeannette M Wing, Columbia University**

February 17 - **Prashant Reddy, J.P. Morgan AI Research**

February 24 - **Deja D. Bond, elovee**
In collaboration with the Murray Center for Women in Technology

March 3 - **Vipin Kumar, University of Minnesota**
Ying Wu College of Computing Distinguished Speaker

March 10 - **Cynthia Rudin, Duke University**

March 24 - **Michael H. Merrill, Department of Defense**

March 31 - **Danai Koutra, University of Michigan**

April 7 - **Charles Leiserson, Massachusetts Institute of Technology**

April 14 - **Aydin Buluc, Lawrence Berkeley National Lab**
University of California, Berkeley

April 21 - **Tina Eliassi-Rad, Northeastern University**

April 28 - **Joseph JaJa, University of Maryland**

Center for Big Data Announcements

Co-Directors Chase Wu and Dantong Yu

Huiyan Cao defended her Ph.D. dissertation on 11/30/2020. She will join Facebook as a full-time research scientist in Jan. 2021 to work on improving end-to-end machine learning solutions. Huiyan did a summer internship at Facebook from 05/2020 to 08/2020, working with Ads Ranking Team in Seattle on gaming onsite signals exploration and feature enrichment for app ads.

Songline He has been offered a summer internship position as an Adobe Research Intern in Document Intelligence Group, from 05/24/2021 to 08/24/2021. His main responsibility at Adobe is to conduct research in Blockchain technology and Smart Contract with applications to documents analysis.

Chase Wu Workshop Co-Chair for AICCSA

Center Co-Director Chase Wu participated as Co-Chair for the first international conference on computer systems and applications AICCSA 2020 held online through Nov. 2nd - Nov 5th, 2020.

http://aiccsa.net/AICCSA2020/2-uncategorised/64-strs2020

Concept placement using BERT trained by transforming and summarizing biomedical ontology structure

Authors: Hao Liu, Yehoshua Perl (SABOC Co-Director), James Geller (SABOC Co-Director)

Abstract:

The comprehensive modeling and hierarchical positioning of a new concept in an ontology heavily relies on its set of proper subsumption relationships (IS-As) to other concepts. Identifying a concept's IS-A relationships is a laborious task requiring curators to have both domain knowledge and terminology skills. In this work, we propose a method to automatically predict the presence of IS-A relationships between a new concept and pre-existing concepts based on the language representation model BERT. This method converts the neighborhood network of a concept into "sentences" and harnesses BERT's Next Sentence Prediction (NSP) capability of predicting the adjacency of two sentences. To augment our method's performance, we refined the training data by employing an ontology summarization technique. We trained our model with the two largest hierarchies of the SNOMED CT 2017 July release and applied it to predicting the parents of new concepts added in the SNOMED CT 2018 January release. The results showed that our method achieved an average F1 score of 0.88, and the average Recall score improves slightly from 0.94 to 0.96 by using the ontology summarization technique.

Structural Analysis of Biomedical Ontologies Center (SABOC)
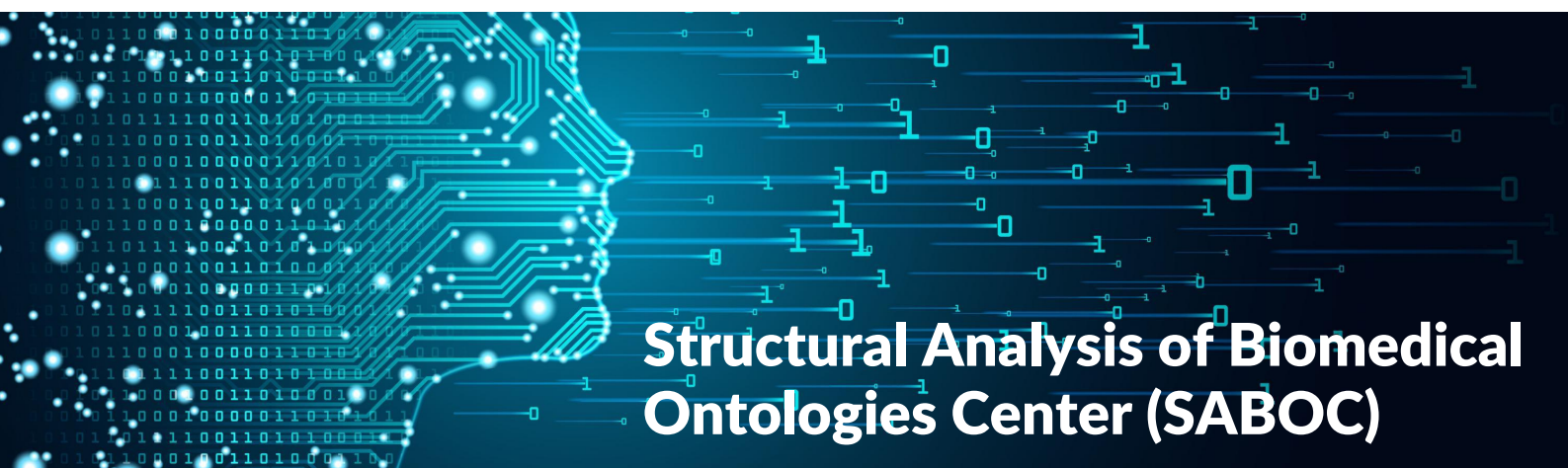
Cybersecurity Research Center

Co-Directors Kurt Rohloff and Reza Curtmola

NJIT Researchers Help Prevent Cyberattacks From Software Supply Chain

Written by: Dean Mudgett

Link to Full News Article: https://news.njit.edu/njit-researchers-help-prevent-cyberattacks-software-supply-chain

An open-source tool that cryptographically protects the layout of your software code supply chain is now available from researchers at NJIT, New York University, and Purdue University, bolstering the type of weakness exploited in the recent cyberattack on the commercial SolarWinds monitoring application used by the U.S. government.

The new tool, called in-toto, was developed by NJIT Professor Reza Curtmola (Cybersecurity Research Center Co-Director), NYU Associate Professor Justin Cappos, and Purdue Assistant Professor Santiago Torres-Arias. Now in version 1.0, it focuses on safeguarding the steps to design, develop and distribute software. Its name is derived from the Latin term meaning "on the whole."

The SolarWinds cyberattack has exposed a long-held concern over the supply chain of code production and maintenance, which can involve many developers across different departments.

PHD ANNOUNCEMENTS

Niloofar Aghaieabiane

Date: 12/18/2020
"Machine Learning and Network Embedding Methods for Gene Co-expression Networks"
Committee Member: Dr. Senjuti Basu-Roy (Center for Big Data Faculty Collaborator)

Xinge Lu

Date: 12/18/2020
"Sematic, Integrated Keyword Search Over Structured and Loosely Structured Databases"
Dissertation Advisor: Dr. Dimitri Theodoratos (Center for Big Data Faculty Collaborator)
Committee Members: Dr. James Geller (SABOC Co-Director), Dr. Senjuti Basu Roy (Center for Big Data Faculty Collaborator), Dr. Vincent Oria (Center for Big Data Faculty Collaborator)

Huiyan Cao

Date: 11/30/2020
"Resource recommendation to optimize large-scale computing workflows for batch and stream data processing"
Dissertation Advisor: Dr. Chase Wu (Center for Big Data Co-Director)
Committee Members: Dr. Cristian Borcea (Cybersecurity Research Center Faculty Collaborator), Dr. Yi Chen (Center for Big Data Faculty Collaborator), Dr. Senjuti Basu Roy (Center for Big Data Faculty Collaborator)

Yi Li

Date: 11/24/2020
"Learning Representations for Effective and Explainable Software Bug Detection and Fixing"
Committee Members: Dr. Cody Buntain (Center for Big Data Faculty Collaborator), Dr. Iulian Neamtiu (Cybersecurity Research Center Faculty Collaborator)

Congratulations!

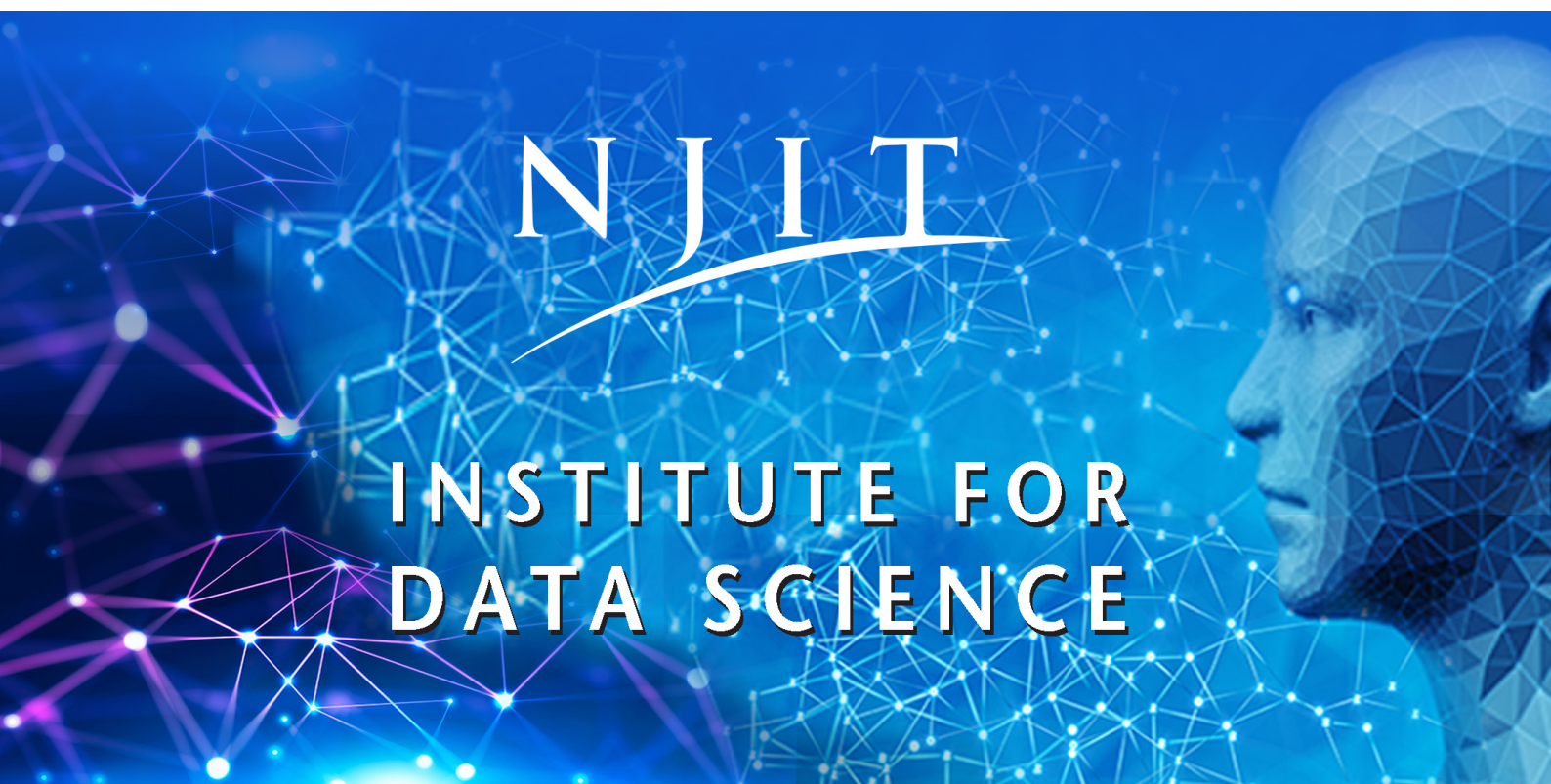# INSTITUTE FOR DATA SCIENCE DIRECTOR'S OFFICE

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