EVANGELIA SPILIOPOULOU

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RESEARCH OBJECTIVE

My research focuses on the study of events and their outcomes, specifically targeted in low-resource or real-time scenarios. I am interested on the modeling / representation aspect; how can we take full advantage of what we already know (e.g., through LLMs) to solve problems in zero- or few-shot scenarios.

EDUCATION

Carnegie Mellon University *2018 - Present*
Ph.D. in Language Technologies, School of Computer Science GPA: 4.00/4.00
Thesis: Modeling Event Implications via Multi-faceted Entity Representations
Committee: **Eduard Hovy** (advisor), Yonatan Bisk, Lori Levin, Alan Ritter

Carnegie Mellon University *2016 - 2018*
M.Sc. in Language Technologies GPA: 4.00/4.00
Advisor: Eduard Hovy

Georgia Institute of Technology *2012-2016*
B.Sc. in Computer Science GPA: 3.6/4.0 (Highest Honor)

SELECTED RESEARCH PROJECTS

Event Implications on Entities *June 2021-Now*
Thesis Project

· How do events impact an entity's state? How can we teach LLMs what to learn, and apply it in unseen entities?

Removing Data Bias for Real-time Crisis Events *Sept 2019- May 2020*
Relevant Publication(s): Event-Related Bias Removal for Real-time Disaster Events[2]

· Detect critical tweets in real-time crisis scenarios
· No data for the current event, few previous events of similar nature annotated
· Data bias problem: use adversarial techniques to retain only the useful information for the task

Definition Frames *Mar 2019- May 2020*
Relevant Publication(s): Definition Frames: Using Definitions for Hybrid Concept Representation[3]

· Design explainable entity representations via the use of definitions
· Representations with structure help us identify which information is important: less data needed

WORK EXPERIENCE & FUNDED PROJECTS

Carnegie Mellon University *April 2018-Now*
DARPA, World Modelers project

· Advisor: Eduard Hovy
· Design & Implementation of SOFIA (code) and Project Management
· Detect causal links & events from noisy documents, real-time

Dataminr Inc. *May-Aug 2020*
NLP Research Intern, Manager: Joel Tetreault

· Detect important sub-events from twitter streams for disaster events
· Relevant Publication(s): A Novel Framework for Detecting Important Subevents from Crisis Events via Dynamic Semantic Graphs [1]

Carnegie Mellon University *April 2017-2018*
DARPA, DEFT project

· Advisor: Eduard Hovy
· Detecting events & arguments from news articles
· Relevant Publication(s): Event Detection Using frame-semantic parser[4]

Carnegie Mellon University *Aug 2016-April 2017*
MetLife

· Advisor: Anatole Gershman
· Anomaly detection on health insurance data based on medical history, diagnosis & self-reports

Logitech Inc. *May-Aug 2016*
Software Engineer Intern, Manager: William Prescott

· Research on dynamic human-tracking based on motion frequency

Georgia Institute of Technology *2014-2016*
Undergraduate Research Assistant, Design & Intelligence Lab

· Advisor: Ashok Goel
· Knowledge extraction into graphs from biology papers for bio-inspired design
· Effort to commercialize our application in finance sector, via NSF i-Corps program
· Relevant Publication(s): Intelligent Search for Biologically-Inspired Design [6]

PUBLICATIONS

1. **Spiliopoulou, E.**, Kumar, S., Tetreault, J., Jaimes, A. (2021). SD^2SG: A Novel Framework for Detecting Important Subevents from Crisis Events via Dynamic Semantic Graphs. To-appear in EMNLP, Workshop on Noisy User-generated Text, 2021.

2. **Spiliopoulou, E.**, Hovy, E., Hauptmann, A. G. (2020, November). Event-Related Bias Removal for Real-time Disaster Events. In Proceedings of the 2020 Conference on Empirical Methods in Natural Language Processing: Findings (pp. 3858-3868).

3. **Spiliopoulou, E.**, Pagnoni, A., Hovy, E. (2020, December). Definition Frames: Using Definitions for Hybrid Concept Representations. In Proceedings of the 28th International Conference on Computational Linguistics (pp. 3060-3068).

4. **Spiliopoulou, E.**, Hovy, E., Mitamura, T. (2017, August). Event detection using frame-semantic parser. In Proceedings of the Events and Stories in the News Workshop (pp. 15-20).

5. Prabhumoye, S., Choudhary, S., **Spiliopoulou, E.**, Bogart, C., Rose, C., Black, A. W. (2017, August). "Linguistic Markers of Influence in Informal Interactions." In Proceedings of the Second Workshop on NLP and Computational Social Science (pp. 53-62).

6. **Spiliopoulou, E.**, Rugaber, S., Goel, A., Chen, L., Wiltgen, B., Jagannathan, A. K. (2015, March). Intelligent search for biologically inspired design. In Proceedings of the 20th International Conference on Intelligent User Interfaces Companion (pp. 77-80).

TEACHING EXPERIENCE

Language & Statistics, Grad level *Fall 2019*
Instructor: Bhiksha Ramakrishnan. Carnegie Mellon University.

Computational Semantics, Grad level *Spring 2019*
Instructor: Eduard Hovy. Carnegie Mellon University.

Design & Analysis of Algorithms, Undergrad level *Spring 2016*
Instructor: Milena Mihail. Georgia Institute of Technology.

SKILLS

Programming Languages: Python, Java, Basics of C, C++ and R
ML Frameworks: PyTorch, Theano, Tensorflow, scikit-learn
NLP tools & resources: CoreNLP, NLTK, WordNet, FrameNet
Foreign Languages: Greek (native), English (fluent), French (proficient), Italian (intermediate)

EXTRA-CURRICULAR

Department rep in Graduate Student Association *2020 - Now*
Member of Academic Affairs Committee

NSF I-Corps program *Summer 2015*
-Customer discovery for our knowledge discovery tool [6] (student lead, team of 4)
-Collaboration with finance R&D (Morgan Stanley, CapitalOne, CitiBank)

REFERENCES

Eduard Hovy
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Relation: academic advisor
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Yonatan Bisk
Assistant Professor, Carnegie Mellon University
Relation: thesis committee
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Bhiksha Ramakrishnan
Professor, Carnegie Mellon University
Relation: instructor during TAship
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