

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

Ph.D. in Language Technologies, School of Computer Science

2018 - Present

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

M.Sc. in Language Technologies

2016 - 2018

GPA: 4.00/4.00

Advisor: Eduard Hovy

Georgia Institute of Technology

B.Sc. in Computer Science

2012-2016

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

DARPA, World Modelers project

April 2018-Now

- 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). *SD²SG*: A Novel Framework for Detecting Important Subevents from Crisis Events via Dynamic Semantic Graphs. In Proceedings of the Seventh Workshop on Noisy User-generated Text (W-NUT 2021), EMNLP.
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
DARPA Project Manager, Research Professor Carnegie Mellon University
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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