

Sissy Themeli

Sissy is a Ph.D. Candidate at the Department of Informatics and Telecommunications (DIT) at the University of Athens (UoA), studying deep machine learning methods for mining arguments from natural language resources. She also holds an M.Sc. in Computer Science from DIT/UoA and a B.Sc. in Management Science and Technology from the Department of Management Science and Technology at the Athens University of Economics and Business. Her M.Sc. thesis involved the studying of various text representations and machine learning algorithms to detect Hate Speech in online content. She has also demonstrated experience as a Backend Software Engineer building web services and RESTful APIs as well as dialog management systems for Omni-Channel Natural Language Interactions. Currently, she is working as a Research Associate at the SKEL Lab of IIT at NCSR Demokritos, participating in EU and national funded projects in the areas of Machine Learning and Natural Language Processing.

Professional Experience

November 2019 - today **Research Associate**, NCSR Demokritos, Athens.

I work at the SKEL Lab of IIT/NCSR Demokritos as a Ph.D. Researcher developing deep learning models for Argument Mining. I have participated in various EU and national funded research projects in the areas of Deep Learning, Natural Language Processing (e.g. DebateLab, ENIRISST, etc.) and e-infrastructures (e.g. DARE project, FAIR4Fusion, etc.).

- *Technologies used*: Python (data science and machine learning libraries such as PyTorch, pandas, numpy, flairNLP, etc as well as web service frameworks such as flask, django), Kubernetes, Docker, Elasticsearch, etc.

August 2018 - August 2019 **Software Developer**, VoiceWeb S.A., Athens.

I worked as a Software Engineer designing and developing speech recognition and NLU/NLP applications. Additionally, I was responsible for the redesign and implementation of the company's products (Dialog Manager and NLI platform) to follow the micro-services architecture paradigm. I have implemented various improvements on the application's data layer, created a Rule Engine using MongoDB in the backend - the product was parsing XMLs for rule extraction, implemented a completely new RESTful Web Service for the Dialog Manager application and I have redesigned and implemented a new UI from scratch for the NLI platform product.

- Technologies used included Python, Java, Spring Framework, Spring MVC, RESTful and SOAP web services, Vaadin and others

May 2016 - July 2018 **Software Developer**, G.N.T. Information Systems S.A., Athens.

I worked as a Software Engineer implementing multiple projects using Java EE/Spring frameworks for backend services (EJB3, Spring Framework, Hibernate, RESTful and SOAP web services), with test-driven approach (JUnit and integration tests). Participated also in UI projects written with Vaadin and Android frameworks.

February 2014 - May 2016 **Consultant**, Deloitte SA, Athens.

I worked in risk analysis projects as Business Analyst and as accounting/tax consultant in several projects. I have designed and programmed ERP/SAP FI subsystems using Excel VBA in a client's project.

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Education

Academic Qualifications

- 2021-today **PhD in Argument Mining**, *National and Kapodistrian University of Athens*, Athens.
- 2016-2018 **M.Sc. "Information and Communications Technologies"**, *National and Kapodistrian University*, Athens, 8.55/10.
- 2008-2013 **B.Sc. in Management Science and Technology**, *Athens University of Economics and Business*, Athens, 7.0/10.
- 2002-2008 **High-School**, *Lycee Franco-Hellenique Eugene Delacroix*, Athens, 18.9/20.

Notable Projects

- *M.Sc. Thesis*: Implementation of a Hate Speech detection tool using Machine Learning (e.g. Naive Bayes, Logistic Regression, Random Forest, KNN) and Deep Learning as well as various text representations (e.g. Bag of words, n-grams & character n-grams, word2vec, sentiment and syntax analysis, n-gram graphs). Supervisors: Professor Panagiotis Stamatopoulos (UoA) & Dr. George Giannakopoulos (Researcher at NCSR Demokritos)
- Python project on big geospatial data, involving feature transformation, learning and clustering techniques
- Implementation of design patterns and multi-threaded applications in Java. Use of aspect oriented programming approaches (AspectJ), C++ memory visualization programs. GC and memory management performance tests on Java and C++
- Semantic data construction, processing and querying. Geospatial and temporal data handling, ontology engineering
- Design, development and documentation of an Android Airbnb-like application, using MySQL, JPA(Hibernate) and RESTful web services in the backend and Android Framework for the UI

Technical and Language skills

Technical skills

- **Programming Languages**: Python, Java, R, C/C++
- **Frameworks**: Django, Flask, Spring, JavaEE (EJB3), Vaadin, Android
- **ML & Data Science libraries**: PyTorch, Tensorflow/Keras, scikit-learn, transformers, flairNLP, spaCy, numpy, pandas, scipy, Weka
- **Testing**: JUnit, Arquillian, Spring Integration Tests
- **Web services**: RESTful, SOAP
- **Databases & Search Engines**: MySQL, Oracle SQL, PostgreSQL, MongoDB, Elasticsearch, Solr
- **Deployment**: Kubernetes, Docker, JBoss/Wildfly, Tomcat/TomEE,
- **Semantic Web**: RDF, (geo/st) SPARQL, OWL
- **Build Tools**: Maven, Gradle
- **Version Control**: Git, SVN, CVS
- **CI/CD**: Jenkins, GitLab CI/CD
- **IDE**: IntelliJ IDEA, Pycharm, RStudio, Eclipse, Android Studio
- **OS**: Linux, Windows
- **Other**: LaTeX, MS Office, JIRA

Language skills

Greek: Native

English: IELTS, 7/9

French: SORBONNE II, Assez Bien

Conferences and Seminars

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- Language as a poset and Tensor Networks (speaker: Dr. Y. Vlassopoulos, virtual event, date: 08/02/2021)
- Artificial Intelligence for Multilanguage Services for Citizens and Businesses, ELRC workshop (virtual event, 15/12/2020)
- Using text data to improve causal analyses of electronic health records (speaker: Dr. Aaron Kaufman, place: NCSR Demokritos, date: 7/11/2019)
- 1st Athens NLP Summer School (place: NCSR Demokritos, dates: 18-25/09/2019)
- 20th International Conference on Computational Linguistics and Intelligent Text Processing (CICLing2019, place: LaRochelle France, dates: 7-13/04/2019)
- Object-Centric Machine Learning (speaker: Leonidas Guibas, place: Department of Informatics and Telecommunications, date: 5/5/2017)
- The role of relays in the 5G systems (speaker: Vougioukas Dimosthenis, place: Department of Informatics and Telecommunications, date: 26/5/2017)
- Hardware architectures for telecommunication vertices (speaker: Vlassopoulos Nikolaos, place: Department of Informatics and Telecommunications, date: 26/5/2017)
- Human-Centered Entrepreneurship (9th Student Conference of Department of Management Science and Technology - DMST, date: 10/5/2012)
- Entrepreneurship, openness and new technologies (8th Student Conference of DMST, date: 12/5/2011)
- Youth Entrepreneurship and digital environment (7th Student Conference of DMST, date 13/5/2010)
- Management science and technology in the modern business environment (6th Student Conference of DMST, date: 7/5/2009)
- Management science, technology and green economy (5th Student Conference of DMST, date: 8/5/2008)

Publications

Iraklis A. Klampanos, Chrysoula Themeli, Alessandro Spinuso, Rosa Filgueira, Malcolm Atkinson, André Gemünd, and Vangelis Karkaletsis. Dare platform: a developer-friendly and self-optimising workflows-as-a-service framework for e-science on the cloud. *Journal of Open Source Software*, 5(54):2664, 2020

Themeli C., Giannakopoulos G., Pittaras N. A study of text representations for hate speech detection. *CICLing*, 2019

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