Marija Stanojevic, Ph.D.

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Research Interest

- Multi-modal Learning, Deep Learning, Transfer Learning, Natural Language Processing, Complex and Structured Data, Bioinformatics, Computational Healthcare and Biology

Employment History

Aug 2022 – Cambridge Cognition

Applied Machine Learning Scientist, Toronto, ON, Canada.

- Created multi-modal deep learning architecture, enhancing disease category and severity prediction accuracy by 12% (Transformers, CNN, PyTorch, Docker, AWS, Speech Modeling, Multi-modal Learning, Generative AI).
- General Chair of Machine Learning for Cognitive and Mental Health Workshop @ AAAI 2024 (Research, Project Lead, Team Lead).
- Collaborated with pharmaceutical companies on various client projects.

Jan 2017 – April 2023 Temple University

Fellow, Research (RA) and Teaching Assistant (TA), Philadelphia, PA, USA.

- **Research Assistant** (Sep - May 2017/18, 2020/21): NSF, NIH, CDC, and IQVIA funded projects (Transformers, RNN, DL, NLP, Graphs, IR, Keras, PyTorch).
- **Teaching Assistant** (2018/19, 2020/21, 2021/22). **Courses**: 1) Data Mining; 2) C and Assembler; 3) Data Structures; **2022 Outstanding Graduate TA Award**.
- **Presidential Fellow** (Jan 2017 - Aug 2020): awarded based on success.
- **Main Organizer** of Mid-Atlantic Student Colloquium on Speech, Language and Learning 2022 (Project Lead, Team Lead).

Jun – Aug 2021 LinkedIn

PhD Machine Learning Engineer Intern, Philadelphia, PA, USA

- Proposed and implemented DL history-enhanced neural collaborative filtering architecture for course recommendation (Spark, Scala, Keras, Tensorflow).

Jun – Aug 2020 Facebook

PhD Machine Learning Engineer Intern, Philadelphia, PA, USA

- Designed and implemented a novel neural network architecture to address an extreme classification challenge in a multi-task multi-label manner.
- Tech: Python, Presto, PyTorch, Caffe2, DL, Transformers, internal tools.

Jun – Aug 2019 Facebook

PhD Machine Learning Engineer Intern, Menlo Park, CA, USA

- Recruiting Science: Improved candidate search by implementing NLP and IR techniques to reduce long tail in skills distribution and by proposing, implementing, and evaluating a novel DL architecture to embed job descriptions.
- Tech: Python, Presto, PyTorch, Caffe2, DL, statistical NLP, IR, internal tools.

May – Aug 2018 ADS, Conversant

PhD Data Science Intern, Chicago, IL, USA

- Pioneered a solution to a large-volume spatio-temporal problem utilizing mean-shift, quick-shift, and hdbscan clustering. Created a proxy to test existing product.
- Defined evaluation metrics to show potential for implementation into a product (Hadoop, Hive, python, pandas, geo, folium, geopandas, and shapely).

Employment History (continued)

Sep 2015 – Jan 2017 — **Software Engineer,** Belgrade, Serbia
Arbor Labs

- Led school performance insight software development, achieving a 30% improvement in efficiency through optimized data cleaning and integration.
- Reduced costs by 50% by implementing in-house data science and data visualization techniques (PHP, ETL, AWS, R, Python, MySQL, D3.js).

Education

2017 – 2023 — **Ph.D., Temple University** in Machine Learning and Data Science.
Thesis title: *Domain Adaptation Applications to Complex High-Dimensional Target Data*

2016 – 2017 — **M.Eng., University of Belgrade** in Signal Processing.
Thesis title: *Determination of the Similarity Between the Scientific Papers Using Machine Learning Methods*

2010 – 2016 — **B.Eng., University of Belgrade** in Software Engineering.

Peer-Reviewed Research Publications

Journal Articles

1. **Stanojevic**, **M.**, Andjelkovic, J., Kasprowicz, A., Huuki, L. A., Chao, J., Hedges, S. B., … Obradovic, Z. (2023). Discovering research articles containing evolutionary timetrees by machine learning. *Bioinformatics (Oxford, England)*, *39*(1), btad035.
2. Andjelkovic, J., Ljubic, B., Abdel Hai, A., **Stanojevic**, **M.**, Pavlovski, M., Diaz, W., & Obradovic, Z. (2022). Sequential machine learning in prediction of common cancers. *Informatics in Medicine Unlocked*.
3. Tarca, A. L., Pataki, B. Á., Romero, R., Sirota, M., Guan, Y., Kutum, R., … Yu, T. et al. (2021). Crowdsourcing assessment of maternal blood multi-omics for predicting gestational age and preterm birth. *Cell Reports Medicine*, *2*(6), 100323.
4. Ljubic, B., Hai, A. A., **Stanojevic**, **M.**, Diaz, W., Polimac, D., Pavlovski, M., & Obradovic, Z. (2020). Predicting complications of diabetes mellitus using advanced machine learning algorithms. *Journal of the American Medical Informatics Association*, *27*(9), 1343–1351.

Conference Proceedings

1. Nowenstein, I., **Stanojevic**, **M.**, Ornolfsson, G., Jonsdottir, M. K., Simpson, B., Nerin, J. S., … Curcic, J. (in review). Speech and language biomarkers of neurodegenerative conditions: Developing cross-linguistically valid tools for automatic analysis. In *Proceedings*. LREC-COLING 2024 - Joint International Conference on Computational Linguistics, Language Resources and Evaluation.
2. **Stanojevic**, **M.**, & Novikova, J. (in review). Enhancing multilingual cognitive clinical insights: A transformer-based approach for predictive analysis. In *Proceedings*. INTERSPEECH 2024.
3. **Stanojevic**, **M.** (2024). Machine learning for cognitive and mental health. In *Proceedings*. Machine Learning for Cognitive and Mental Health Workshop, AAAI 2024.
4. Ehghaghi, M., **Stanojevic**, **M.**, Akram, A., & Novikova, J. (2023). Factors affecting the performance of automated speaker verification in alzheimer's disease clinical trials. In *Proceedings*. ClinicalNLP Workshop, ACL 2023.

5. Alshehri, J., **Stanojevic**, **M.**, Dragut, E., & Obradovic, Z. (2022). On label quality in class imbalance setting - a case study. In *Proceedings*. 21st International Conference on Machine Learning and Applications, Special Session on Machine Learning for Natural Language Processing, 2022, IEEE.

6. Alshehri, J., **Stanojevic**, **M.**, Khan, P., Rapp, B., Dragut, E., & Obradovic, Z. (2022). Multilayeret: A unified representation of entities and topics using multilayer graphs. In *Proceedings* (pp. 671–687). Machine Learning and Knowledge Discovery in Databases: European Conference, ECML PKDD 2022. Springer.

7. Diep, B., **Stanojevic**, **M.**, & Novikova, J. (2022). Multi-modal deep learning system for depression and anxiety detection. In *Proceedings*. Empowering Communities: A Participatory Approach to AI for Mental Health, NeurIPS 2022.

8. **Stanojevic**, **M.**, Norris, L., Kendall, P., & Obradovic, Z. (2022). Predicting anxiety treatment outcomes with machine learning. In *Proceedings*. Proc. 21st International Conference on Machine Learning and Applications, Special Session on Machine Learning in Health, 2022, IEEE.

9. Alshehri, J., **Stanojevic**, **M.**, Dragut, E., & Obradovic, Z. (2021). Stay on topic, please: Aligning user comments to the content of a news article. In *Proceedings* (pp. 3–17). European Conference on Information Retrieval, 2021. Springer.

10. Han, C., Cao, X. H., **Stanojevic**, **M.**, Ghalwash, M., & Obradovic, Z. (2019). Temporal graph regression via structure-aware intrinsic representation learning. In *Proceedings* (pp. 360–368). SIAM International Conference on Data Mining, 2019. SIAM.

11. **Stanojevic**, **M.**, Alshehri, J., Dragut, E. C., & Obradovic, Z. (2019). Biased news data influence on classifying social media posts. In *Proceedings*. NewsIR Workshop, SIGIR 2019.

12. **Stanojevic**, **M.**, Alshehri, J., & Obradovic, Z. (2019). Surveying public opinion using label prediction on social media data. In *Proceedings* (pp. 188–195). 2019 IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM), 2019. IEEE.

13. Ball, S., **Stanojevic**, **M.**, Knighton, C., Campbell, W., Thaung, A., Fisher, A., … Zhou, F. et al. (2018). 2474. early feedback from a pilot of a cognitive computing system to analyze immunization data. In *Proceedings* (Vol. 5, S741). Open Forum Infectious Diseases, 2018. Oxford University Press.

14. Brinkley, J., Ball, S., Thaung, A., Campbell, W., Obradovic, Z., **Stanojevic**, **M.**, … Fisher, A. (2018). Exploring the metadata of vaccine-related twitter posts: Just how much activity is there and where does it come from? In *Proceedings*. Annual Research Meeting, 2018, AcademyHealth.

15. Campogiani, G., Czahajda, R., Mazur, N., & Stanojevic, M. (2014). Involving students in curriculum development. In *Proceedings*. European Society for Engineering Education, SEFI Annual Conference, 2014.

16. Stanojevic, M., Martinez, I. S., & Mazur, N. (2014). Virtual internships provided in collaboration among companies and universities-the future of practical development of students. In *Proceedings* (pp. 6939–6945). 8th annual International Technology, Education and Development Conference, INTED, 2014. IATED.

Books and Chapters

1. **Stanojevic**, **M.**, Alshehri, J., & Obradovic, Z. (2021). High performance computing for understanding natural language. In *Handbook of research on methodologies and applications of supercomputing* (pp. 133–144). IGI Global.

Skills

Proficient
- Deep Learning, Transformers, NLP, Research, Multimodality, Transfer Learning, Data Science, Data Mining, Algorithms, Data Structures, Information Retrieval.
- Python, Keras, PyTorch, C/C++, Java, MySQL, HIVE, Presto.
- Team, and Project Lead.

Experienced
- Tensorflow, Hadoop, Bioinformatics, Graphs, CUDA, Docker, Scala, Spark.

Synergetic Activities

Awards and Achievements

2022 Outstanding Graduate Teaching Assistant Award - Temple University

2020-2022 Significant contributor at F31 NIH Fellowship

2020 Grace Hopper Celebration (GHC) Student Scholar

2017-2020 Temple University Presidential Fellowship

2019 Broadening Participation in Data Mining travel & participation award

2013 Central European Exchange Program for University Studies (CEEPUS)

2012 JoinEUSee (Erasmus Mundus Exchange Program) Scholarship

German Academic Exchange Service (DAAD) Summer Course Scholarship

2008-2012 Fund for Outstanding Scientific and Art Youth, Ministry of Education, Serbia

2010 Award for the top 1% students in Serbia, The Royal Family of Serbia

2008 Fund for Young Talents, Ministry of Youth, Serbia: outstanding results award

Certification

2023 **Fundamentals of Accelerated Computing with CUDA C/C++** by NVIDIA

2022 **Docker Mastery: With Kubernetes + Swarm from a Docker Captain**

2021 **AI for Medicine Specialization** by Deeplearning.ai.

TensorFlow: Advanced Techniques Specialization by Deeplearning.ai.

2019 **Probabilistic Graphical Models Specialization** by Stanford @ Coursera.

Talks

Jul, 2023 Multimodal Machine Learning for Healthcare, University of Toronto, Toronto, ON, Canada

Mar, 2020 Surveying Public Opinion Using Label Prediction on Social Media Data, The 8th Mid-Atlantic Student Colloquium on Speech, Language and Learning

Oct, 2019 Modeling Scientific Texts, Temple University, Philadelphia, PA

Apr, 2019 Workshop: Introduction to Artificial Intelligence and Machine Learning, Temple University, Philadelphia, PA

Aug, 2018 A pilot of a cognitive computing system to analyze immunization data, NSF US-Serbia & West Balkan Data Science Workshop, Belgrade, Serbia

Jun, 2016 ETL with big data implemented in PHP and SQL, PHP Serbia meetup, Belgrade, Serbia

Synergetic Activities (continued)

May, 2016	Developing data focused software for insight into education with SCRUM methodology, Faculty of Information Technologies, Metropolitan University, Belgrade, Serbia

Service and Outreach

Virtual Chair	ICLR 2021, and ICML 2021
Associate Editor	Social Network Analysis and Mining (SNAM) journal, Mar 2021 - current
Reviewer	ACL 2021-current; NAACL 2022-current; ACL ARR 2021-current; EMNLP 2022 - current; ECAI 2023; ECML 2022; EACL 2021; Nature Scientific Reports, 2019; NAACL SRW 2022-current; ACL SRW 2021-current; Informatics in Medicine Unlocked, 2022; NeurIPS ICBINB 2021-2023; GHC - AI track 2021; Diabetes, Metabolic Syndrome and Obesity: Targets and Therapy, 2021; Reproducibility Challenge 2020, 2021; IMMM 2020; SNAM Journal 2019, Mary Ann Liebert: Big Data, 2018-2019
Co-reviewer	KDD 2017
Mentoring	Five undergraduate and four PhD students
Main Organiser	9th Mid-Atlantic Student Colloquium on Speech, Language and Learning (MASC-SLL 2022)
Co-founder	"Research Mixer" - interdisciplinary research gathering (Feb 2019 - Aug 2020)
Volunteer	NeurIPS 2020, ACL 2020, ICML 2020, and ICLR 2020
Research Group Lead	Serbian AI Society, 2021
Board Member	Technical Workshops Chair at STARS Computing Corps Chapter at Temple University (Spring 2019)
Instructor	TechGirlz, computer science and machine learning (Feb 2018 - May 2019)
Soft-skills trainer	Delivered more than 200 hours of soft-skills and technical skills workshops to STEM students across Europe (Board of European Students of Technology - BEST) (2012 - 2016)
European Management	Board of European Students of Technology (BEST) (2012 - 2013)
Co-founder	International Science Festival "Science is not Boogeyman" with purpose to promote STEM to students grades 1-12, Nis, Serbia (2008 - 2012)

Societes

2020-now	Member of Association of Computational Linguists (ACL)
2019-now	Member of Society for Industrial and Applied Mathematics (SIAM)
2018-now	Member of Association for Computing Machinery (ACM)
	Member of Association for Computing Machinery on Women (ACM-W)
2010-2016	Board of European Students of Technology (BEST)

References

Upon request or see Linkedin