Nikolaos Pappas

Contact information

Email	nik0spapp@gmail.com
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Employment history

2.2022-Present	**Amazon Web Services**, *Senior Applied Scientist*, AWS AI labs, Seattle, USA.
7.2021–2.2022	**Amazon Web Services**, *Applied Scientist*, AWS AI labs, Seattle, USA.
9.2019-7.2021	**University of Washington**, *Postdoctoral Researcher*, Noah's ARK NLP group, Seattle, USA.
4.2016-8.2019	**Idiap Research Institute**, *Postdoctoral Researcher*, NLP group, Martigny, Switzerland.
2.2012-3.2016	**EPFL & Idiap Research Institute**, *Research Assistant*, NLP group, Martigny, Switzerland.
7.2014-12.2014	**Columbia University**, *Visiting Scholar*, DVMM lab, New York, USA.
5.2009-10.2011	**I-Sieve Technologies**, *Software Engineer*, Athens, Greece.
11.2007-11.2011	**Endysis Group**, *Software Engineer*, Athens, Greece.
3.2007-7.2007	**Optimor Labs**, *Software Developer*, Oxford, England.

Education

2016	**Ecole Polytechnique Fédérale de Lausanne (EPFL)**, *Lausanne, Switzerland.*
	Ph.D. Electrical Engineering
Thesis	Learning explainable user sentiment and preferences for information filtering
Committee	Sabine Süsstrunk, Thomas Hofmann, Shih-Fu Chang, Jean-Cédric Chappelier
Advisor	Andrei Popescu-Belis, Hervé Bourlard
2011	**University of the Aegean**, Samos, Greece.
	M.Sc. Information Management
2009	**University of the Aegean**, Samos, Greece.
	Dipl. Eng. Information and Communication Systems

Awards & Honors

2018	**Two-year postdoc fellowship to be hosted at the University of Washington**.
	Swiss National Science Foundation
2017	**Best paper award "Multilingual Hierarchical Attention Networks for Document Classification"**.
	8th International Joint Conference on Natural Language Processing, 2017
2016	**Best multimodal paper award "Multilingual Visual Sentiment Concept Matching"**.
	ACM International Conference on Multimedia Retrieval, 2016
2015	**Best paper award "Adaptive Sentiment-aware One-Class Collaborative Filtering"**.
	Idiap Research Institute
2013	**Ranked first on video hyperlinking task with Idiap's NLP group**.
	MediaEval, ACM MM Conference 2013
2010	**Award for top graduates of Greek Polytechnic Schools (2009 − 2010)**.
	TEE (Technical Chamber of Greece)
2006	**Scholarship for the third academic year (ranked 1st)**.
	IKY (Greek State Scholarships Foundation)
2004	**Scholarship for the first academic year (ranked 2nd)**.
	IKY (Greek State Scholarships Foundation)

Research funding

2019   **Swiss National Science Foundation**, *2 years*, Applicant, Switzerland.
UNISON, `http://p3.snf.ch/project-183911`.
Swiss National Science Foundation, *6 months*, Member, Switzerland.
INTREPID, `http://p3.snf.ch/Project-180320`.

2018   **Intelligence Advanced Research Projects Activity (IARPA)**, *3 months*, Member, USA.
MATERIAL, `http://summa-project.eu/`.

2016   **European Union (Horizon 2020)**, *3 years*, Member, Switzerland.
SUMMA, `http://summa-project.eu/`.

2015   **TheArk Foundation**, *6 months*, Member, Switzerland.
HYBRID, `https://www.theark.ch/en/`.

2014   **Swiss National Science Foundation**, *1 month*, Member, Switzerland.
AROLES, `http://p3.snf.ch/Project-144627`.

2012   **European Union (FP7-ICT)**, *4 years*, Member, Switzerland.
InEvent, `https://www.inevent-project.eu/`.

Teaching

Ecole Polytechnique Fédérale de Lausanne (EPFL)

2016   EE-724 – Human Language Technology: Applications to Information Access
4 guest lectures.

2012   EE-724 – Human Language Technology: Applications to Information Access
1 guest lecture.

Mentoring

University of Washington

2020   Daniel Zhu – UW CSE BS student, 01/2021 – 07/2021.
Stephen Wu – UW CSE BS student, 02/2019 – 07/2021.
Sean Hung – UW CSE BS student, 10/2020 – 12/2020.

2019   Xuhui Zhou – UW CLMS MS student, 10/2019 – 06/2020.
Ivan Montero – UW CSE BS student, 10/2019 – 07/2021.
Ecole Polytechnique Fédérale de Lausanne (EPFL)

2017   Khalil Mrini – EPFL CS MS student, 03/2017 – 09/2017.
Jonathan Pilault – Idiap intern, 03/2017 – 09/2017.

Academic Service

NLP   **EMNLP**, *Conference on Empirical Methods on Natural Language Processing*, 2017-2023.
ACL, *Annual Meeting of the Association for Computational Linguistics*, 2017, 2019-2023.
NAACL-HLT, *Annual Conference of the North American Chapter of the Association for Computational Linguistics*, 2018-2023.
AACL-IJCNLP, *Conference of the Asia-Pacific Chapter of the Association for Computational Linguistics and the 9th International Joint Conference on Natural Language Processing*, 2020.
ACL RR, *Association for Computational Linguistics Rolling Review*, 2021-Present.
TACL, *Transactions of the Association for Computational Linguistics*, 2021.
COLING, *International Conference on Computational Linguistics*, 2016,2020.
LREC, *Language Resources and Evaluation Conference*, 2018,2020.

ML/Other   **ICML**, *International Conference on Machine Learning*, 2020-2023.
ICLR, *International Conference on Learning Representations*, 2021-2023.

NeurIPS, *Conference on Neural Information Processing Systems*, 2021-2023.
AAAI, *Conference on Artificial Intelligence*, 2020-2022.
IJCAI, *International Joint Conference on Artificial Intelligence*, 2021.
ICMR, *International Conference on Multimedia Retrieval*, 2017-2019.
MM, *ACM Multimedia*, 2017-2018.
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<u>**SAC duties**</u>, *EACL 2023, EACL 2024, NAACL-HLT 2024, ACL 2024.*

Talks & Lectures

2021 **Large-context and efficient models of language**
Pindrop, Online.

2020 **Grounded Compositional Outputs for Adaptive Language Modeling**
EMNLP conference, Online.

2019 **Deep Residual Output Layers for Neural Language Generation**
ICML Conference, Long Beach, CA, USA.

2018 **Basics and Modern Methods for Natural Language Processing**
UnternehmerTUM, Munich, Germany.

2017 **Multilingual Hierarchical Attention Networks for Document Classification**
IJCNLP conference, Tapei, Taiwan.

Labeling Text in Several Languages with Multilingual Hierarchical Attention Networks, Swisstext, Zurich, Switzerland.

2016 **Deep Learning for NLP: Multilingual Word Sequence Modeling**
EE-724 EPFL, Lausanne, Switzerland.

Human versus Machine Attention in Document Classification: A Dataset with Crowdsourced Annotation, EMNLP conference, Austin, Texas.

Deep Learning for NLP: Word Representation Learning
EE-724 EPFL, Lausanne, Switzerland.

Explicit Document Modeling using Multiple-Instance Learning
Data Science group at Swisscom, Lausanne, Switzerland.

Labeling Text in Several Languages with Multilingual Hierarchical Attention Networks, Swisstext, Zurich, Switzerland.

2015 **Weighted Multiple Instance Learning for Text Regression Tasks**
Swiss Machine Learning Days, Lausanne Switzerland.

2013 **Learning Aspects and Ratings with Multiple-Instance Regression from Text**
Swiss Machine Learning Days, Lausanne Switzerland.

Combining Content with User Preferences for TED Lecture Recommendation
CBMI conference, Veszprém, Hungary.

2012 **Intoduction to Recommender Systems**
EE-724 EPFL, Lausanne, Switzerland.

Journal publications

Resulting from Postdoctoral time

2019 [6] Nikolaos Pappas, James Henderson, "GILE: A Generalized Input-Label Embedding for Text Classification", In *Transactions of the Association for Computational Linguistics* (TACL), 2019. URL `https://arxiv.org/pdf/1806.06219.pdf`.

2018 **[5]** Xiao Pu, Nikolaos Pappas, James Henderson, Andrei Popescu-Belis, "Integrating Weakly Supervised Word Disambiguation into Neural Machine Translation", In *Transactions of the Association for Computational Linguistics* (TACL), 2018. URL `https://arxiv.org/pdf/1810.02614.pdf`.

2017 **[4]** Nikolaos Pappas, Andrei Popescu-Belis, "Explicit Document Modeling through Weighted Multiple-Instance Learning", *Journal of Artificial Intelligence Research* (JAIR), pages 591–626, 2017. URL `https://jair.org/index.php/jair/article/view/11051/26228`.

Resulting from PhD time

2017 **[3]** Nikolaos Pappas, Mercan Topkara, Miriam Redi, Hongyi Liu, Brendan Jou, Tao Chen, Shih-Fu Chang, "Multilingual Visual Sentiment Concept Clustering and Analysis", *International Journal of Multimedia Information Retrieval* (IJMIR), pages 1–20, 2017. URL `https://link.springer.com/article/10.1007/s13735-017-0120-4`.

2016 **[2]** Nikolaos Pappas, Andrei Popescu-Belis, "Adaptive Sentiment-Aware One-Class Collaborative Filtering", *Expert Systems with Applications* (ESWA), 43(1): 23-41, 2016. URL `https://www.sciencedirect.com/science/article/pii/S0957417415005916`.

2015 **[1]** Nikolaos Pappas, Andrei Popescu-Belis, "Combining Content with User Preferences for Non-Fiction Multimedia Recommendation: A Study on TED Lectures", *Multimedia Tools and Applications, Special Issue on Content-Based Multimedia Indexing* (MTAP), 74(4): 1175-1197, 2015. URL `https://link.springer.com/article/10.1007/s11042-013-1840-y`.

Conference and workshop publications

2023 **[29]** Shufan Wang, Sebastien Jean, Sailik Sengupta, James Gung, Nikolaos Pappas, Yi Zhang, "Measuring and Mitigating Constraint Violations of In-Context Learning for Utterance-to-API Semantic Parsing", In *Conference on Empirical Methods in Natural Language Processing.* (EMNLP Findings), 2023. URL `https://arxiv.org/pdf/2305.14827.pdf`.

[29] Mujeen Sung, James Gung, Elman Mansimov, Nikolaos Pappas, Raphael Shu, Salvatore Romeo, Yi Zhang, Vittorio Castelli, "Pre-training Intent-Aware Encoders for Zero-and Few-Shot Intent Classification", In *Conference on Empirical Methods in Natural Language Processing.* (EMNLP), 2023. URL `https://arxiv.org/pdf/2305.14827.pdf`.

[29] Zhanpeng Zeng, Cole Hawkins, Mingyi Hong, Aston Zhang, Nikolaos Pappas, Vikas Singh, Shuai Zheng, "Vcc: Scaling Transformers to 128K Tokens or More by Prioritizing Important Tokens", In *Conference on Neural Information Processing Systems.* (NeurIPS), 2023. URL `https://arxiv.org/pdf/2305.04241.pdf`.

[28] Shamik Roy, Raphael Shu, Nikolaos Pappas, Elman Mansimov, Yi Zhang, Saab Mansour, Dan Roth, "Conversation style transfer using few-shot learning", In *Joint Conference on Natural Language Processing and Asia-Pacific Chapter of the Association for Computational Linguistics.* (IJCNLP-AACL), 2023. URL `https://arxiv.org/pdf/2302.08362.pdf`.

[27] Raphael Schumann, Elman Mansimov, Yi-An Lai, Nikolaos Pappas, Xibin Gao, Yi Zhang, "Backward compatibility during data updates by weight interpolation", In *Conference of the European Chapter of the Association for Computational Linguistics.* (EACL Findings), 2023. URL `https://arxiv.org/pdf/2301.10546.pdf`.

Resulting from Postdoctoral time

2022 **[26]** Zhaofeng Wu, Hao Peng, Nikolaos Pappas, Noah A. Smith, "Modeling Context With Linear Attention for Scalable Document-Level Translation", In *In Findings of the Conference on Empirical Methods in Natural Language Processing* (EMNLP Findings), 2022. URL `https://arxiv.org/pdf/2210.08431.pdf`.

[25] Hao Peng, Jungo Kasai, Nikolaos Pappas, Dani Yogatama, Zhaofeng Wu, Lingpeng Kong, Roy Schwartz, Noah A. Smith, "ABC: Attention with Bounded-memory Control", In *Proceedings of the 60th Annual Meeting of the Association for Computational Linguistics* (ACL), 2022. URL `https://arxiv.org/pdf/2110.02488.pdf`.

2021   [24] Ivan Montero, Nikolaos Pappas, Noah A. Smith, "Sentence Bottleneck Autoencoders from Pretrained Transformer Models", In *Proceedings of the 2020 Conference on Empirical Methods in Natural Language Processing* (EMNLP), 2021. URL `https://aclanthology.org/2021.emnlp-main.137.pdf`.

[23] Jungo Kasai, Hao Peng, Yizhe Zhang, Dani Yogatama, Gabriel Ilharco, Nikolaos Pappas, Yi Mao, Weizhu Chen, Noah A. Smith, "Finetuning Pretrained Transformers into RNNs", In *Proceedings of the 2020 Conference on Empirical Methods in Natural Language Processing* (EMNLP), 2021. URL `https://aclanthology.org/2021.emnlp-main.830.pdf`.

[22] Hao Peng, Nikolaos Pappas, Dani Yogatama, Roy Schwartz, Noah Smith, Lingpeng Kong, "Random Feature Attention", In *Proceedings of the International Conference on Learning Representations* (ICLR), 2021. URL `https://openreview.net/pdf?id=QtTKTdVrFBB`.

[21] Jungo Kasai, Nikolaos Pappas, Hao Peng, James Cross, Noah Smith, "Deep Encoder, Shallow Decoder: Reevaluating Non-autoregressive Machine Translation", In *Proceedings of the International Conference on Learning Representations* (ICLR), 2021. URL `https://openreview.net/pdf?id=KpfasTaLUpq`.

2020   [20] Nikolaos Pappas, Phoebe Mulcaire, Noah A. Smith "Grounded Compositional Outputs for Adaptive Language Modeling", In *Proceedings of the 2020 Conference on Empirical Methods in Natural Language Processing* (EMNLP), 2020. URL `https://aclanthology.org/2020.emnlp-main.96.pdf`.

[19] Xuhui Zhou, Nikolaos Pappas, Noah A. Smith "Multilevel Text Alignment with Cross-Document attention", In *Proceedings of the 2020 Conference on Empirical Methods in Natural Language Processing* (EMNLP), 2020. URL `https://aclanthology.org/2020.emnlp-main.407.pdf`.

[18] Florian Mai, Nikolaos Pappas, Ivan Montero, Noah A. Smith, James Henderson "Plug and Play Autoencoders for Conditional Text Generation", In *Proceedings of the 2020 Conference on Empirical Methods in Natural Language Processing* (EMNLP), 2020. URL `https://aclanthology.org/2020.emnlp-main.491.pdf`.

[17] Angelos Katharopoulos, Apoorv Vyas, Nikolaos Pappas, Francois Fleuret, "Transformers are RNNs: Fast Autoregressive Transformers with Linear Attention", In *Proceedings of the 37th International Conference on Machine Learning* (ICML), Vienna, Austria, 2020. URL `http://proceedings.mlr.press/v119/katharopoulos20a/katharopoulos20a.pdf`.

2019   [16] Nikolaos Pappas, James Henderson, "Deep Residual Output Layers for Neural Language Generation", In *Proceedings of the 36th International Conference on Machine Learning* (ICML), Long Beach, California, 2019. URL `http://publications.idiap.ch/downloads/papers/2019/Pappas_ICML_2019.pdf`.

2018   [15] Lesly Miculicich Werlen, Dhananjay Ram, Nikolaos Pappas, James Henderson, "Document-Level Neural Machine Translation with Hierarchical Attention Networks", In *Proceedings of the 2018 Conference on Empirical Methods in Natural Language Processing* (EMNLP), Brussels, Belgium, 2018. URL `http://publications.idiap.ch/downloads/papers/2018/Miculicich_EMNLP_2018.pdf`.

[14] Nikolaos Pappas, Lesly Miculicich Werlen, James Henderson, "Beyond Weight Tying: Learning Joint Input-Output Embeddings for Neural Machine Translation", In *Proceedings of the 2018 Third Conference on Machine Translation* (WMT), Brussels, Belgium, 2018. URL `http://publications.idiap.ch/downloads/papers/2018/Pappas_WMT_2018.pdf`.

[13] Lesly Miculicich Werlen, Nikolaos Pappas, Dhananjay Ram, Andrei Popescu-Belis, "Self-attentive Residual Decoder for Neural Machine Translation", In *Proceedings of the 16th Annual Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies* (NAACL), pages 1366–1379, New Orleans, USA, 2018. URL `http://aclweb.org/anthology/N18-1124`.

2017   [12] Nikolaos Pappas, Andrei Popescu-Belis, "Multilingual Hierarchical Attention Networks for Document Classification", In *8th International Joint Conference on Natural Language Processing* (IJCNLP), pages 1015–1025, Tapei, Taiwan, 2017. URL `http://aclweb.org/anthology/I17-1102`.

[11] Xiao Pu, Nikolaos Pappas, Andrei Popescu-Belis, "Sense-Aware Statistical Machine Translation using Adaptive Context-Dependent Clustering", In *Proceedings of Second Conference on Machine Translation* (WMT), pages 1–10, Copenhagen, Denmark, 2017. URL `http://www.statmt.org/wmt17/pdf/WMT01.pdf`.

2016   **[10]** Nikolaos Pappas, Andrei Popescu-Belis, "Human versus Machine Attention in Document Classification: A Dataset with Crowdsourced Annotations", In *Proceedings of 2016 Empirical Methods for Natural Language Processing SocialNLP Workshop* (SocialNLP), pages 94–100, Austin, USA, 2016. URL `http://www.aclweb.org/anthology/W16-6213`.

Resulting from PhD time

2016   **[9]** Nikolaos Pappas, Mercan Topkara, Miriam Redi, Brendan Jou, Tao Chen, Hongyi Liu, Shih-Fu Chang , "Multilingual Visual Sentiment Concept Matching", In *Proceedings of the ACM International Conference on Multimedia Retrieval* (ICMR), pages 151–158, New York, NY, USA, 2016. URL `http://delivery.acm.org/10.1145/2920000/2912016/p151-pappas.pdf`.

[8] Hongyi Liu, Brendan Jou, Tao Chen, Mercan Topkara, Nikolaos Pappas, Miriam Redi, Shih-Fu Chang , "Complura: Exploring and Leveraging a Large-scale Multilingual Visual Sentiment Ontology", In *Proceedings of the 2016 ACM on International Conference on Multimedia Retrieval* (ICMR), pages 417–420, New York, NY, USA, 2016. URL `https://dl.acm.org/citation.cfm?id=2911996.2912030`.

2015   **[7]** Brendan Jou*, Tao Chen*, Nikolaos Pappas*, Miriam Redi*, Mercan Topkara* and Shih-Fu Chang, "Visual Affect Around the World: A Large-scale Multilingual Visual Sentiment Ontology", In *Proceedings of ACM International Conference on Multimedia* (ACMMM), Brisbane, Australia, 2015. URL `https://dl.acm.org/citation.cfm?doid=2733373.2806246`.

2014   **[6]** Nikolaos Pappas, Andrei Popescu-Belis, "Explaining the Stars: Weighted Multiple-Instance Learning for Aspect-Based Sentiment Analysis", In *Proceedings of Conference on Empirical Methods in Natural Language Processing* (EMNLP), pages 455–466, Doha, Qatar, 2014. URL `http://www.aclweb.org/anthology/D14-1052`.

[5] Chidansh A. Bhatt, Nikolaos Pappas, Maryam Habibi and Andrei Popescu-Belis, "Multi-modal Reranking of Content-based Recommendations for Hyperlinking Video Snippets", In *Proceedings of ACM International Conference on Multimedia Retrieval* (ICMR), pages 225–232, Glasgow, UK, 2014. URL `https://dl.acm.org/citation.cfm?id=2578752`.

2013   **[4]** Nikolaos Pappas, Andrei Popescu-Belis, "Sentiment Analysis of User Comments for One-Class Collaborative Filtering over TED Talks", In *Proceedings of 36th ACM SIGIR Conference on Research and Development in Information Retrieval* (SIGIR), pages 773–776, Dublin, Ireland, 2013. URL `https://dl.acm.org/citation.cfm?id=2484116`.

[3] Nikolaos Pappas, Andrei Popescu-Belis, "Combining Content with User Preferences for TED Lecture Recommendation", In *Proceedings of 11th International Workshop on Content Based Multimedia Indexing* (CBMI), pages 47–52, Veszprém, Hungary, 2013. URL `https://ieeexplore.ieee.org/document/6576551/`.

[2] Chidansh A. Bhatt, Andrei Popescu-Belis, Maryam Habibi, Sandy Ingram, Stefano Masneri, Fergus McInnes, Nikolaos Pappas, Oliver Schreer, "Multi-factor Segmentation for Topic Visualization and Recommendation: the MUST-VIS System", In *Proceedings of 21st ACM International Conference on Multimedia* (ACMMM), pages 365–368, Barcelona, Spain, 2013. URL `https://dl.acm.org/citation.cfm?id=2508120`.

[1] Chidansh A. Bhatt, Nikolaos Pappas, Maryam Habibi and Andrei Popescu-Belis, "Idiap at MediaEval 2013: Search and Hyperlinking Task", In *Proceedings of MediaEval 2013 Workshop*, Barcelona (MediaEval), Spain, 2013. URL `http://ceur-ws.org/Vol-1043/mediaeval2013_submission_47.pdf`.

*: equal contribution.

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