

Nemanja Djuric, Ph.D.

CONTACT INFORMATION	Uber ATG (Advanced Technologies Group) 3011 Smallman Street Pittsburgh, PA 15201, USA	cell: +1-267-334-4708 astro.temple.edu/~tuc17157 nemanja@temple.edu
RESEARCH INTERESTS	Machine Learning, Data Mining, Self-Driving Cars, Computational Advertising, Natural Language Processing, Bioinformatics, Spatial and Temporal Data Mining, Analysis of Large Data from Multiple Sources, Big Data, Large-scale and Scalable Learning, Data Visualization.	
EDUCATION	Ph.D., Computer and Information Sciences 2009 – 2013 Temple University, Philadelphia, USA, Advisor: Dr Slobodan Vucetic Dissertation: "Big Data Algorithms for Visualization and Supervised Learning" GPA: 4 out of 4	
	M.Sc. and B.Sc., Electrical Engineering 2003 – 2009 University of Novi Sad, Novi Sad, Serbia GPA: 9.54 out of 10	
WORK EXPERIENCE	Staff Autonomy Engineer and Tech Lead at Uber ATG November 2015 – present Pittsburgh, PA <ul style="list-style-type: none">• <i>Machine Learning</i>. Developing machine learning models for self-driving vehicles.	
	Research Scientist at Yahoo Labs January 2014 – November 2015 Sunnyvale, CA <ul style="list-style-type: none">• <i>Targeting Sciences</i>. Developing machine learning models for computational advertising.	
	Research Scientist Internship at Yahoo Labs Summer 2013 Sunnyvale, CA <ul style="list-style-type: none">• <i>Machine Learning</i>. Developing models for multi-class e-mail classification (automatic categorization of e-mails into categories: shopping, travel, financial, etc.). Developing models for cold start personalization of Yahoo! homepage.	
	Research Assistant at Temple University September 2009 – December 2013 Philadelphia, PA, Advisor: Dr. Slobodan Vucetic <ul style="list-style-type: none">• <i>Machine Learning and Data Mining</i>. Working on problems related to learning on low resources, spatio-temporal problems in remote sensing, data visualization, object matching.	
	Software Engineer Internship at Micronas NIIT Summer 2008 Novi Sad, Serbia <ul style="list-style-type: none">• <i>Real-Time Digital Simulator of Electrical Power Grids</i>. Developed a real-time simulator of electrical power drives, in cooperation with ABB, Switzerland.	
JOURNAL PUBLICATIONS	<ol style="list-style-type: none">[1] Gligorijevic, Dj., Stojanovic, J., Djuric, N., Radosavljevic, V., Grbovic, M., Kulathinal, R. J., Obradovic, Z. "Large-Scale Discovery of Disease-Disease and Disease-Gene Associations", Nature Scientific Reports, vol. 6, art. no. 32404, 2016.[2] Stojanovic, J., Gligorijevic, Dj., Radosavljevic, V., Djuric, N., Grbovic, M., Obradovic, Z. "Modeling Healthcare Quality via Compact Representations of Electronic Health Records", IEEE/ACM Transactions on Computational Biology and Bioinformatics (TCBB), vol. PP, no. 99, pp. 1-1, 2016.[3] Djuric, N., Kansakar, L., Vucetic, S. "Semi-Supervised Combination of Experts for Aerosol Optical Depth Estimation", Artificial Intelligence, vol. 230, pp. 1-13, 2016.[4] Djuric, N., Radosavljevic, V., Obradovic, Z., Vucetic, S. "Gaussian Conditional Random Fields for Aggregation of Operational Aerosol Retrievals", IEEE Geoscience and Remote Sensing Letters, vol. 12, no. 4, pp. 761-765, 2014.	

- [5] **Djuric, N.**, Lan, L., Vucetic, S., Wang, Z. "BudgetedSVM: A Toolbox for Scalable SVM Approximations", *Journal of Machine Learning Research (JMLR)*, vol. 14 (Dec), pp. 3813-3817, 2014.
- [6] Grbovic, M., **Djuric, N.**, Guo, S., Vucetic, S., "Supervised Clustering of Label Ranking Data using Label Preference Information", *Machine Learning Journal (MLJ)*, pp. 1-35, 2013.
- [7] Radivojac, P., Clark, W. T., ..., Toppo, S., Lan, L., **Djuric, N.**, Guo, Y., Vucetic, S., Bairoch, A., Linial, M., Babbitt, P. C., Brenner, S. E., Orengo, C., et al. "A large-scale evaluation of computational protein function prediction", *Nature Methods*, vol. 10, no. 3, pp. 221-229, 2013.
- [8] Lan, L., **Djuric, N.**, Guo, S., Vucetic, S., "MS- k NN: Protein Function Prediction by Integrating Multiple Data Sources", *BMC Bioinformatics*, vol. 14 (suppl. 3):S8, 2013.
- [9] Coric, V., **Djuric, N.**, Vucetic, S. "Traffic State Estimation from Aggregated Measurements using Signal Reconstruction Techniques", *Transportation Research Record: Journal of the Transportation Research Board*, Traffic Flow Theory and Characteristics, no. 2315, pp. 121-130, 2012.
- [10] **Djuric, N.**, Radosavljevic, V., Coric, V., Vucetic, S. "Travel Speed Forecasting by Means of Continuous Conditional Random Fields", *Transportation Research Record: Journal of the Transportation Research Board*, Network Modeling, no. 2263, pp. 131-139, 2011.

CONFERENCE
PUBLICATIONS AND
PREPRINTS

- [1] Cui, H., Radosavljevic, V., Chou, F.-C., Lin, T.-H., Nguyen, T., Huang, T.-K., Schneider, J., **Djuric, N.** "Multimodal Trajectory Predictions for Autonomous Driving using Deep Convolutional Networks", *IEEE Int'l Conference on Robotics and Automation (ICRA)*, Montreal, Canada, 2019.
- [2] **Djuric, N.**, Radosavljevic, V., Cui, H., Nguyen, T., Chou, F.-C., Lin, T.-H., Schneider, J. "Motion Prediction of Traffic Actors for Autonomous Driving using Deep Convolutional Networks", *arXiv preprint:1808.05819*, 2018.
- [3] Kooti, F., Grbovic, M., Aiello, L. M., **Djuric, N.**, Radosavljevic, V., Lerman, K. "Analyzing Uber's Ride-Sharing Economy", *Int'l World Wide Web Conference (WWW)*, Perth, Australia, 2017.
- [4] Ordentlich, E., Feng, A., Grbovic, M., Yang, L., Cnudde, P., **Djuric, N.**, Radosavljevic, V., Owens, G. "Network-Efficient Distributed Word2vec Training System for Large Vocabularies", *Int'l ACM Conference on Information and Knowledge Management (CIKM)*, Indianapolis, USA, 2016.
- [5] **Djuric, N.**, Grbovic, M., Radosavljevic, V., Savla, J., Bhagwan, V., Sharp, D. "Travel the World: Analyzing and Predicting Booking Behavior using E-mail Travel Receipts", *Int'l World Wide Web Conference (WWW)*, Montreal, Canada, 2016.
- [6] Radosavljevic, V., Grbovic, M., **Djuric, N.**, Bhamidipati, N., Zhang, D., Wang, J., Dang, J., Huang, H., Nagarajan, A., Chen, P. "Smartphone App Categorization for Interest Targeting in Advertising Marketplace", *Int'l World Wide Web Conference (WWW)*, Montreal, Canada, 2016.
- [7] Grbovic, M., **Djuric, N.**, Radosavljevic, V., Silvestri, F., Baeza-Yates, R., Feng, A., Ordentlich, E., Yang, L., Owens, L. "Scalable Semantic Matching of Search Queries to Ads in Sponsored Search Advertising", *Int'l ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR)*, Pisa, Italy, 2016. (*oral presentation*)
- [8] **Djuric, N.**, Grbovic, M., Vucetic, S. "ParkAssistant: An Algorithm for Guiding a Car to a Parking Spot", *Transportation Research Board 95th Annual Meeting (TRB)*, Washington, D.C., USA, 2016.

- [9] Kooti, F., Lerman, K., Aiello, L. M., Grbovic, M., **Djuric, N.**, Radosavljevic, V. "Portrait of an Online Shopper: Understanding and Predicting Consumer Behavior", ACM Int'l Conference on Web Search and Data Mining (**WSDM**), San Francisco, USA, 2016.
- [10] Grbovic, M., Radosavljevic, V., **Djuric, N.**, Bhamidipati, N., Savla, J., Bhagwan, V., Sharp, D. "E-commerce in Your Inbox: Cross-domain Product Recommendations at Scale", ACM SIGKDD Conference on Knowledge Discovery and Data Mining (**KDD**), Sydney, Australia, 2015. (*oral presentation*)
- [11] Grbovic, M., Radosavljevic, V., **Djuric, N.**, Bhamidipati, N., Nagarajan, A. "Gender and Interest Targeting for Sponsored Post Advertising at Tumblr", ACM SIGKDD Conference on Knowledge Discovery and Data Mining (**KDD**), Sydney, Australia, 2015. (*oral*)
- [12] Grbovic, M., **Djuric, N.**, Radosavljevic, V., Silvestri, F., Bhamidipati, N. "Context- and Content-aware Embeddings for Query Rewriting in Sponsored Search", Int'l ACM SIGIR Conference on Research and Development in Information Retrieval (**SIGIR**), Santiago, Chile, 2015. (*oral presentation*)
- [13] **Djuric, N.***, Wu, H.*, Radosavljevic, V., Grbovic, M., Bhamidipati, N. "Hierarchical Neural Language Models for Joint Representation of Streaming Documents and their Content", Int'l World Wide Web Conference (**WWW**), Florence, Italy, 2015. (*oral*) **equal contrib.*
- [14] Grbovic, M., **Djuric, N.**, Radosavljevic, V., Bhamidipati, N. "Search Retargeting using Directed Query Embeddings", Int'l World Wide Web Conference (**WWW**), Florence, Italy, 2015.
- [15] **Djuric, N.**, Zhou, J., Morris, R., Grbovic, M., Radosavljevic, V., Bhamidipati, N. "Hate Speech Detection with Comment Embeddings", Int'l World Wide Web Conference (**WWW**), Florence, Italy, 2015.
- [16] Grbovic, M., **Djuric, N.**, Radosavljevic, V., Bhamidipati, N., Hawker, J., Johnson, C. "queryCategorizr: A Large-Scale Semi-Supervised System for Categorization of Web Search Queries", Int'l World Wide Web Conference (**WWW**), Florence, Italy, 2015.
- [17] **Djuric, N.**, Radosavljevic, V., Grbovic, M., Bhamidipati, N. "Hidden Conditional Random Fields with Distributed User Embeddings for Ad Targeting", IEEE Int'l Conference on Data Mining (**ICDM**), Shenzhen, China, 2014. (*oral presentation*)
- [18] **Djuric, N.**, Grbovic, M., Radosavljevic, V., Bhamidipati, N., Vucetic, S. "Non-linear Label Ranking for Large-scale Prediction of Long-Term User Interests", AAAI Conference on Artificial Intelligence (**AAAI**), Quebec City, Canada, 2014. (*oral presentation*)
- [19] Coric, V., **Djuric, N.**, Vucetic, S. "Frugal Traffic Monitoring with Autonomous Participatory Sensing", SIAM Conference on Data Mining (**SDM**), Philadelphia, USA, 2014.
- [20] **Djuric, N.**, Vucetic, S. "Efficient Visualization of Large-scale Data Tables through Reordering and Entropy Minimization", IEEE Int'l Conference on Data Mining (**ICDM**), Dallas, USA, 2013. (*oral presentation*)
- [21] **Djuric, N.**, Grbovic, M., Vucetic, S. "Distributed Confidence-Weighted Classification on MapReduce", IEEE Int'l Conf. on Big Data (**BigData**), Santa Clara, USA, 2013. (*oral*)
- [22] **Djuric, N.**, Kansakar, L., Vucetic, S. "Semi-Supervised Learning for Integration of Aerosol Predictions from Multiple Satellite Instruments", Int'l Joint Conference on Artificial Intelligence (**IJCAI**), Beijing, China, 2013. (*oral presentation*) **outstanding paper award**
- [23] Grbovic, M.*, **Djuric, N.***, Vucetic, S. "Multi-prototype Label Ranking with Novel Pairwise to Total Rank Aggregation", Int'l Joint Conference on Artificial Intelligence (**IJCAI**), Beijing, China, 2013. **equal contribution*
- [24] **Djuric, N.**, Grbovic, M., Vucetic, S. "Convex Kernelized Sorting", AAAI Conference on Artificial Intelligence (**AAAI**), Toronto, Canada, 2012. (*oral presentation*)

- [25] Grbovic, M., **Djuric, N.**, Vucetic, S. "Supervised Clustering of Label Ranking Data", SIAM Conference on Data Mining (**SDM**), Anaheim, USA, 2012. (*oral*) **top 10 best papers**
- [26] Wang, Z., **Djuric, N.**, Crammer, K., Vucetic, S. "Trading Representability for Scalability: Adaptive Multi-Hyperplane Machine for Nonlinear Classification", ACM SIGKDD Conference on Knowledge Discovery and Data Mining (**KDD**), San Diego, USA, 2011. (*oral*)

BOOK CHAPTERS [1] **Djuric, N.**, Grbovic, M., Vucetic, S. "Distributed Confidence-Weighted Classification on Big Data Platforms", in *V. Govindaraju, V. Raghavan, C. R. Rao (Editors)*, "Handbook of Statistics: Big Data Analytics", vol. 33, Elsevier, 2015.

WORKSHOP PUBLICATIONS [1] Chou, F.-C., Lin, T.-H., Cui, H., Radosavljevic, V., Nguyen, T., Huang, T.-K., Niedoba, M., Schneider, J., **Djuric, N.** "Predicting Motion of Vulnerable Road Users using High-Definition Maps and Efficient ConvNets", Workshop on Machine Learning for Intelligent Transportation Systems at Conf. on Neural Information Processing Systems (**MLITS**), Montreal, Canada, 2018.

[2] Grbovic, M., Radosavljevic, V., Bhamidipati, N., Nagarajan, A., **Djuric, N.** "Leveraging Blogging Activity on Tumblr to Infer Demographics and Interests of Users for Advertising Purposes", 6th Workshop on 'Making Sense of Microposts' at Int'l World Wide Web Conference (**#Microposts**), Montreal, Canada, 2016.

[3] **Djuric, N.**, Grbovic, M., Görür, D., Radosavljevic, V. "How much do age and gender affect news topic preferences?", Data Science for News Publishing Workshop at KDD (**NewsKDD**), New York City, USA, 2014.

[4] Radosavljevic, V., Grbovic, M., **Djuric, N.**, Bhamidipati, N., Vucetic, S. "Large-scale World Cup 2014 outcome prediction based on Tumblr posts", Workshop on Large-Scale Sports Analytics at KDD (**SportsKDD**), New York City, USA, 2014.

[5] Grbovic, M., **Djuric, N.**, Vucetic, S. "Learning from Pairwise Preference Data using Gaussian Mixture Model", Preference Learning Workshop, European Conference on Artificial Intelligence (**PL-ECAI**), Montpellier, France, 2012.

[6] Lan, L., **Djuric, N.**, Guo, Y., Vucetic, S. "Protein Function Prediction by Integrating Different Data Sources", Automated Function Prediction SIG featuring the CAFA Challenge: Critical Assessment of Function Annotations (**AFP/CAFA**), Vienna, Austria, 2011.

[7] **Djuric, N.**, Vucetic, S. "Random Kernel Perceptron on ATtiny2313 Microcontroller", Int'l Workshop on Knowledge Discovery from Sensor Data at ACM SIGKDD Conference on Knowledge Discovery and Data Mining (**SensorKDD**), Washington DC, USA, 2010.

SELECTED TALKS **PyData Córdoba** **September 2018**
Keynote talk, "Self-Driving Cars and AI: Transforming our Cities and our Lives"

Mathematical Institute of the Serbian Academy of Sciences and Arts
Invited talk, "Machine Learning for Computational Advertising" **May 2015**
Invited talk, "Big Data Algorithms for Visualization and Supervised Learning" **Dec 2013**

AWARDS **Student Travel Award** **December 2013**
ICDM 2013, Dallas, USA

Outstanding Paper Award **August 2013**
AI and Computational Sustainability track, IJCAI-13, Beijing, China

Student Travel Grant **August 2013**
IJCAI-13, Beijing, China

Student Scholarship Award **July 2012**
AAAI-2012, Toronto, Canada

U.S. Department of Energy Student Travel Award AFP/CAFA 2011, Vienna, Austria	July 2011
2nd Prize, Graduate Student Project Competition Computer and Information Sciences Department, Temple University, Philadelphia	2011, 2012
Temple University Graduate Fellowship Temple University, Philadelphia	2009 – 2013
Fellowship for Graduate Students Serbian Ministry of Science and Technology	2010 – 2011
Scholarship for Outstanding Undergraduate Students Serbian Ministry of Science and Technology	2004 – 2008
First Prize in Physics National High School Competition, Serbia	March 2002

ACADEMIC
SERVICE

Program Committee (PC) Chair (workshops): Precognition: Seeing through the Future (@ IEEE/CVF Conference on Computer Vision and Pattern Recognition, 2019); AdKDD and TargetAd (@KDD, 2017–2018); Int'l Workshop on Ad Targeting at Scale (TargetAd@WWW, 2015; @WSDM, 2016)

Senior PC Member: Int'l World Wide Web Conference (WWW, 2018–2019)

PC Member (conferences): ACM SIGKDD Conf. on Knowledge Discovery and Data Mining (KDD, 2015–2019); Conf. on Neural Information Processing Systems (NeurIPS, 2016, 2018–2019); Int'l Conf. on Learning Representations (ICLR, 2019); Int'l Conf. on Machine Learning (ICML, 2019); IEEE Int'l Conf. on Robotics and Automation (ICRA, 2019); Robotics: Science and Systems Conference (RSS, 2019); ACM Int'l Conf. on Web Search and Data Mining (WSDM, 2018–2019); American Medical Informatics Association Annual Symposium (AMIA, 2018–2019); AAAI Conf. on Artificial Intelligence (AAAI, 2015–2018); Int'l Conf. on Data Mining (ICDM, 2014–2018); Annual Meeting of the Association for Computational Linguistics (ACL, 2018); Conf. of the North American Chapter of the ACL - Human Language Technologies (NAACL-HLT, 2018); Int'l World Wide Web Conf. Satellites (WWWSatellites, 2018); Int'l Conf. on Information and Knowledge Management (CIKM, 2017–2018); IEEE Int'l Conf. on Big Data (BigData, 2017–2018); Int'l Joint Conf. on Artificial Intelligence (IJCAI, 2016–2017); IEEE Int'l Conf. on Big Knowledge (ICBK, 2017)

PC Member (workshops): Workshop on Abusive Language Online (@ACL 2017, @EMNLP 2018, @ACL 2019); Workshop on Trolling, Aggression and Cyberbullying (@COLING 2018); Workshop on Query Understanding and Reformulation for Mobile and Web Search (@WSDM 2016); Workshop on Early Classification of Complex Events (@SDM 2016)

Reviewer (journals): IEEE Access (2016–2018); Journal of Universal Computer Science (2017); Transactions on Knowledge and Data Engineering (TKDE, 2015); Geoscience and Remote Sensing Letters (GRSL, 2015); Journal of Selected Topics in Applied Earth Observations and Remote Sensing (2013–2015); PLOS ONE (2014); IEEE Computer (2014); Journal of Natural Language Engineering (2014); Applied Spectroscopy (2014); Optimization Methods and Software (2013)

Session Chair: AAAI Conference on Artificial Intelligence (AAAI, 2014)

TEACHING
EXPERIENCE

Computer and Information Sciences Department **2011 – 2012**
Temple University, Philadelphia, PA

- **Courses.** Artificial Intelligence (**graduate-level course**), Computer Systems and Low-Level Programming (**Assembly, C**), Cyberspace and Society (**Dreamweaver**)

SKILLS

Programming Languages and Tools
C/C++, Python, Perl, awk, Matlab/Octave, Hadoop, Pig, Hive, Oozie, PHP, SQL, HTML, git.

OTHER
INFORMATION

Member of Mensa, Chess Candidate Master title.