ANNA CHOROMANSKA

CONTACT

Department of Electrical and Computer Engineering
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EDUCATION

- Columbia University in the City of New York, Department of Electrical Engineering, M.Phil. and Ph.D. (with Presidential Fellowship), 2009-2014 (Advisor: Prof. Tony Jebara, Co-advisor: Prof. Claire Monteleoni)
- Warsaw University of Technology, Department of Electronics and Information Technology, MSc with distinctions (double specialization: Electronics and Computer Engineering and Electronics and Informatics in Medicine), 2004-2009 (Advisor: Prof. Antoni Grzanka)
- Mieczyslaw Karlowicz Music High School in Warsaw, Department of Piano Play, 1998-2004

PROFESSIONAL EXPERIENCE

Assistant Professor	Department of Electrical and Computer Engineering, NYU Tandon School of Engineering	01.2017	now
Affiliated Faculty Member	NYU Center for Urban Science and Progress	02.2019	now
Affiliated Faculty Member	NYU Center for Data Science	01.2017	now

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Research Collaboration	NYU - NVIDIA AI Labs (NVAIL)	02.2019	now

Working on deep-learning-based AI platforms for autonomous driving.

Research Collaboration	IBM T. J. Watson Research Center	08.2017	now

Working on biologically plausible algorithms for training deep networks.

Research Collaboration	NVIDIA (New Jersey lab)	05.2016	now

Working on autonomous car driving.

Post-Doctoral Associate	Computer Science Department, Courant Institute of Mathematical Sciences, New York University	04.2014	12.2016

Working on deep learning (advisor: Prof. Yann LeCun).

Summer Internship	Microsoft Research, New York	06.2013	09.2013
Research Collaboration		09.2013	06.2014

Working on logarithmic time extreme multiclass classification (advisor: Dr John Langford).

Research Collaboration IBM T.J.Watson Research Center 05.2012 06.2013

Recipient of a grant from the Speech and Language Algorithms Department at IBM T. J. Watson Research Center (for one semester). Working on optimization for large scale learning problems involving conditional random fields, log-linear models, and deep belief networks (advisor: Dr Dimitri Kanevsky, since 04.2013 joint work also with Prof. Aleksandr Aravkin).

Summer Internship ATT Research Laboratories 07.2012 09.2012

Working on iPLAN project: data analysis and modeling, and data matching (advisor: Dr Alice Chen, manager: Dr Phyllis Weiss).

Visiting Summer Scholar Department of Electrical Engineering University of Hawaii at Manoa 10.2008

Working on Empirical Mode Decomposition (advisor: Prof. David Y. Y. Yun).

Visiting Summer Scholar Smell and Taste Center, Department of Otorhinolaryngology, Head and Neck Surgery at the University of Pennsylvania (with several week cooperation before) 09.2008

Working on improving software and hardware for electrogustometric medical trials (advisor: Prof. Richard Doty).

Visiting Summer Scholar Center for Commercialization of Fluorescence Technologies, University of North Texas Health Science Center, Forth Worth, Texas 09.2008

Working on fast algorithms for visualization and analysis of lung epithelial cells imagined using fluorescence technology (advisor: Prof. Ignacy Gryczynski and Prof. Zygmunt Gryczynski).

Summer Internship Centre de Recherche du Centre Hospitalier Universitaire de Montreal, in cooperation with the Center for Commercialization of Fluorescence Technologies, University of North Texas Health Science Center, Forth Worth, Texas 07.2008 09.2008

Working on fast algorithms for visualization and analysis of lung epithelial cells imagined using fluorescence technology (advisor: Prof. Ryszard Grygorczyk). The project was supported by the Canadian Institutes of Health Research (CIHR) and Natural Sciences and Engineering Research Council of Canada (NSERC).

HONORS, AWARDS, AND ACHIEVEMENTS

Scientific:

- 2019 IBM Faculty Award
- Theodor Tamir Award for best Ms Thesis in Electrical and Computer Engineering awarded to my student, Yunfei Teng, for his Master's thesis conducted under my advisorship
- Student Best Paper Award, First Place, for the work T. Jebara, A. Choromanska, Majorization for CRFs and Latent Likelihoods, 7th Annual Machine Learning Symposium, New York Academy of Science, 2012

- Student Best Paper Award, Third Place, for the work A. Choromanska, C. Monteleoni, Online clustering with experts, 6th Annual Machine Learning Symposium, New York Academy of Science, 2011
- The Fu Foundation School of Engineering and Applied Science Presidential Fellowship holder, Columbia University in the City of New York, 2009-2012
- Departmental Scholarship holder for the Achievements in Science, Warsaw University of Technology, Department of Electronics and Information Technology, 2005-2009
- Winner (first place) of the National Mathematics Competition held by Warsaw University of Technology, 2004
- Laureate of the National Physics Competition held by Warsaw University of Technology, 2004

Other:

- Diploma of the Warsaw School of Art "Labirynt" (painting), 2007
- Bronze medalist of amateur couple dance, 2006
- Diploma of the Summer School of Italian Language in Rome, 2006

PAPERS

Google Scholar: https://scholar.google.pl/citations?user=l-mlF7YAAAAJ&hl=pl&oi=ao
Number of citations (by 09/03/2019): 1633
h-index: 15

Student authors that I advised on the listed work are marked in bold.

Conferences:

Y. Teng, **W. Gao**, **F. Chalus**, A. Choromanska, D. Goldfarb, A. Weller, Leader Stochastic Gradient Descent for Distributed Training of Deep Learning Models, in the Neural Information Processing Systems Conference (NeurIPS), 2019. Acceptance Rate [21%]. (23 pages)

A. Choromanska, **B. Cowen**, S. Kumaravel, R. Luss, M. Rigotti, I. Rish, B. Kingsbury, P. DiAchille, V. Gurev, R. Tejwani, D. Bouneouf, Beyond Backprop: Online Alternating Minimization with Auxiliary Variables, in the International Conference on Machine Learning (ICML), 2019. Acceptance Rate [23%]. (15 pages)

D. Bisla, A. Choromanska, R. Berman, D. Polsky, J. Stein, Towards Automated Melanoma Detection with Deep Learning: Data Purification and Augmentation, in the IEEE Conference on Computer Vision and Pattern Recognition (CVPR) ISIC Skin Image Analysis Workshop, 2019 (15 pages)

S. Fang, A. Choromanska, Reconfigurable Network for Efficient Inferencing in Autonomous Vehicles, in the International Conference on Robotics and Automation (ICRA), 2019 (8 pages)

M. Bojarski, A. Choromanska, K. Choromanski, B. Firner, L. Jackel, U. Muller, P. Yeres, K. Zieba, VisualBackProp: efficient visualization of CNNs for autonomous driving, in the International Conference on Robotics and Automation (ICRA), 2018 (8 pages)

N. Patel, A. N. Saridena, A. Choromanska, P. Krishnamurthy, F. Khorrami, Adversarial Learning-Based On-Line Anomaly Monitoring for Assured Autonomy, in the International Conference on Intelligent Robots and Systems (IROS), 2018 (8 pages)

S. Minaee, Y. Wang, A. Choromanska, S. Chung, X. Wang, E. Fieremans, S. Flanagan, J. Rath, Y. W. Lui, A Deep Unsupervised Learning Approach Toward MTBI Identification Using Diffusion MRI, in the International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC), 2018 (4 pages)

N. Patel, A. Choromanska, P. Krishnamurthy, F. Khorrami, Sensor Modality Fusion with CNNs for UGV Autonomous Driving in Indoor Environments, in the International Conference on Intelligent Robots and Systems (IROS), 2017 (8 pages)

Y. Jernite, A. Choromanska, D. Sontag, Simultaneous Learning of Trees and Representations for Extreme Classification and Density Estimation, in the International Conference on Machine Learning (ICML), 2017 (21 pages)

P. Chaudhari, A. Choromanska, S. Soatto, Y. LeCun, C. Baldassi, C. Borgs, J. Chayes, L. Sagun, R. Zecchina, Entropy-SGD: Biasing Gradient Descent Into Wide Valleys, in the International Conference on Learning Representations (ICLR), 2017. Acceptance Rate [36%]. (19 pages)

M. Bojarski, A. Choromanska, K. Choromanski, F. Fagan, C. Gouy-Pailler, A. Morvan, N. Sakr, T. Sarlos, J. Atif, Structured adaptive and random spinners for fast machine learning computations, in the International Conference on Artificial Intelligence and Statistics (AISTATS), 2017. Acceptance Rate [31.70%] (18 pages)

A. Choromanska, K. Choromanski, M. Bojarski, T. Jebara, S. Kumar, Y. LeCun, Binary embeddings with structured hashed projections, in the International Conference on Machine Learning (ICML), 2016. Oral presentation: Acceptance Rate [24.27%]

A. Choromanska, J. Langford, Logarithmic Time Online Multiclass prediction, in the Neural Information Processing Systems Conference (NIPS), 2015. Spotlight talk: Acceptance Rate [3.65%]

S. Zhang, A. Choromanska, Y. LeCun, Deep learning with Elastic Averaging SGD, in the Neural Information Processing Systems Conference (NIPS), 2015. Spotlight talk: Acceptance Rate [3.65%]

S. Zhang, A. Choromanska, Y. LeCun, Deep learning with Elastic Averaging SGD (initial results), in the International Conference on Learning Representations (ICLR) Workshop, CoRR, abs/1412.6651v5, 2015

A. Choromanska, Y. LeCun, G. Ben Arous, Open Problem: The landscape of the loss surfaces of multilayer networks, in the Conference on Learning Theory (COLT), Open Problems, 2015

A. Choromanska, M. B. Henaff, M. Mathieu, G. Ben Arous, Y. LeCun, The Loss Surfaces of Multilayer Networks, in the International Conference on Artificial Intelligence and Statistics (AISTATS), 2015

A. Y. Aravkin, A. Choromanska, T. Jebara, D. Kanevsky, Semistochastic quadratic bound methods (initial results), in the International Conference on Learning Representations (ICLR) Workshop, CoRR, abs/1309.1369, 2014

A. Choromanska, T. Jebara, H. Kim, M. Mohan, C. Monteleoni, Fast spectral clustering via the Nyström method, in the International Conference on Algorithmic Learning Theory (ALT), 2013

A. Choromanska, K. Choromanski, G. Jagannathan, C. Monteleoni, Differentially-Private Learning of Low Dimensional Manifolds, in the International Conference on Algorithmic Learning Theory (ALT), 2013

A. Choromanska, A. Agarwal, J. Langford, Extreme Multi Class Classification, in the Neural Information Processing Systems Conference (NIPS) Workshop: eXtreme Classification, 2013

T. Jebara, A. Choromanska, Majorization for CRFs and Latent Likelihoods, in the Neural Information Processing Systems Conference (NIPS), 2012. Spotlight talk: Acceptance Rate [3.58%]. **Student Best Paper Award, First Place, on the 7th Annual Machine Learning Symposium, New York Academy of Science, 2012**.

A. Choromanska, C. Monteleoni, Online clustering with experts, in the International Conference on Artificial Intelligence and Statistics (AISTATS), 2012. Oral presentation: Acceptance Rate [5.97%]. **Student Best Paper Award, Third Place, on the 6th Annual Machine Learning Symposium, New York Academy of Science, 2011**.

A. Choromanska, D. Kanevsky, T. Jebara, Majorization for Deep Belief Networks, in the Neural Information Processing Systems Conference (NIPS) Workshop: Log-linear models, 2012

A. Choromanska and C. Monteleoni, Online Clustering with Experts (initial results), in the International Conference on Machine Learning (ICML) Workshop: Online Trading of Exploration and Exploitation 2, Journal of Machine Learning Research (JMLR) Workshop and Conference Proceedings, 2011

Journals and book chapters:

B. Cowen, A. Nandini Saridena, A. Choromanska, LSALSA: Accelerated Source Separation via Learned Sparse Coding, Machine Learning, 2019 (the paper was also accepted for presentation in the ECML-PKDD conference) (23 pages)

Y. Teng, A. Choromanska, Invertible Autoencoder for domain adaptation, in the MDPI Computation, 2019 (20 pages)

A. Choromanska, **I. K. Jain**, Extreme Multiclass Classification Criteria, in the MDPI Computation, 2019 (19 pages)

N. Patel, A. Choromanska, P. Krishnamurthy, F. Khorrami, A Deep Learning Gated Architecture for UGV Navigation Robust to Sensor Failures, in the Journal of Robotics and Autonomous Systems, 2019

A. Y. Aravkin, A. Choromanska, T. Jebara, D. Kanevsky, Book Chapter: Semistochastic quadratic bound methods, in Log-Linear Models, Extensions and Applications, MIT Press, 2018

A. Choromanska, K. Choromanski, G. Jagannathan, C. Monteleoni, Differentially-Private Learning of Low Dimensional Manifolds, in the Theoretical Computer Science, 2015

A. Choromanska, S-F. Chang, R. Yuste, Automatic Reconstruction of 3D neural morphologies using multi-scale graph-based tracking, in the Frontiers in Neural Circuits, 6:25, 2012

Phd Thesis:

A. Choromanska, Selected machine learning reductions, PhD Thesis, 2014

Technical reports:

D. Bisla, A. Choromanska, VisualBackProp for learning using privileged information with CNNs, 2019 (submitted)(10 pages)

M. Bojarski, P. Yeres, A. Choromanska, K. Choromanski, B. Firner, L. D. Jackel, U. Muller, Explaining How a Deep Neural Network Trained with End-to-End Learning Steers a Car, CoRR, abs/1704.07911, 2017

A. Choromanska, K. Choromanski, M. Bojarski, On the boosting ability of top-down decision tree learning algorithm for multiclass classification, 2016

M. Bojarski, A. Choromanska, K. Choromanski, Y. LeCun, Differentially- and non-differentially-private random decision trees, CoRR, abs/1410.6973, 2015

K. Choromanski, A. Choromanska, M. Bojarski, Deep Neural Networks reconstruct graphons, 2015

A. Agarwal, A. Choromanska, K. Choromanski, Notes on Using Determinantal Point Processes for Clustering with Applications to Text Clustering, CoRR, abs/1410.6975, 2014

A. Choromanska, T. Jebara, Stochastic Bound Majorization, CoRR, abs/1309.5605, 2013

INVITED TALKS

- *Data-driven challenges in AI: scale, information selection, and safety*, MLConf New York, 2019
- *Optimization Problems in Deep Learning and beyond*, IBM T.J.Watson Research Center, 2018
- *Optimization Problems in Deep Learning and beyond*, Rutgers University, 2018
- *Optimization Problems in Deep Learning*, Google Montreal, 2017
- *Optimization Problems in Deep Learning*, Google New York, 2017
- *Machine Learning Lab in the Department of Electrical and Computer Engineering at NYU Tandon School of Engineering*, Faculty meets Faculty Luncheon, NYU, 2017
- *Optimization for large-scale machine learning: big model and big data*, Ecole Normale Supérieure, Paris, 2016
- *Optimization for large-scale machine learning: big model and big data*, International Conference on Machine Learning (ICML) Workshop: Theory of Deep Learning, 2016
- *Optimization for large-scale machine learning: big model and big data*, IBM T.J.Watson Research Center, 2016
- *Optimization for large-scale machine learning: big model and big data*, Applied Mathematics Seminar, Department of of Mathematical Sciences, University of Delaware, 2016
- *Optimization for large-scale machine learning: big model and big data*, Deep Learning Course, Computer Science Department, Courant Institute of Mathematical Sciences, 2016
- *Optimization for large-scale machine learning: big model and big data*, School of Mathematics, University of Minnesota, 2016
- *Optimization for large-scale machine learning: big model and big data*, School of Computer and Communication Sciences, Ecole Polytechnique Federale de Lausanne, 2016
- *Optimization for large-scale machine learning: big model and big data*, Department of Computer Science, Swiss Federal Institute of Technology in Zurich (ETH Zurich), 2016
- *Optimization for large-scale machine learning: big model and big data*, Department of Electrical and Computer Engineering Seminar, New York University Tandon School of Engineering, 2016
- *Optimization for large-scale machine learning: large data and large model*, Department of Computer Science, New Jersey Institute of Technology, 2016
- *Optimization for large-scale machine learning: large data and large model*, Department of Computer Engineering Technology, New York City College of Technology, The City University of New York (CUNY), 2016
- *Optimization for large-scale machine learning: large data and large model*, Department of Computer Science, Swiss Federal Institute of Technology in Zurich (ETH Zurich), 2015
- *Optimization for large-scale machine learning: large data and large model*, Department of Computer Science, Stony Brook University, 2015
- *Optimization for large-scale machine learning: large data and large model*, Department of Electrical and Computer Engineering Seminar, New York University Tandon School of Engineering, 2015
- *Logarithmic Time Online Multiclass prediction*, New York University Machine Learning Seminar, 2015
- *Optimization for large-scale machine learning: large data and large model*, Algebra and Cryptography Seminar, The City University of New York (CUNY) Graduate Center, 2015
- *Optimization for large-scale machine learning: large data and large model*, Department of Computer Science, Columbia University, 2015
- *Optimization for large-scale machine learning: large data and large model*, Internal group meeting, Computational Intelligence, Learning, Vision, and Robotics Lab at New York University, 2015
- *Optimization for large-scale machine learning: large data and large model*, Computer Science Department Colloquium, Rutgers University, 2015
- *Optimization for large-scale machine learning: large data and large model*, Department of Computer Science, Stevens Institute of Technology, 2015
- *Optimization for large-scale machine learning: large data and large model*, NVIDIA, 2015

- *Optimization for large-scale machine learning: large data and large model*, Cornell Tech, 2015
- *Optimization for large-scale machine learning: large data and large model*, Engineering Science and Physics Seminar, College of Staten Island (CSI), 2015
- *Optimization for large-scale machine learning: large data and large model*, The City College of New York (CCNY) PRISM Lecture Series on Computer Vision, Robotics and Human-Computer Interaction, 2015
- *Optimization for large-scale machine learning: large data and large model*, Electrical Engineering Departmental Seminars, Princeton University, 2015
- *Optimization for large-scale machine learning: large data and large model*, Interactions Corporation, 2015
- *Logarithmic Time Online Multiclass prediction*, European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECML/PKDD): BigTargets Workshop (keynote talk), 2015
- *Convex and non-convex worlds in machine learning*, Department of Engineering, Cambridge University, 2015
- *Convex and non-convex worlds in machine learning*, Seminar in Information Engineering, Department of Engineering Science, Oxford University, 2015
- *Convex and non-convex worlds in machine learning*, Gatsby Computational Neuroscience Unit, University College London, 2015
- *Convex and non-convex worlds in machine learning*, Summer School on Non-convex Optimization in Machine Learning at the Indian Institute of Technology, Bombay, India, 2015
- *Convex and non-convex worlds in machine learning*, Google Research New York, 2015
- *Convex and non-convex worlds in machine learning*, Computer Science Department, Harvard University, 2015
- *Complexity of spin glasses*, Courant Institute of Mathematical Sciences, 2015
- *Convex and non-convex worlds in machine learning*, Text IQ start-up company, 2015
- *Selected machine learning reductions*, Yahoo! Research New York, 2014
- *Online multi class partition trees for logarithmic time predictions*, DIMACS/CCICADA Workshop on Systems and Analytics of Big Data, 2014
- *Selected machine learning reductions*, Department of Computer Science and Engineering, New York University Polytechnic School of Engineering, 2014
- *Selected machine learning reductions*, International ACM Conference on Web Search and Data Mining (WSDM), 2014
- *Large-scale machine learning*, IBM T.J.Watson Research Center, 2014
- *Large-scale machine learning*, Computer Science Department, Courant Institute of Mathematical Sciences, 2013
- *Quadratic Bound Methods for Convex and Nonconvex Learning Problems*, Microsoft Research New York, 2013
- *Large-scale machine learning*, ATT Shannon Research Laboratories, 2012
- *Online clustering with experts*, Center for Computational Learning Systems, Columbia University, 2011

CONFERENCE TALKS AND POSTERS

- *Leader Stochastic Gradient Descent for Distributed Training of Deep Learning Models*, in the Neural Information Processing Systems Conference (NeurIPS) (poster), 2019
- *LSALSA: Accelerated Source Separation via Learned Sparse Coding*, in the European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECML-PKDD) (presentation), 2019
- *Beyond Backprop: Online Alternating Minimization with Auxiliary Variables*, in the International Conference on Machine Learning (ICML) (presentation), 2019
- *Towards Automated Melanoma Detection with Deep Learning: Data Purification and Augmentation*, in the IEEE Conference on Computer Vision and Pattern Recognition (CVPR) ISIC Skin Image Analysis Workshop (presentation), 2019
- *Reconfigurable Network for Efficient Inferencing in Autonomous Vehicles*, in the International Conference on Robotics and Automation (ICRA) (poster), 2019
- *VisualBackProp: efficient visualization of CNNs for autonomous driving*, in the International Conference on Robotics and Automation (ICRA) (poster), 2018

- *Adversarial Learning-Based On-Line Anomaly Monitoring for Assured Autonomy*, in the International Conference on Intelligent Robots and Systems (IROS) (talk), 2018
- *Sensor Modality Fusion with CNNs for UGV Autonomous Driving in Indoor Environments*, in the International Conference on Intelligent Robots and Systems (IROS) (tallk), 2017
- *Simultaneous Learning of Trees and Representations for Extreme Classification and Density Estimation*, International Conference on Machine Learning (ICML) (talk and poster), 2017
- *Entropy-SGD: Biasing Gradient Descent Into Wide Valleys*, International Conference on Learning Representations (ICLR) (poster), 2017
- *Structured adaptive and random spinners for fast machine learning computations*, International Conference on Artificial Intelligence and Statistics (AISTATS) (poster), 2017
- *Binary embeddings with structured hashed projections*, International Conference on Machine Learning (ICML) (talk and poster), 2016
- *Logarithmic Time Online Multiclass prediction*, International Conference on Neural Information Processing Systems (NIPS) (spotlight talk and poster), 2015
- *Deep learning with Elastic Averaging SGD*, International Conference on Neural Information Processing Systems (NIPS) (spotlight talk and poster), 2015
- *Open Problem: The landscape of the loss surfaces of multilayer networks*, Conference on Learning Theory (COLT) (talk in the Open Problems track), 2015
- *The Loss Surfaces of Multilayer Networks*, International Conference on Artificial Intelligence and Statistics (AISTATS) (poster), 2015
- *Deep learning with Elastic Averaging SGD*, International Conference on Learning Representations (ICLR) Workshop (poster), 2015
- *Semistochastic quadratic bound methods*, International Conference on Learning Representations (ICLR) Workshop (poster), 2014
- *Fast spectral clustering via the Nyström method*, International Conference on Algorithmic Learning Theory (ALT) (talk), 2013
- *Differentially-Private Learning of Low Dimensional Manifolds*, International Conference on Algorithmic Learning Theory (ALT) (talk), 2013
- *Extreme Multi Class Classification*, International Conference on Neural Information Processing Systems (NIPS) Workshop: eXtreme Classification (talk), 2013
- *Majorization for CRFs and Latent Likelihoods*, International Conference on Neural Information Processing Systems (NIPS) (spotlight talk and poster), 2012
- *Majorization for CRFs and Latent Likelihoods*, 7th Annual Machine Learning Symposium, New York Academy of Science (spotlight talk and poster), 2012
- *Online clustering with experts*, International Conference on Artificial Intelligence and Statistics (AISTATs) (talk and poster), 2012
- *Online clustering with experts*, The Learning Workshop, Cliff Lodge, Snowbird, Utah (poster), 2012
- *Online clustering with experts*, 6th Annual Machine Learning Symposium, New York Academy of Science (spotlight talk and poster), 2011
- *Online clustering with experts*, Machine Learning Summer School, Bordeaux, France (poster), 2011
- *Online clustering with experts*, International Conference on Machine Learning (ICML) Workshop: Online Trading of Exploration and Exploitation 2 (talk and poster), 2011
- *Online clustering with experts*, Machine Learning Summer School at Purdue University (poster), 2011

PROFESSIONAL ACTIVITIES

PROGRAM COMMITTEE MEMBER

- REVIEWER

  Conferences: ICLR 2017, 2018, AISTATS 2016, ALT 2015, ICML 2012, 2014, 2015, UAI 2012

  Journals: JMLR, Transactions on Pattern Analysis and Machine Intelligence, Machine Learning, IEEE Transactions on Medical Imaging,IBM Journal of Research and Development, Proceedings of the National Academy of Sciences of the United States of America, Applied Mathematics and Optimization

- AREA CHAIR

Conferences: ICML 2017, AISTATS 2018, ICML 2018, ICLR 2019, AISTATS 2020

- HIRING SEARCH COMMITTEE
  NYU Shanghai CS
- PANELIST
  NSF

ORGANIZER

- ECE Seminar Series on Modern Artifical Intelligence for New York and New Jersey (hosted by the ECE Department of NYU Tandon, but open for all New York and New Jersey), Spring 2019, Fall 2019, Spring 2018
  Invited speakers: Yann LeCun, Yoshua Bengio, Stefano Soatto, Vladimir Vapnik, David Blei, Richard J. Roberts, Anima Anadkumar, Martial Hebert, Tony Jebara, Manuela Veloso, Eric Kandel
- NYU Tandon Machine Learning Reading Group "Mambo with Machine Learning", Fall 2017, Spring 2018, Fall 2018
  Invited speakers: Irina Rish, Robert Schapire, Suman Jana, Alina Beygelzimer, Krzysztof Choromanski, Mariusz Bojarski, Jennifer Wortman Vaughan, Narges Razavian, Hal Daume III, Augustin Chaintreau, Shipra Agrawal,
- ICML Workshop on AI for Autonomous Driving, 2019. Acceptance Rate [23%].
- NYU Tandon, Department of Electrical and Computer Engineering, PhD Admitted Student Day, 2017
- Vowpal Wabbit (guest lectures by John Langford from Microsoft Research New York) and Torch (including guest lecture by Mariusz Bojarski from NVIDIA New Jersey Lab) Tutorials for the Department of Electrical and Computer Engineering at NYU Tandon, Spring 2017, Spring 2018, Spring 2019
- NYU HPC Tutorial for the Department of Electrical and Computer Engineering at NYU Tandon, Spring 2017, Spring 2018
- Workshop on Nonconvex Optimization for Machine Learning: Theory and Practice, International Conference on Neural Information Processing Systems (NIPS), 2016

EDITOR

Log-Linear Models, Extensions and Applications, MIT Press, 2015-2018

CONTRIBUTOR

Open source systems: Vowpal Wabbit (aka VW) open source fast out-of-core learning system library and program.

Open source own implementations: Majority of codes connected with published papers are publicly released (website and/or GitHub).

Industry: - EASGD algorithm from [S. Zhang, A. Choromanska, Y. LeCun, Deep learning with Elastic Averaging SGD, in the Neural Information Processing Systems Conference (NIPS), 2015] is used in production by Facebook (training production vision systems and entry to COCO competition) and Baidu
- Robotic platform based on subscale car from [S. Fang, A. Choromanska, Reconfigurable Network for Efficient Inferencing in Autonomous Vehicles, 2019] deployed by NVIDIA Automotive HMI team for testing autonomous driving systems NVIDIA contact: Justin Ebert, senior director in NVIDIA Automotive HMI
- NVAIL blog post on our work [S. Fang, A. Choromanska, Reconfigurable Network for Efficient Inferencing in Autonomous Vehicles, in the International Conference on Robotics and Automation (ICRA), 2019] in the News Center (`https://news.developer.nvidia.com/nvail-partners-present-robotics-research-at-icra-2019/`) and on Twitter (`https://twitter.com/NVIDIAAIDev/status/1131653116120535040`)
- IBM Research blog post on our work [A. Choromanska, B. Cowen, S. Kumaravel, R. Luss, M. Rigotti, I. Rish, B. Kingsbury, P. DiAchille, V. Gurev, R. Tejwani, D. Bouneouf, Beyond Backprop: Online Alternating Minimization with Auxiliary Variables, in the International Conference on Machine Learning (ICML), 2019] (`www.ibm.com/blogs/research/2019/06/beyond-backprop/?fbclid=IwAR07V-sjt2_Yq_kQqrIR7FuJ8hgQ6AVED_Ga43efNUNuTUBlk8MMtB4CPOo`)

PROMOTION OF STEM FIELDS

K12 ARISE Summer High School Program for 2 high school students "Deep learning for autonomous driving" (participants: A. Choromanska, D. Bisla, PhD candidate), July-August 2019

Undergraduate Summer Research Program: mentoring one student, June-July 2019

Peer-to-peer mentoring program for women in STEM, Fall 2018, Spring 2019 (mentor: M. Majzoubi)

K12 ARISE Summer High School Program for 12 high school students "AI4AV: autonomous driving with deep learning models" offering 3-week training in the area of machine learning and autonomous driving (participants: A. Choromanska, S. Fang, PhD candidate, and L. Nertomb, undergraduate student), July 2018

Lecture to the Thompson Bartlett Fellows about leadership and development from a faculty members perspective, 2018

Working in the committee for creating the Women's Center at NYU Tandon (head of the committee: Nicole Johnson), 05.2018 - now

6th Annual Women in STEM Summit "Technology in Service to Society", 2017 (participant in a video featuring NYU female faculty and students, and NYU efforts to increase the participation of women in STEM fields)

STUDENT PARTICIPANT

Machine Learning Summer School, Bordeaux, France, 2011

Machine Learning Summer School at Purdue University, 2011

TEACHING EXPERIENCE

NYU Tandon School of Engineering (Department of Electrical and Computer Engineering):

- Fall 2018: Introduction to Machine Learning (graduate level)
- Spring 2018: Advanced Machine Learning
- Spring 2017: Special Topics in Advanced Machine Learning

Columbia University (Department of Computer Science):

- Spring 2013: Advanced Machine Learning (lecturer for selected classes)
- Fall 2012: Machine Learning (senior Teaching Assistant and lecturer for selected classes)

Warsaw University of Technology (Department of Electronics and Information Technology):

- Prefect of the student group in years 2004-2009 (organizing extra-educational activities for students, extra classes, discussion sessions, and special interest groups)
- Volunteer Teaching Assistant: Algebra, Analysis I, Analysis II, Physics I, Physics II, Probability, Numerical Methods, Fields and Waves, Signals and Systems, Digital Signal Processing, Neural Networks and Neural Computers, Knowledge Discovery Methods

STUDENTS

PhD candidates:

- Maryam Majzoubi (School of Engineering Fellowship), 09.2017-now (summer internships: Microsoft Research (MSR) New York - Summer 2019)
- Shihong Fang, 09.2017-now
- Yunfei Teng (School of Engineering Fellowship), 09.2018 - now (summer internships: NVIDIA - Summer 2018, IBM T. J. Watson Research Center - Summer 2019)
- Apoorva Nandini Saridena, 09.2018 - now (summer internships: NVIDIA - Summer 2018 and Summer 2019)
- Devansh Bisla (School of Engineering Fellowship), 09.2018 - now (summer internships: Hearst - Summer 2018)

Advising on selected projects:

- Naman Patel (with prof. Farshad Khorrami), 07.2016-10.2018

- Benjamin Cowen, 03.2017-06.2019 (summer internships: NVIDIA - Summer 2018, now: senior scientist in the National Laboratories in New Mexico)

Masters students:

- Suchetha Siddagangappa, 01.2019-05.2019 (now: researcher at J.P. Morgan CHASE)
- Shreya Kadambi, 05.2017-01.2018 (Spring 2018: internship in NVIDIA)
- Devansh Bisla, 05.2017-05.2018
- Yunfei Teng (Morse Fellowship, Theodor Tamir Award for best Ms Thesis in Electrical and Computer Engineering), 03.2017-05.2018
- Apoorva Nandini Saridena (from CSE), 03.2017-05.2018
- Cameron Archibald Johnsoni, 09.2017-05.2018

Student co-workers:

- Ish Kumar Jain, 03.2017-05.2018 (now: PhD candidate at UCSD)

Undergraduate Summer Research Program:

- Munib Mesinovic, 04.2019-07.2019

PROGRAMMING SKILLS

Matlab, Vowpal Wabbit (aka VW), Torch (basic), C, C++, C++ Borland Builder, Microsoft Visual Studio, HTML (basic), Java Processing (basic)

LANGUAGES

Polish (native), English (fluent), French (basic), Italian (basic)

INTERESTS

Professional: machine learning both theoretical and applicable to the variety of real-life phenomena: optimization (deep learning landscape, deep learning optimization, and general machine learning optimization), large data analysis (extreme multi-class and multi-label classification and density estimation), and machine learning for robotics and autonomy (autonomous driving systems, self-driving cars, AI-based robotics)

Artistic: classical music (I was playing piano since I was six. My favorite composers are Chopin and Debussy), dancing (ballroom dance, salsa: mambo on 2, and hula; I was dancing in Ache Performance Project of Frankie Martinez and practicing dancing under the guidance of Lori Ana Perez Piazza), painting, photography (camera: EOS 7D Cannon), traveling, bike riding, mountain hiking