

# Otilia Stretcu

**Contact Details:** Email: [otiliastr@gmail.com](mailto:otiliastr@gmail.com)

**Website:** <https://otiliastr.github.io>

**Languages:** Romanian (native), English (fluent), Spanish (beginner), German (beginner), Swedish (beginner)

## RESEARCH AREAS

My PhD research focuses on developing algorithms for machine learning, mainly focused on semi-supervised, curriculum learning, and graph-based problems. I am also passionate about applying machine learning methods in neuroscience, in order to study how the brain understands language and controls speech.

## EDUCATION

2015-now	<b>Carnegie Mellon University – Ph.D. in Machine Learning</b>	USA
	<ul style="list-style-type: none"><li>■ Co-advised by <b>Prof. Barnabàs Póczos</b> and <b>Prof. Tom Mitchell</b></li><li>■ GPA: 4.0</li></ul>	
2014-15	<b>University of Cambridge – Master of Philosophy (M.Phil.) in Advanced Computer Science</b>	UK
	<ul style="list-style-type: none"><li>■ Advised by <b>Prof. Pietro Lió</b></li><li>■ Thesis: Machine Learning Methods for Computational Microscopy</li><li>■ Pass with Distinction</li></ul>	
2010-14	<b>Politehnica University of Timisoara - B.Eng. in Computer Science and Information Technology</b>	Romania
	<ul style="list-style-type: none"><li>■ GPA: 9.98/10</li><li>■ 1st out of 140 students</li></ul>	
2012-13	<b>Linköping University - Erasmus Exchange Student</b>	Sweden

## WORK EXPERIENCE

Spring 2019	<b>Software Engineering Intern at Google AI Research</b>	USA
	<ul style="list-style-type: none"><li>■ Part time internship in the <b>Expander team</b> in <b>Google AI Research</b>.</li><li>■ Research in applying deep learning models on graph problems. Publication under review.</li></ul>	
Summer 2018	<b>Software Engineering Intern at Google AI Research</b>	USA
	<ul style="list-style-type: none"><li>■ <b>Expander team</b> in <b>Google AI Research</b>, Mountain View, CA, USA.</li><li>■ Research in applying deep learning models on graph problems.</li></ul>	
Summer 2016	<b>Software Engineering Intern at Google X</b>	USA
	<ul style="list-style-type: none"><li>■ <b>Self-Driving Car team</b> in <b>Google X</b> (currently Waymo), Mountain View, CA, USA.</li><li>■ Undisclosed Machine Learning projects for the Google self-driving car.</li></ul>	
Summer 2014	<b>Software Developer Intern at Microsoft</b>	USA
	<ul style="list-style-type: none"><li>■ <b>Cortana team</b> at <b>Microsoft</b>, Redmond, WA, USA.</li><li>■ Undisclosed Machine Learning project for Cortana, Windows Phone's digital personal assistant.</li></ul>	

## RESEARCH PUBLICATIONS

\* denotes equal contribution and joint lead authorship.

AAAI	<b>Contextual Parameter Generation for Knowledge Graph Link Prediction</b> G. Stoica*, <b>O. Stretcu</b> *, E.A. Platanios*, T. Mitchell, B. Póczos <i>In Proceedings of the Thirty-fourth AAAI Conference on Artificial Intelligence, 2020.</i>	2020
NeurIPS	<b>Graph Agreement Models for Semi-Supervised Learning</b> <b>O. Stretcu</b> , K. Viswanathan, D. Movshovitz-Attias, E.A. Platanios, S. Ravi, A. Tomkins <i>In Proceedings of the Thirty-third Conference on Neural Information Processing Systems, 2019.</i>	2019
NeurIPS	<b>Contextual Parameter Generation for Knowledge Graph Link Prediction</b> G. Stoica*, <b>O. Stretcu</b> *, E.A. Platanios*, T. Mitchell, B. Póczos <i>In Neural Information Processing Systems Workshop on Graph Representation Learning, 2019.</i>	
UAI	<b>Efficient Multitask Feature and Relationship Learning.</b> H. Zhao, <b>O. Stretcu</b> , R. Negrinho, A. Smola, G. Gordon. <i>In Proceedings of the 2019 Annual Conference on Uncertainty in Artificial Intelligence 2019.</i>	

HBM	<b>Investigating Task Effects on Brain Activity During Stimulus Presentation in MEG.</b> <b>O. Stretcu*</b> , M. Toneva*, B. Poczós, and T. Mitchell. <i>Accepted for poster presentation at the Human Brain Mapping Conference, 2019.</i>	2019
NAACL	<b>Competence-based Curriculum Learning for Neural Machine Translation.</b> E A. Platanios, <b>O. Stretcu</b> , G. Neubig, B. Poczós, and T. Mitchell. <i>Oral presentation at the Conference of the North American Chapter of the Association for Computational Linguistics (NAACL), 2019.</i>	
JNeurosci	<b>Subthalamic nucleus and sensorimotor cortex activity during speech production.</b> A. Chrabaszczyk, W. J. Neumann, <b>O. Stretcu</b> , W.J. Lipski, A. Bush, C. Dastolfo-Hromack, D. Wang, D. J. Crammond, S. Shaiman, M. Walsh Dickey, L.L. Holt, R. S. Turner, J.A. Fiez, and R. M. Richardson <i>The Journal of neuroscience : the official journal of the Society for Neuroscience, 2019.</i>	
SDM	<b>BRAINZOOM: High Resolution Reconstruction from Multi-modal Brain Signals</b> <b>O. Stretcu*</b> , X. Fu*, K. Huang*, H. Song*, E.E. Papalexakis, P. Talukdar, N.D. Sidiropoulos, C. Faloutsos, T. Mitchell, and B. Poczós. <i>Oral presentation at SIAM International Conference on Data Mining (SDM), 2017</i>	2017
NeurIPS	<b>Efficient Multitask Feature and Relationship Learning</b> H. Zhao, <b>O. Stretcu</b> , R. Negrinho, A. Smola, G. Gordon. <i>NeurIPS Workshop on Learning with Limited Labeled Data: Weak Supervision and Beyond, 2017</i>	
CMU	<b>Understanding the neural basis of speech production using Machine Learning</b> <b>O. Stretcu.</b> <i>Master's Thesis in Machine Learning at Carnegie Mellon University, 2017</i>	
BMVC	<b>Multiple Frames Matching for Object Discovery in Video.</b> <b>O. Stretcu</b> , M. Leordeanu. <i>In British Machine Vision Conference (BMVC), 2015.</i>	2015
EMIM	<b>A multi-method driven evaluation of molecular imaging techniques.</b> <b>O. Stretcu</b> , Y. Shavit, and P. Lio <i>Poster presentation at the 10th annual meeting of the European Society for Molecular Imaging (ESMI), 2015.</i>	

## OTHER RESEARCH PROJECTS

2018	<b>Monte Carlo methods for knowledge graph link prediction</b> <ul style="list-style-type: none"> <li>■ A method for predicting missing links in a knowledge graph. The model is trained by doing random walks in the graph, guided by Monte Carlo Tree Search.</li> <li>■ Advised by <b>Prof. Barnabàs Póczós</b>.</li> </ul>	USA
Summer 2013	<b>Research Internship in Machine Learning at EPFL</b> <ul style="list-style-type: none"> <li>■ Research internship at École Polytechnique Fédérale de Lausanne, Laboratory for Probabilistic Machine Learning, advised by <b>Dr. Matthias Seeger</b>.</li> <li>■ I used topic models to explore the correlation between social media messages from Twitter and the location of the users, with applications to user profiling, topic tracking and content recommendation. I applied various machine learning models and parallelized the code in order to scale well.</li> </ul>	Switzerland
Summer 2011	<b>Research for Undergraduates Program</b> <ul style="list-style-type: none"> <li>■ Advised by <b>Prof. Emilia Petrisor</b> at Politehnica University of Timisoara, Romania.</li> <li>■ I implemented algorithms for spectral clustering of nodes in a graph, based on minimum graph cut, with applications to data mining and statistics, such as clustering information from documents on the Web and medical images segmentation.</li> </ul>	Romania

## HONORS AND AWARDS

### FELLOWSHIPS

- **Center for Machine Learning and Health (CMLH)** Fellowship in Digital Health (2018)

### SCHOLARSHIPS

- **Gates Cambridge Scholarship** (2014)
- **Google Anita Borg Memorial Scholarship** (2013)
- **GE (General Electric) Foundation Scholar Leaders Program** (2012)

### AWARDS

- Best poster award at the *Eastern European Machine Learning Summer School* in Bucharest, Romania (2019).
- Machine Learning Department Teaching Assistant Award (2018)
- Carnegie Mellon University Neurohackathon: 2nd place (2017)

- KTH University Programming Challenge, Sweden: Top 10 contestants (2013)
- ACM International Collegiate Programming Contest (**ACM-ICPC**): Honorable Mention in Southeastern European Regional (2013, 2012, 2011)
- **Microsoft Imagine Cup**: Top 20 in the World Finals (2012), 1st team in the Romanian National Finals (2012)
- **Romanian National Olympiad in Informatics**: Gold Medal (2008), Bronze Medal (2010), 1st Place (2004), 2nd Place (2005), Honorable Mention (2010, 2008, 2007, 2003)
- Kangaroo International Mathematical Competition: 2nd in Romanian National Finals (2009, 2010)

## TEACHING EXPERIENCE

### Spring 2018 **Teaching Assistant for Graduate Machine Learning.**

USA

- Graduate level introduction to machine learning class 10-701 Graduate Machine Learning at Carnegie Mellon University.
- Taught by **Prof. Pradeep Ravikumar** and **Prof. Manuela Veloso**
- I was awarded a Machine Learning Department Teaching Assistant Award.

### Fall 2017 **Teaching Assistant for Topics in Deep Learning.**

USA

- Graduate level deep learning class 10-707 Topics in Deep Learning at Carnegie Mellon University.
- Taught by **Prof. Ruslan Salakhutdinov**.

### 2013-14 **Teaching algorithms for competitive programming.**

Romania

- Co-organized a competitive programming seminar at Politehnica University of Timisoara for university and high-school students interested to train for algorithmic competitions (e.g. ACM-ICPC, informatics olympiad).
- Taught algorithms and data structures used in competitive programming, designed and solved practice problems and internal competitions.

## SERVICES

- **Program Committees**: ICML (2019), AISTATS (2019, 2020), ICLR (2018, 2020), ICLR-LLD (2019), PLOS ONE (2019).
- **Conference Workshops Organized**: Adaptive & Multitask Learning at ICML 2019
- **Other leadership and volunteering activities**:
  - 2018–present: Founding member of the AI+ Club at Carnegie Mellon University (CMU).
  - 2016–present: Member of the Doctoral Review Committee of the Machine Learning Department at CMU.
  - 2018–2019: Treasurer of the Romanian Students Association at CMU.
  - 2016–2018: President of the Romanian Students Association at CMU.
  - 2016–now: Member of the Education Review Committee of the Machine Learning Department at CMU, which aims to improve the PhD program.
  - 2011–12: Student representative in the faculty leadership board at Politehnica University of Timisoara.
  - 2010–11: Volunteer for AIESEC, international youth organization.
  - 2010–12: Volunteer for Liga AC, student organization at Politehnica University.

## COMPUTER SKILLS

- **Programming languages**: C, C++, Python, Matlab, Java.
- **Data Structures and Algorithms**: Familiarity with concepts used in algorithmic competitions and machine learning research.
- **Frameworks**: Tensorflow, NumPy, SciPy, Pandas.
- **Database Systems**: MySQL.

## TECHNICAL PROJECTS

- **LiveX Learning Platform**: Tutoring system for kindergarten and school children based on a software platform that runs in the cloud, Windows Phone 7 devices and a set of electronic learning cubes called "IQubes" (our hardware invention) as part of team IQube that competed in the world finals of the Microsoft Imagine Cup competition.
- **Face and Hand Gesture Recognition for Human - Computer Interaction**: Framework for C++ developers to extend their graphical user interfaces with more natural means of communication. Works in real-time using a computer web camera.
- **Public Transport Route Recommendation**: Python application for the Timisoara city public transport system using real-time information from GPS devices installed on public transport vehicles. Overlays optimal routes suggestions on Google Maps (before they supported such a feature).
- **Handwritten digits recognition**: C library implementing various linear algebra methods for handwritten digits recognition.

## OTHER INTERESTS

- Sports: squash, volleyball, tennis, climbing, hiking.
- Hobbies: traveling, painting, movies.