OTILIA STRETCU

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Website: https: //otiliastr.github.io
Languages: Romanian (native), English (fluent), Spanish (beginner), German (beginner), Greek (beginner)

RESEARCH AREAS

I work on machine learning methodology—primarily around vision-language models, data mining, active learning, and safety—with applications in various areas including computer vision and natural language processing. My current research focuses on two key problems:

1. *Enabling domain experts to effectively build models without requiring AI expertise*. I work on automating the process of mining the right kinds of data and iteratively improving the model, which spans multiple areas including modeling, active learning and distillation.
2. *Improving AI Trust & Safety models to make the internet safer*, by leveraging LLM capabilities to detect and counteract malicious activities. This involves fundamental research aimed at expanding the reasoning capabilities of LLMs over multimodal data, to better identify sophisticated harmful content and malicious behaviors.

During my PhD I also worked on curriculum learning, semi-supervised learning, multitask learning, and graph-based problems. I am also passionate about using machine learning methods for health and sciences

EDUCATION

2015 – 2021 **Carnegie Mellon University, USA — PhD in Machine Learning**
- Thesis: *Curriculum Learning*
- Co-advised by Prof. Barnabàs Pòczos and Prof. Tom Mitchell
- GPA: 4.0

2014 –2015 **University of Cambridge, UK — Master of Philosophy (M.Phil.) in Advanced Computer Science**
- Thesis: *Machine Learning Methods for Computational Microscopy*
- Advised by Prof. Pietro Lió
- GPA: Pass with Distinction.

2010 – 2014 **Politehnica University of Timișoara, Romania — B.Eng. in Computer Science & Information Technology**
- GPA: 9.98/10 (1st out of 140 students)

2012 – 2012 **Linköping University, Sweden**
- Erasmus Exchange Student

WORK EXPERIENCE

2023 – now **Senior Research Scientist** — Google Research
Full-time research scientist at Google AI in Mountain View, CA, USA.

2021– 2023 **Research Scientist** — Google Research
Full-time research scientist at Google AI in Mountain View, CA, USA.

Spring 2019 **Student Researcher** — Google Research
Part time internship in the Expander team, working on deep learning models for graph-based semi-supervised learning; published at NeurIPS 2019.

Summer 2018 **Software Engineering Intern** — Google Research
IInternship in the Expander team, doing research on deep learning models for graph-based semi-supervised learning.

Summer 2016 **Software Engineering Intern** — Google X (Waymo)
Undisclosed machine learning project in the Self-Driving Car team (current Waymo), Mountain View, CA

Summer 2014 **Software Developer Intern** — Microsoft
Cortana team at Microsoft, Redmond, WA, USA.

Undisclosed machine learning project for Cortana, Microsoft's digital personal assistant.

Summer 2013 **Research Intern —** École Polytechnique Fédérale de Lausanne (EPFL)
Research internship in the Laboratory for Probabilistic Machine Learning, advised by Dr. Matthias Seeger

PUBLICATIONS

* denotes equal contribution and joint lead authorship.

preprint — **The Search for Squawk: Agile Modeling in Bioacoustics** — 2025
V Dumoulin, O Stretcu*, J Hamer, L Harrell, R Laber, H Larochelle, B van Merriënboer, A Navine, P Hart, B Williams, T A.C. Lamont, T B. Rasak, Mars Coral Restoration Team, S Brodie, B Doohan, P Eichinski, P Roe, L Schwarzkopf, T Denton*
ArXiv preprint. arXiv:2505.03071 2025

CVPR — **Visual Program Distillation: Distilling Tools and Programmatic Reasoning into Vision-Language Models** — 2024
Y. Hu, O Stretcu, CT. Lu, K. Viswanathan, K. Hata, E. Luo, R. Krishna, A. Fuxman
Oral presentation at the Forty-First IEEE/CVF Conference on Computer Vision and Pattern Recognition 2024

CVPR — **Modeling Collaborator: Enabling Subjective Vision Classification With Minimal Human Effort via LLM Tool-Use**
IE. Toubal, A. Avinash, N. Gordon Alldrin, J. Dlabal, W. Zhou, Enming Luo, O. Stretcu, H Xiong, CT. Lu, H. Zhou, R. Krishna, A. Fuxman, T. Duerig
In Proceedings of the Forty-First IEEE/CVF Conference on Computer Vision and Pattern Recognition 2024

WSDM — **Scaling Up LLM Reviews for Google Ads Content Moderation**
W. Qiao, T. Dogra, O. Stretcu, YH. Lyu, T. Fang, D. Kwon, CT. Lu, E. Luo, Y. Wang, C. Chia, A. Fuxman, N. Wang, R. Krishna, M. Tek
In Industry Day Proceedings of the 17th ACM International Conference on Web Search and Data Mining 2024

NeurIPS — **Benchmarking Robustness to Adversarial Image Obfuscations** — 2023
F. Stimberg, A. Chakrabarti, CT. Lu, H. Hazimeh, O. Stretcu, W. Qiao, Y. Liu, M. Kaya, C. Rashtchian, A. Fuxman, M. Tek, S. Gowal
In Proceedings of the Thirty-Seventh Conference on Neural Information Processing Systems, 2023

ICCV — **Agile Modeling: From Concept to Classifier in Minutes**
O. Stretcu, E. Vendrow*, K. Hata*, K. Viswanathan, V. Ferrari, S. Tavakkol, W. Zhou, A. Avinash, E. Luo, N. G. Alldrin, MH. Bateni, G. Berger, A. Bunner, CT. Lu, J.A. Rey, G. DeSalvo, R. Krishna, A. Fuxman*
In Proceedings of the IEEE/CVF International Conference on Computer Vision, 2023

NeurIPS — **Modeling Task Effects on Meaning Representation in the Brain via Zero-Shot MEG Prediction** — 2020
M. Toneva, O. Stretcu*, B. Póczos, L. Wehbe, T. Mitchell*
In Proceedings of the Thirty-Fourth Conference on Neural Information Processing Systems, 2020

AAAI — **Contextual Parameter Generation for Knowledge Graph Link Prediction**
G. Stoica, O. Stretcu*, E.A. Platanios*, T. Mitchell, B. Póczos*
In Proceedings of the Thirty-Fourth AAAI Conference on Artificial Intelligence, 2020

ICLR — **Coarse-to-Fine Curriculum Learning**
O. Stretcu, E.A. Platanios, T. Mitchell, B. Póczos
In International Conference on Learning Representations (ICLR) Workshop on Bridging AI and Cognitive Science (BAICS), 2020

NeurIPS — **Graph Agreement Models for Semi-Supervised Learning** — 2019
O. Stretcu, K. Viswanathan, D. Movshovitz-Attias, E.A. Platanios, S. Ravi, A. Tomkins
In Proceedings of the Thirty-third Conference on Neural Information Processing Systems, 2019

NeurIPS — Contextual Parameter Generation for Knowledge Graph Link Prediction
G. Stoica, O. Stretcu*, E.A. Platanios*, T. Mitchell, B. Póczos*
In Neural Information Processing Systems Workshop on Graph Representation Learning, 2019

UAI — **Efficient Multitask Feature and Relationship Learning**

H. Zhao, O. Stretcu, R. Negrinho, A. Smola, G. Gordon.
In Proceedings of the 2019 Annual Conference on Uncertainty in Artificial Intelligence 2019

HBM **Investigating Task Effects on Brain Activity During Stimulus Presentation in MEG.**
O. Stretcu, M. Toneva*, B. Póczos, and T. Mitchell.*
Poster presentation at the Human Brain Mapping Conference, 2019

NAACL **Competence-based Curriculum Learning for Neural Machine Translation**
E A. Platanios, O. Stretcu, G. Neubig, B. Póczos, and T. Mitchell.
Oral presentation at the Conference of the North American Chapter of the Association for Computational Linguistics, 2019

JNeuro **Subthalamic nucleus and sensorimotor cortex activity during speech production**
A. Chrabaszcz, W. J. Neumann, O. Stretcu, 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.
The Journal of Neuroscience : the Official Journal of the Society for Neuroscience, 2019

SDM **BRAINZOOM: High Resolution Reconstruction from Multi-modal Brain Signals** 2017
X. Fu, K. Huang*, O. Stretcu*, H. Song*, E.E. Papalexakis, P. Talukdar, N.D. Sidiropoulos, C. Faloutsos, T. Mitchell, and B. Póczos.*
Oral presentation at SIAM International Conference on Data Mining (SDM), 2017

NeurIPS **Efficient Multitask Feature and Relationship Learning**
H. Zhao, O. Stretcu, R. Negrinho, A. Smola, G. Gordon.
NeurIPS Workshop on Learning with Limited Labeled Data: Weak Supervision and Beyond, 2017

CMU **Understanding the neural basis of speech production using Machine Learning**
O. Stretcu.
Master's Thesis in Machine Learning at Carnegie Mellon University, 2017

BMVC **Multiple Frames Matching for Object Discovery in Video** 2015
O. Stretcu, M. Leordeanu.
In British Machine Vision Conference, 2015

EMIM **A multi-method driven evaluation of molecular imaging techniques**
O. Stretcu, Y. Shavit, and P. Lio
Poster presentation at the 10th Annual Meeting of the European Society for Molecular Imaging (ESMI), 2015

HONORS AND AWARDS

FELLOWSHIPS & SCHOLARSHIPS

- **Center for Machine Learning and Health (CMLH) Fellowship in Digital Health** (2018)
- **Gates Cambridge Scholarship** (2014)
- **Google Anita Borg Memorial Scholarship** (2013)
- GE (General Electric) Foundation Scholar Leaders Program (2012)

AWARDS

- **Google Research Tech Impact Award** for developing cutting-edge AI for improving trust & safety across Google products (2024)
- **Google Ads Tech Impact Award** for developing ads safety technology (2024)
- Google Research Tech Impact Award for developing machine learning technology that enables users without AI expertise to effortlessly train AI models (2023)
- Google Ads Tech Impact Award for developing ads safety technology (2023)
- Google Ads Tech Impact Award for developing ads safety technology (2022)
- 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)

INVITED TALKS

- Invited talk at the **ICLR** workshop "I Can't Believe It's Not Better: Challenges in Applied Deep Learning" (2025).
- Lecture on "Jointly modeling images and text" at the Polytechnic University of Bucharest, Romania, as a guest lecturer in the Computer Vision class, part of the Master's program in AI (2022).
- Invited talk at the Quantitative Research Colloquium (QRC) hosted by Morgan Stanley (2021).
- Invited talk at Health@Scale on Graph Agreement Models for Semi-Supervised Learning (2020).
- Represented CMU at the MIDAS Data Science Annual Symposium at the University of Michigan (2019).
- Talk at the CMU AI Seminar on Contextual Parameter Generation for Knowledge Graph Link Prediction (2019).

TEACHING EXPERIENCE

Spring 2018 — **Teaching Assistant for Graduate Machine Learning — Carnegie Mellon University**
- Graduate level introduction to machine learning class 10-701 Graduate Machine Learning, 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 — Carnegie Mellon University**
- Graduate level deep learning class 10-707 Topics in Deep Learning, taught by Prof. Ruslan Salakhutdinov.

2013 - 2014 — **Teaching algorithms for competitive programming — Politehnica University of Timisoara**
- Co-organized a competitive programming seminar 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

- **Mentorship**:
  - Mentor in the "Mind the gap" program organized by Google, which aims to increase representation of girls in tech (2022)
  - Mentor for the CMU AI mentoring program (2019 - 2021)
  - Mentor for junior PhD students at CMU (2019 - 2021)
- **Program Committees:** NeurIPS (2023, 2022, 2021, 2020), ICML (2019), AISTATS (2020, 2019), ICLR (2020, 2018), ICLR-LLD (2019), PLOS ONE (2019), ICML-GRL (2020), AAAI (2021), Google Research Scholar Program (2023, 2024)
- **Conference Workshops Organized**: Adaptive & Multitask Learning at ICML 2019
- **Other leadership and volunteering activities:**
  - 2018 - now: Founding member of the AI+ Club at Carnegie Mellon University (CMU).
  - 2016 - now: Member of the Doctoral Review Committee of the Machine Learning Department at CMU, which aims to improve the PhD program.
  - 2018 - 2019: Treasurer of the Romanian Students Association at CMU.
  - 2016 - 2018: President of the Romanian Students Association at CMU.
  - 2011 - 2012: Student representative in the faculty leadership board at Politehnica University of Timisoara.
  - 2010 - 2011: Volunteer for AIESEC, international youth organization.
  - 2010 - 2012: Volunteer for Liga AC, student organization at Politehnica University

COMPUTER SKILLS

- **Programming languages:** Python, C, C++, Matlab, Java.
- **Data Structures and Algorithms**: Particularly from competitive programming
- **Database Systems**: MySQL.

OTHER INTERESTS

- **Sports**: squash, volleyball, tennis, climbing, hiking.
- **Hobbies**: traveling, reading, arts and crafts, learning languages on Duolingo, GeoGuessr.