Maciej Wiatrak

✉ macwiatrak@gmail.com • 📞 +44 7749785099 • 🏢 N19 5DY, London • 🖳 github.com/macwiatrak

EDUCATION

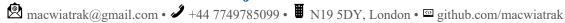**University College London**   **London, UK**
Undergraduate, BASc Science & Engineering; Major: Computer Science, Minor: Economics.   09/2016 – 05/2019
- **1st class honors with distinction** (Dean's List, top 5% of the students).
- Undergraduate topic thesis: "Governing the Commons with Multi-Agent Reinforcement Learning". Advisors: **Prof. Jun Wang** (University College London), **Dr Jakob Foerster** (University of Oxford), **Dr Manuela Dal Borgo** (University of Cambridge).

RESEARCH INTERESTS

My research interests lie at the intersection of computer science and economics including the general area of machine intelligence and reinforcement learning as well as deep learning and natural language processing (NLP). I am particularly interested in multi-agent learning, generative adversarial networks (GANs), cooperation and coordination problems, preference modelling, mechanism design, the theory of mind and combining all of the above to establish intelligent systems which can reason and act in complex environments.

EXPERIENCE

BenevolentAI   **London, UK**
Machine Learning Engineer, Entity Linking Team   12/2019 – Present
- Working with a team of NLP and bioinformatics researchers on natural language processing models, specifically entity linking, developing methods to work with embedding models (BERT, FastText) to capture multiple aspects of various entities.
- Global leader in the application of artificial intelligence to the drug discovery and development process, raised $300M in funding.
- Stack: Python, PyTorch, Tensorflow, BERT, FastText, k8s, AWS, Spark.

University of Edinburgh   **Edinburgh, UK**
Research Intern, Autonomous Agents Research Group, School of Informatics   09/2019 – 11/2019
- Working on stabilizing Generative Adversarial Networks (GANs) through the application of multi-agent reinforcement learning.
- Independently written a comprehensive report on the state of Generative Adversarial Network training stabilization (currently on arXiv). Main tasks include algorithm optimization, mathematics and programming using PyTorch and TensorFlow.
- Supervised by **Dr Stefano V. Albrecht,** Head of the Autonomous Agents Research Group. Collaborators included Marc Lanctot (DeepMind), Andrew Brock (DeepMind) and Andrew Nystrom (Google Brain).

Plural AI   **London, UK**
Machine Learning Intern, Data Science Team   06/2019 – 09/2019
- Successfully designed and deployed a model extracting financial and semantic data from various web sources using NLP.
- Backed by leading Venture Capital funds including *Entrepreneur First, AI Seed* and *Speedinvest (SI)*.
- Stack: Kubernetes, Google Cloud Platform, TensorFlow, scikit-learn, pandas, MongoDB, PyTorch.

University College London   **London, UK**
Research Student, Department of Computer Science, Machine Intelligence Research Group   10/2018 – 06/2019
- Working on the Multi-Agent Reinforcement Learning, Agent Cooperation and Meta-Learning.
- Contributed to the Multi-Agent Collective Intelligence Framework, open-source library for research in Multi-Agent Learning.
- Supervisor: Prof. **Jun Wang**, one of only two undergraduate research students in the group.

PUBLICATIONS, PREPRINTS & TALKS

- **Stabilizing Generative Adversarial Networks: A Survey.** Maciej Wiatrak and Stefano V. Albrecht. *arXiv: 1910.00927 [cs],* 2019.
- **Learning to cooperate with Multi-Agent Reinforcement Learning.** ML in PL conference. University of Warsaw. November 2019.
- **Learning to cooperate – the emergence of sustainable resource management among artificial agents.** Science Polish Perspectives (SPP) conference. University of Cambridge. November 2019. **Best Talk – People's choice award.**
- **Governing the commons with Reinforcement Learning.** University College London, Dissertation Symposium. May 2019.

HONORS & AWARDS

- **Dean's List** (merit based, awarded to top 5% of the students); University College London. June 2019.
- **Best Talk – People's choice award.** Science Polish Perspectives (SPP) conference. University of Cambridge. November 2019.
- **Distinction (Prize of the Jury).** BASc End of the Year conference. University College London. June 2017.
- **Provost's Scholarship** (merit based, awarded to the top 5% of the admitted students). Warsaw School of Economics. January 2016.
- **National Bank of Poland Scholarship** for outstanding academic performance (top 1% of high school students). September 2015.
- **Geography Olympian** (top 1% of students worldwide), awarded twice. April 2015, April 2014.

EXTRACURRICULAR, VOLUNTEERING & TEACHING EXPERIENCE

University College London   **London, UK**
Undergraduate Teaching Support (Game Theory)   01/2019 – 05/2019
- Providing support to undergraduate students in game theory class.
- Supervised by **Dr Manuela Dal Borgo.**

Applied Quantitative Methods Society   **London, UK**
Co-Founder & Vice President, University College London Union   10/2018 – 06/2019
- Established society aiming at promoting and helping non-quantitative degrees students in using computer science tools.
- Organised workshops and drop-in sessions providing support in programming, statistics and mathematics.

whatmakesuscharitable.com   **London, UK**
Data Science Lead, The Bartlett Centre for Advanced Spatial Analysis   07/2017 – 01/2018
- Collected, analysed and visualized data using Python packages as scikit-learn, seaborn, folium.
- Undergraduate project exploring the correlation between charitability and number of socio-economic factors.

Project Access (NGO)   **London, UK**
Mentor (STEM degrees)   02/2018 - Present
- Successfully supported 5 students throughout the admission process to computer science and mathematics degrees.

Other: UCL Artificial Intelligence Society; Graduate of Music School; Boston Consulting Group Star League

SKILLS, LANGUAGES, & INTERESTS

Programming languages: Python (advanced), Java, SQL, Julia
Frameworks: Tensorflow, scikit-learn, Google Cloud Platform, PyTorch, Jupyter, OpenAI Gym, Spark, AWS, k8s, flair (NLP)
Skills: Machine Learning, Reinforcement Learning, GANs, NLP, data mining, algorithm optimization, statistics
Languages: English (fluent), German (intermediate), Polish (native)
Sports: Alpinism (certified winter mountain climber), floorball (UCL floorball club, 2nd club in UK, joint top scorer)
Music: 4-year music school graduate (guitar), Jazz, Blues

OPEN SOURCE PROJECTS & BLOG

- **Blog** "Human Intelligence is something deeply social. A few words on the importance of the society and multi-agent learning in AI Research" Medium
- **CPR-DQN.** Multi-agent reinforcement learning model of common-pool resource appropriation.
- **Multi-Agent Collective Intelligence (MACI) framework**. Toolkit for Multi-agent reinforcement learning research.