

STEFAN NICULAE

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EDUCATION

MSc Machine Learning & Robotics (3.95/4)	University of Southern California, USA	2018 - 2020
MSc Artificial Intelligence (9.90/10)	Univ. Bucharest & Leiden Univ., Netherlands	2016 - 2018
BSc Computer Science & Math (9.93/10)	University of Bucharest, Romania	2013 - 2016

EXPERIENCE

Software Development Engineer Amazon, Seattle WA May 2020 - Present

- Worked on the backend (Java, AWS) for the Alexa service for automatically reordering consumables when running low
- Helped scale the system by an order of magnitude of customers in collaboration with teams in Seattle and Dublin

Machine Learning Research Intern Blizzard, Irvine CA Summer 2019

- Developed Transformer Neural Network component (Tensorflow) for Reinforcement Learning-based video-game bot
- Obtained more effective state representation compared to Convolutional state encoder, especially in non-euclidian topologies
- Implemented environment to isolate behavior (Python) and comparison framework for pre-training effectiveness

Machine Learning Researcher Bitdefender, Romania (1y 4m) 2017 - 2018

- Proposed and formalized Reinforcement Learning (RL) approach to automating penetration testing enterprise networks
- Implemented environment (Python) and compared performance of SoTA RL and Genetic Algorithm models
- Co-designed and implemented pipeline for training detection model of anomalous user behavior (Tensorflow)

Data Science Researcher Adobe, Romania (1y 3m) 2016 - 2017

- Explored an ensemble of heterogenous supervised models for predicting customer retention based on raw actions
- Designed and implemented Recommendation System model, updated daily for 100k+ monthly purchases

SKILLS

Python, Tensorflow, Pytorch • Java • SQL • AWS • Javascript, React • C#, Unity • Unix
Reinforcement Learning, Natural Language Processing, Computer Vision • Recommender Systems

ACADEMIC PROJECTS

[2019] **Balancing Multi-Agent RL Co-evolution**

- Explored solutions to balance the relative strength of training opponents; improved final absolute performance
- Implemented SoTa RL algorithms for multi-agent paradigm (Pytorch); designed novel, differentiable performance measures

[2018] **Controversial language impact on social media engagement**

- Built predictive models for counterfactual exploration of swear-words in tweets using LSTM and Attention models (Keras)

[2018] **Emotional and physiological cues for improved Game Flow**

- Designed and implemented user study for adaptive game difficulty based on facial expressions (OpenFace), heart-rate

PUBLICATIONS

[AAMAS 2019 workshop] Reinforcement Learning vs Genetic Algorithms in Game-Theoretic Cyber-Security

[US Patent, pending] Anomaly detection of user behavior based on raw system actions

AWARDS

[2018-2020] Fulbright Scholarship

[2017] Cornell, Maryland, Max-Planck Institute Research Summer School