# STEFAN NICULAE

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## EDUCATION

**MSc Machine Learning & Robotics** (3.95/4) **University of Southern California**, USA 2018 - May 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

**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 supervized models for predicting customer retention based on raw actions
- Designed and implemented Recommendation System model, updated daily for 100k+ monthly purchases

**Data Science Intern** **Intel,** Romania summer 2015
**Game Developer** **Local startup,** Romania 2014-2015

## SKILLS

Python, Tensorflow, Pytorch • SQL, Hadoop • Javascript, React, Node • C#, Unity • Haskell • Java, C++ • Unix
Deep Learning, Reinforcement Learning, Natural Language Processing, Computer Vision • Recommender Systems
Cloud computing • large model training & evaluation • fast prototyping • insight communication to non-expert audiences

## 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, differetiable 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