Felix Grezes

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Work Experience

NASA Machine Learning and Natural Language Processing Specialist, 2021-Present, New York, NY
Designed, trained and evaluated machine learning models that expand the NASA / Smithsonian Astrophysical Observatory's Astrophysics Data System services with automatic classification and labeling capabilities.
Organized and ran the Workshop for Artificial intelligence for Scientific Publications community challenges, building and curating novel tasks, datasets and baselines. Work done in Python with Huggingface.

Apple Machine Learning Engineer on the Siri Speech team, summer 2018 in Cheltenham, UK
R&D of binary neural network architectures for speech keyword detection on low power devices. Demonstrated feasibility of binary weights for high accuracy, low resource models by reducing required memory size by 50%. Work done in Python and Keras/TensorFlow using Oracle Grid Engine.

AT&T Research Scientist at the Data Science and AI Research Lab, summer 2017, New York, NY
R&D of generative adversarial networks (GANs) over text data, improving response speed for an adaptive dialog assistant system. Generated tailored answers to customer queries, significantly reducing average speed of answer and handle time for care agents. Work done in Python and Keras/TensorFlow using Hadoop.

Hunter Adjunct Lecturer at Hunter College, 2016 - 2021 in New York, NY
Teaching of advanced algorithms and data structures, their design and analysis. Supervision of programming project for CS majors and minors. Conception and creation of course syllabus, materials, and examinations. Mentored undergraduates and helped prepare them for the workforce.

CUNY Research Assistant, Graduate Center of the City University of New York, 2012 - 2022, in New York, NY
Collaborated with Pr. Michael Mandel at the Brooklyn College Speech Lab on adversarial attacks and defenses of neural networks, and the use of recurrent neural networks for audio source separation.
Collaborated with Pr. Andrew Rosenberg at the Queens College speech lab on the use of reservoir networks and prosodic information for conflict detection and NLP. Performed sentiment analysis on user discussions on Reddit. Work done in PyTorch with CUDA backend.

CNRS Research Engineer, Institution de la Vision, fall 2011, Paris, France
Conception and implementation of a rat brain model for research on the neural bases of active exploratory behavior in rats. Validated the hypothesis by improving the neural network model's performances by evolution and genetic algorithm. Work done in C++ using the SFERES framework.

Education and Degrees

Ph.D. Doctorate in Computer Science at the CUNY Graduate Center in New York, NY
Member of the IGERT *From Data to Solutions* program of Columbia University

M.S. Master's Degree in Computer Science from Sorbonne Université, FRA
Specialized in Artificial Intelligence and Decision Theory

B.S. Bachelor's in Math and Computer Science, from Sorbonne Université, FRA
Exchange program with CUNY City College of New York in 2008-2009

Selected Works & Publications

2024 INDUS: Effective and Efficient Language Models for Scientific Applications
Proceedings of the 2024 Conference on Empirical Methods in NLP: Industry Track

2024 Enriching a Time-Domain Astrophysics Corpus with Named Entity, Coreference and Astrophysical Relationship Annotations
Proceedings of the 2024 International Conference on Computational Linguistics, Language Resources and Evaluation

2023 Function of Citation in Astrophysics Literature (FOCAL): Findings of the Shared Task
Proceedings of the 2nd Workshop on Information Extraction from Scientific Publications

2023 Experimenting with Large Language Models and vector embeddings in NASA SciX

2022 Improving astroBERT using Semantic Textual Similarity
Astronomical Data Analysis Software and Systems 2022

2022 Overview of the First Shared Task on Detecting Entities in the Astrophysics Literature (DEAL)
Proceedings of the first Workshop on Information Extraction from Scientific Publications

Selected Works & Publications (continued)

2022 Finite Gaussian Neurons: Defending against adversarial attacks by making neural networks say "I don't know"
Ph.D. thesis presented to the CUNY Graduate Center Computer Science Program

2021 Building astroBERT, a Language Model for Astronomy & Astrophysics
Astronomical Data Analysis Software and Systems XXXI

2018 Enhancement of Spatial Clustering-based Time-frequency Masks using LSTM Neural Nets

2018 Improved MVDR Beamforming Using LSTM Speech Models to Clean Spatial Clustering Masks

2017 Combining Spatial Clustering with LSTM Speech Models for Multichannel Speech Enhancement
Presented at the 2017 Mid-Atlantic Student Colloquium on Speech, Language and Learning

2016 Linguistically-Motivated Features for Language Recognition

2015 Speech Lab @ Queens College: Language Recognition Evaluation 2015
Part of the 2015 NIST Language Recognition Evaluation Plan

2014 Reservoir Computing: A New Paradigm for Neural Networks: A Survey
Second Examination of the CUNY Graduate Center Computer Science Program

2013 Let Me Finish: Automatic Conflict Detection Using Speaker Overlap
Proceedings - InterSpeech 2013

2012 Exploratory Behaviour Depends on Multisensory Integration during Spatial Learning
Artificial Neural Networks and Machine Learning - ICANN 2012