Ioana Simion

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RESEARCH INTERESTS

An analytical and innovative person with interest in Machine Learning and Research as well as their applicability in various fields. Constantly seeking challenges and learning opportunities.

- Current research interests : Generative Modelling, Self-Supervised Learning, Geometric Deep Learning, Video/Image processing.

EDUCATION

MSc Artificial Intelligence

University of Amsterdam

09/2023 - 06/2025 Amsterdam, Netherlands

- I have pursued further education in Artificial Intelligence with the intend to enhance my knowledge and contribute to research communities
- Achieved top-of-class accuracy in a Computer Vision 1 course project using a constrained architecture. By leveraging transfer learning, exponential moving average, and careful hyperparameter tuning, I was able to significantly enhance performance
- Co-authored & presented Accelerating Equivariant Graph Neural Networks with JAX accepted as part of GRaM workshop at **ICML 2024**
- Co-authored On the Reproducibility of Post-Hoc Concept Bottleneck Models accepted as part of TMLR at **NeurIPS 2024**

BSc Computer Science

University of Southampton

2017 - 2020 Southampton, United Kingdom

- First Class Honours in Computer Science
- I majored in Computer Science with a focus on Machine Learning on my elected courses (Foundations of Machine Learning, Computer Vision, Computational Biology)
- Thesis subject : Intracranial Hemorrhage Detection

EXPERIENCE

Machine Learning Scientist Intern

Uber 07/2024 Amsterdam, Netherlands

- Applied machine learning to complex payment scenarios where simple heuristics were insufficient. Conducting and analysing experiments to understand and improve global model performance

Python Software Engineer

JPMorgan Chase & Co. 09/2021 - 09/2023 London, UK

- As an individual contributor, shipped several products within a core team in the financial sector whilst single handedly being responsible for the entire process (from ideation & design up until release and monitoring)
- Designed and worked on enhancing data models and flows for high throughput processes
- Working with XFN teams across wider company projects (Equities, Credit, FXCash) in order to ship highly critical and complex features to internal desks
- Acted as first PoC and mentor for junior members, ensuring efficient onboarding, progression and success inside of the team. I was a senior on support through critically analysing and mitigating incoming PROD issues
- Responsible for shipping several products for the Equities department as part of the PROD release. Acted as technical leader and coordinator between several orgs, proactively managing product requirements, team workload and support for internal customers

SKILLS

Python Jax Pytorch Numpy Matlab Pandas TensorFlow Java GraphQL Kubernetes REST APIs

PROJECTS

Improving the 3D understanding of Self Supervised Models

- Improving on Video Foundational Models to enhance multiview consistency and semantic correspondence capabilities
- Project supervised by Dr. Yuki M. Asano, Dr. Erik Bekkers and Mohammadreza Salehi

Equivariant Transformer (DEMETAr)

Repository

- Co-authored the blog post (and ongoing work) on reproducing the Equivariant-CNN in Jax and intoducing a double encoder Equivariant Transformer architecture

Generation and OOD-enchanced Self Supervised Learning

Repository

- Co-authored the ongoing work on imbalanced dataset pre-training of Foundation Models using OOD-Detection and Diffusion-Based Complementation

Intracranial Hemorrhage Detection

- Developed a Deep-Learning based solution for Brain CT scan for multi-label automated diagnosis for my capstone project
- To provide an innovative aspect to the project, I explored the reason of Medical Windowing and its impact on detection scores (compared scores across runs where the dataset had the standard windowing applied, runs with random/selected windowing values as well as no pre-processing)

Olympiads and Competitions

- Throughout highschool and earlier (2010 - 2017) I was passionate about expading my knowledge and participating in various olympiads and competitions in the fields of Mathematics, Physics, Computer Science and Robotics
- Some of the awards include : Second Place - "PHI" Physics Competition, National phase 2014; Third Place - "Stefan Procopiu" Physics Competition, National phase 2015 ; First Place - "Infoeducatie" Computer Science Competition 2016 ; Second Place - Computer Science Olympiad, Regional Phase 2017

EXPERIENCE

Kubernetes Software Engineer

JPMorgan Chase & Co. 07/2020 - 09/2021 Bournemouth, UK

- Spearheaded the addoption of DevOps best practices for several ML products, achieving considerable speed-ups in deploying and maintining both ML infrastructure and internal customer facing applications
- Raised the bar for application Security Standards (Raven scans, package update implications and vulnerabilities) and implemented extinse LoggingSystems that leveraged the ELK stack

Software Engineer Intern

JPMorgan Chase & Co. 06/2019 - 08/2019 Bournemouth, UK

- Responsible for sucessfully integrating a novel HPC technology, Dask, which heavily optimised overall resource usage and job runtimes on several internal clusters. Further optimised the usage of this technology for our Trades team, in order to handle significantly larger streams of incoming Trades

PROJECTS

DataScience Community of practice

- I was an active member of a DataScience community within JP Morgan which enabled me not only to learn from experienced peers but also present my findings and work to a bigger platform
- Held presentations on common Data Science topics such as binary classification, multi-class classification, data-preprocessing for classification problems, dealing with unbalaced datasets, etc

Hackathons

- I have been engaging in multiple hackathons in the past years because I enjoy the drive of building a functional product in a limited timeframe
- 3rd place as part of Uber Tech Hackathon, developing a vector based model for finding similar Jira issues as well as historically visualize the occurance of topics
- During Hack the South, me and my team worked on developing the grounds of a rating-based application for programmers. The rating was calculated using a balanced equation between peer review from colleagues and a machine learning computed score