Arian Amani

Data Scientist | Machine Learning Engineer

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Technical Skills

Key Skills	Deep Generative Models, ML/DL, Drug Discovery, Single-Cell Genomics
Programming Languages	Python, C++
Libraries/Frameworks	PyTorch, PyTorch Lightning, Huggingface, Scanpy, Scikit-Learn
Operating Systems	Linux, Windows
Mathematics	Probability and Statistics, Linear Algebra
Tools	Git, LaTeX, Slack, Trello

Work Experience

Wellcome Sanger Institute *Nov 2022 – Present*
Data Scientist *Hinxton, United Kingdom*

- Research assistant at Dr. Mo Lotfollahi's lab working alongside >10 PhD students
- Collaborated on 6 ML projects in Single-Cell Genomics and Drug Discovery
- Developed task-specific fine-tuning pipelines on generative and transformer models
- Contributed to ongoing projects like CPA: Compositional Perturbation Autoencoder
- More than 50 reviewed and merged Pull Requests
- Over 300 reviewed commits

Virasad *Jan 2022 – May 2022*
Computer Vision Engineer *Tehran, Iran*

- Delivered >95% accuracy solutions for tasks with limited data (15 images per class)
- Spearheaded development on 5 diverse projects meeting client requirements
- Led 2 individual projects, enhancing development pipelines

Projects

CPA: Compositional Perturbation Autoencoder
Wellcome Sanger Institute

- CPA: Paper by Lotfollahi et al. featured on the cover of the Molecular Systems Biology Journal, Paper
- Contributed to and maintaining the official GitHub Repository of the paper
- More than 7 merged Pull Requests to the project
- Code is PyTorch/Lightning based

Car Catalytic Converters Classification
Virasad

- Classified 10 classes with only 15 images per class, optimizing computation
- Split pipeline into 2 classifiers to address data scarcity using Tensorflow

Burr Detection Using Semantic Segmentation
Virasad

- Achieved top performance with 300 images using heavy augmentation in PyTorch

Industrial Defective Bottle Caps Detection
Virasad

- Offered 3 solutions based on OpenCV, SVMs, and deep learning for speed, accuracy, and computation trade-offs

Research Interests (R&D)

Deep Generative Models

Neural Network Optimization & Generalization

Drug Discovery

Adversarial Robustness

Teaching Experience

Sharif University of Technology — *Sep 2022 – Present*
Teaching Assistant — *Tehran, Iran*

- Machine Learning for Bioinformatics (Graduate Course) | Spring 2023
  - Prepared teaching material on CNNs & AutoEncoders, designed assignments, and coordinated class contests.
- Introduction to Machine Learning | Fall 2022
  - Designed and graded assignments for a class of 150 students, conducted a workshop on Variational AutoEncoders.

Amirkabir University of Technology — *Sep 2021 – Mar 2022*
Teaching Assistant — *Tehran, Iran*

- Introduction to Image Processing and Neural Networks | Fall 2022
  - Conducted workshops and lectures on OpenCV and Deep Learning for a class of 80 students.
- Advanced Programming with C++ | Spring 2022
  - Designed assignments and projects for a class of 90 students, evaluated student submissions.

Languages

English	Full professional proficiency: IELTS Academic Overall 8.0/9.0
Persian	Native language

Activities

CWS (Computer Webinar Series) — *Dec 2021 – Sep 2022*
Head of Sponsoring — *Tehran, Iran*

- CWS is an event held by the scientific association of mathematics and computer science of AUT
- CWS 2022 was held with more than 9000 participants
- Raised over 90% of the target budget to fund the team and work

Nowbahar Data Science Contest — *Mar 2022 – Apr 2022*
Coordinator And Question Designer — *Tehran, Iran*

- Designed questions for the Nowbahar data science and machine learning contest with 400 participants

Mathematics and Computer Science Faculty at AUT — *Oct 2021 – Oct 2022*
Member of the Students' Guild Council — *Tehran, Iran*

Honors & Awards

- Achieved top 1% place in Nationwide University Entrance Exam for B.Sc. in Math. and Engineering (~155,000 applicants), Iran, 2020
- Secured 9th place in Machine Learning Contest, Quera Code Cup 6