Personal Information

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SUMMARY

Experienced Data Scientist with 5 years of postdoctoral research and 7 years of commercial experience in driving quantifiable business growth and revenue for prestigious organisations in the consumer electronics, telecommunications and biotech sectors building computational software products on embedded systems, SaaS and PaaS. I am proficient in MATLAB, R, Python, and SQL. I have deep theoretical and applied knowledge of statistical analysis, conventional machine learning and deep learning. I am adept at analysing large data sets to identify trends and patterns to inform business decisions, build classification or prediction models, optimize algorithms or models, deploy and maintain ML/AI workflows with applications in speech/audio processing, computer vision, NLP/NLU and biotech. My recent interests are graph neural networks, generative AI (LLMs).

SKILLS SUMMARY

ALGORITHMS
- Machine learning algorithms, Digital signal processing techniques for image, speech and audio signals, NLP, Generative models (GMM, HMM, regression, GAN), Discriminiative models like SVM, Deep Learning (CNN, RNN, LSTM, GRU, ResNet, Attention, Transformers), Network analysis, Hypothesis testing, Predictive analysis

APPLICATIONS
- Voice biometrics, Face recognition, Active Noise Cancellation, Data visualisation, Emotion analysis on multimodal audio-visual data, deep neural network model compression, Pattern discovery in multiomics biological data on domains of Food, Drink, Animals, Human and Agriculture, performing signature analysis, propensity score matching and meta-analysis along with building knowledge graphs and graph analysis.
- Data wrangling and manipulation building ETL pipelines for processing large and complex structured and unstructured data
- Proficient in SDLC and software engineering practices (coding practices, unit testing, version control Git/CVS, code reviews using collaborative coding and git pull)

SOFTWARE/PLATFORMS
- Scripting: Python (Pandas, Numpy, SciPy, Tensorflow, Keras, Scikit-learn, Matplotlib, plotly, Seaborn, Flask, Requests, Jupyter, nltk, spaCy, statsmodels), C++, Matlab, R, Julia, PHP, Javascript, Linux command-line scripting
- Databases: SQL, Neo4j and TypeDB
- CI/CD: Jenkins, GitLab
- Containerization: Docker, Kubernetes
- Linux/Unix: Bash, AWK/GAWK, sed, grep
- Cloud technologies: AWS, Google cloud
- Platforms: Spark, Databricks, AzureML, SageMaker, Airflow

PUBLICATIONS/PATENTS
- Published 75+ peer reviewed research articles in high impact conferences and journals with 2000+ citations, giving presentations in 20+ conferences across the world. Filed 7 patent applications with 5 granted.

LEADERSHIP
- Efficient management of stakeholders and direct report in a matrix organisation. Driving workshops, mapping technologies to use cases and support product, sales and delivery. Issue management, prioritisation and ability to provide pragmatic direction.

PROJECT MANAGEMENT
- I have attended Agile (Scrum, SAFe) project management courses and I have been practicing Agile for delivery of R&D projects in the space of AI and machine learning. I believe Agile is the most suitable methodology for scientific discovery and software development. I have been working from requirements gathering all the way to QA & testing, engaging with clients, executives, scientists, UX/UI designers and SW developers.

EMPLOYER / ADDRESS	**Cisco** (large corporate) – London/California, UK/US
TYPE OF BUSINESS	Embedded Systems
DATES	December 2022 – July 2023 (contractor)
POSITION	Machine Learning engineer
RESPONSIBILITIES	I was working as individual contributor in the domain on neural vocoders with GANs where I am combining deep neural networks (e2e CNNs built in Pytorch using VAE and VQ-VAE) with conventional speech and audio coding techniques for efficient transmission of speech and audio over channels with limited bandwidth.

EMPLOYER / ADDRESS	**Eagle Genomics** (start up company) - Cambridge, UK
TYPE OF BUSINESS	SaaS, B2B
DATES	March 2021 – November 2022
POSITION	Director of Data Science
RESPONSIBILITIES	• I was combining data science with life science and bioinformatics to build software tools for SaaS product analysing microbiome data with a focus on statistical analysis and network science. Examples of hypothesis testing include test of difference in median, variance, ANOVA, PERMANOVA, proportion, normality, etc. My network science work includes building knowledge graph on the associations, correlations, etc and analyzing/searching the graph with network centrality, fragility, causal analysis, etc. I have applied these techniques on transcriptomic, lipidomic, metabolomic (small molecule) and proteomic data and their respective enrichment of genes, pathways, etc. Along that path, I have built and deployed machine learning and deep learning methods for prediction and classification.
	• Built a core R&D team of 12 people consisting of data scientists, data engineers, UI/UX designers, frontend/backend engineers and technically leading the team
	• Working with data/system/SW architects as well as engineering, product, and sales teams to deliver ever growing number of features on a SaaS platform for statistical and network analysis of microbiome data
	• Built data pipelines for ingesting and processing of public biological data including Ensembl, HPA, UniProt, Reactome, HMDB, Chembl, PubChem, KEGG Pathways, etc. The data then compiled together using TypeDB graph database
	• Built data processing and analysis pipeline for getting abstracts of PubMed publications, developed NLP/NLU modules for NER and relationship classification. The data then compiled together using TypeDB graph database for visualization and inference
	• Containerized software modules in Docker images and deployed on AWS (S3, EC2)

EMPLOYER / ADDRESS	**Emotech Ltd.** (start up company) - London, UK
TYPE OF BUSINESS	SaaS, PaaS, B2B
DATES	September 2019 - February 2021
POSITION	Lead AI Research Scientist
RESPONSIBILITIES	• Develop PoCs for voice and audio (language identification, voice print similarity, speech-to-text, text-to-speech, voice cloning, pronunciation evaluation for English language learners, speech detection) in Python, Tensorflow and Keras
	• Built data pipelines for streaming audio and video for reading from public sources, preparing data for training AI models as well as on-demand playback
	• Lead a team of 4 AI engineers and 5 developers
	• Oversee development and deployment of software in C++/Rust after successful PoC on AWS as well as deploying Docker image on air-gapped computing cluster

EMPLOYER / ADDRESS	**Samsung R&D UK** (large corporate R&D centre) - Staines, UK
TYPE OF BUSINESS	Consumer Electronics, Embedded Systems
DATES	December 2018 - May 2019 (contractor)
POSITION	Head of Artificial Intelligence and Data Science
RESPONSIBILITIES	• Worked as a senior manager, managed 4 team managers as my direct reports and indirectly 35 engineers and scientists worked under me
	• Took full ownership of the data (collection, management, labelling, distribution) as well as AI and data science projects and building their roadmap, overseeing full life-cycle for AI and data projects for continuous integration and delivery

EMPLOYER / ADDRESS	**Cirrus Logic Ltd** (multinational audio chip making company) - London, UK
TYPE OF BUSINESS	Consumer Electronics, Embedded Systems
DATES	September 2016 - August 2018
POSITION	Principal Algorithm Research Engineer
RESPONSIBILITIES	• Worked on the intersection of signal processing and machine learning, developing algorithms where I needed to take into account low latency, low memory footprint and limited processing power on audio chips (example projects: voice verification, ultrasonic motion recognition, audio scene identification, audio-to-haptics)
	• Built and managed an R&D team at Cirrus Logic London office
	• Presented Cirrus Logic at several conferences

EMPLOYER / ADDRESS	**Aalto University** (Dept. of Electrical Engineering) - Helsinki, Finland
TYPE OF BUSINESS	Academia
DATES	August 2014 - October 2016
POSITION	Research Fellow
RESPONSIBILITIES	• Developed signal processing techniques for handling high vocal effort and emotion in speech processing with application to voice biometrics
	• Was a visiting professor at TU Graz, Austria in 2016
	• Took part in organising a special issue of Speech Communication journal with the topic "Phase-Aware Signal Processing" and served as guest editor to the special issue

EMPLOYER / ADDRESS	**University of Eastern Finland** - Joensuu, Finland
TYPE OF BUSINESS	Academia
DATES	September 2013 - July 2014
POSITION	Post-doctoral Researcher
RESPONSIBILITIES	Gave lectures on Web development and location-aware mobile app development

EMPLOYER / ADDRESS	**Radboud University Nijmegen** - Nijmegen, The Netherlands
TYPE OF BUSINESS	Academia
DATES	October 2011 - September 2013
POSITION	Marie-Curie Post-doctoral Researcher
RESPONSIBILITIES	• Worked on BBfor2 EU ITN projects on topics of voice biometrics under severe noisy condition as well as shouting, language and accent identification, fingerprint recognition, emotion analysis based on voice
	• Gave lectures on pattern recognition and forensic speech analysis
	• In collaboration with 8 other institutes, I led a team of 20 researchers from 4 continents for I4U coalition for NIST speaker recognition evaluation 2012 (technology benchmarking)
	• Working together with researchers from Ruhr-Universitat Bochum, Germany and Spoken Language Systems Lab, INESC ID, Portuguese, we submitted a robust speech recognition system composed of different beam-forming and speech enhancement algorithms to CHiME speech-to-text challenge (technology benchmarking).

Education	• University of Eastern Finland, Joensuu - PhD in Computer Science January 2009 to August 2011
	• Iran University of Science and Technology, Tehran - MSc in Telecommunications systems Engineering, September 2002 to July 2005

Hobbies, Interests	• Hiking
	• Playing chess and card games
	• Listening to Jazz music
	• Watching Tennis, Football, Snooker
	• Reading books on evolution