

ALI NASERI

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PROFESSIONAL EXPERIENCE

Chorus Intelligence Ltd

Cambridge, UK

Software Engineer - Backend

Nov 2022 to present

- Technologies used: RESTful APIs, FastAPI, Flask, Docker, Celery, Redis, MSSQL, PostgreSQL, Pydantic, LXML, Zeep, AWS
- Developed dockerized microservices using Flask and FastAPI for authentication, notifications, and review reminder systems
- Incorporated Redis as a message broker for task scheduling using celery and a message queue for the notification system
- Contributed to deployment on AWS using EC2, S3, and RDS platforms to enhance scalability
- Used Pytest with Flask and FastAPI test clients to enable end-to-end workflow testing and improved the coverage by 60%
- Automated build/deployment through CI/CD pipelines using GitHub actions and Jenkins
- Recreated MSSQL tables, functions, views, stored procedures, and triggers in Postgres to reduce the annual license cost by 80%
- Created SQL-indexed views to enable efficient full-text search and reduce the text-heavy query time from minutes to seconds
- Served as a scrum master to ensure iterative and collaborative development

CoMo GROUP

Cambridge, UK

Software Engineer - Backend

Feb 2022 to Nov 2022

- Technologies used: Python, Java, OWL, RDF, SPARQL, PostgreSQL, Docker, Ontop, RESTful APIs, Flask, Protocol Buffer
- Developed an OWL ontology to represent PubChem data in **The World Avatar** ([link](#)) knowledge graph (KG)
- Created a Java interpreter to translate the OWL ontology to the knowledge graph readable syntax
- Automated data download from PubChem API and storing it in an SQL database which reduced retrieval time by 10-fold
- Interfaced the OWL ontology with the SQL database using Ontop virtual KG and reduced the RDF query time by 90%
- Dockerized the solution for cross-platform containerized build and deployment
- Developed Flask RESTful APIs using SPARQL under the hood to handle clients' data queries/submissions
- Published "Chemical Species Ontology for Data Integration and Knowledge Discovery" ([link](#)) to describe the layout of the product

EKONA Power

Toronto, Canada

R&D Simulation Software Engineer

Feb 2021 to Feb 2022

- Technologies used: Python, C++, Cantera
- Developed process modeling software using Python by incorporating Cantera to predict hydrogen production efficiency
- Improved the code robustness and reduced the run time by 80% using an adaptive time stepping technique
- Version controlled all the products using Git and collaborated with a team of three other developers to release the final products
- Interfaced in-house simulation tools with commercial software by creating a C++ API for cross-communication between the tools
- Prepared a successful Mitacs proposal to raise \$55,000 for R&D projects at EKONA

University of Toronto - Thomson Lab

Toronto, Canada

Computational Researcher

Sept 2014 to Feb 2021

- Developed simulation software using C++/Fortran and high-performance computing resulting in 15 journal articles ([link](#))
- Accomplished scientific computing certificate by learning data structures, Git version controlling, and shared-memory parallel programming at SciNet

PERSONAL PROJECTS

- Minimal Social Media Platform** - tech stack: Python, FastAPI, PostgreSQL, SQLAlchemy, Alembic, and Docker ([link](#))
- Simple Portfolio Website** - tech stack: HTML, CSS, JavaScript ([link](#))

SKILLS

- Programming Languages:** Python, C/C++, Fortran 77/95, Shell, SQL (PostgreSQL, MSSQL); familiar with C# and Java
- Web Development:** Flask, FastAPI, Postman
- Knowledge Engineering:** RDF, SPARQL, Web Ontology Language (OWL), Knowledge graphs
- NLP:** Vector Space Model, Naive Bayes Sentiment Analysis
- Soft skills:** Leadership, mentorship, teamwork, strong oral presentation, teaching abilities, technical writing

EDUCATION

- PhD in Applied Science - Computational Physics, University of Toronto, 2021
- MSc in Applied Science, University of Toronto, 2016
- BSc in Mechanical Engineering, University of Tehran, 2014

CONFERENCE PRESENTATIONS

- Carbon Conference, Lexington, USA (2019): paper presentation on simulation software development
- 37th International Symposium on Combustion, Dublin, Ireland (2018): poster presentation on simulation software development

COMMUNITY INVOLVEMENT

- Cambridge University Persian Society (2023-24) - served as secretary arranging meetings, outreach, and communications
- UofT Mechanical Engineering Grad's Association (2015-2018) - organized social events and maintained the group's website