ALI NASERI

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PROFESSIONAL EXPERIENCE

Chorus Intelligence Ltd **Cambridge, UK**
Software Engineer - Backend *Nov 2022 to present*

- Developed microservices using Flask and FastAPI for authentication, notifications, and review reminders.
- Dockerized microservices to enable containerized deployment on AWS.
- 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 databases in PostgreSQL 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.
- Collaborated with cross-functional teams and contributed to code review, bug fixes, and development of new features.
- Technologies used: RESTful APIs, FastAPI, Flask, Docker, Celery, Redis, MSSQL, PostgreSQL, Pydantic, LXML, Zeep, Act, Mono.

CoMo GROUP **Cambridge, UK**
Software Engineer - Backend *Feb 2022 to Nov 2022*

- Developed an OWL ontology to represent PubChem data in **The World Avatar** (link) knowledge graph (KG).
- Created an agent using RDFLib to automatically download/process data from PubChem and save them in a PostgreSQL database.
- 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.
- Technologies used: Python, OWL, RDF, SPARQL, PostgreSQL, Docker, Ontop, RESTful APIs, Flask, Protocol Buffer.

EKONA Power **Toronto, Canada**
R&D Simulation Software Engineer *Feb 2021 to Feb 2022*

- 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.
- Technologies used: Python, C++, Cantera, OpenFOAM, Aspen.

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, differential equations, FFT, curve fitting, linear algebra, and shared-memory parallel programming at SciNet.

Birla Carbon **Toronto, Canada**
Research Intern *May 2020 to Sept 2020*

- Led a team of two interns to develop a Python process modeling software to predict carbon yield.
- Developed a postprocessor to interoperate between the commercial and in-house tools for particle morphology prediction.

SKILLS

- **Programming Languages:** Python, C/C++, Fortran 77/95, Shell, SQL (PostgreSQL, MSSQL); familiar with C# and Java.
- **Web Development:** Flask, FastAPI, Postman.
- **Semantic Web:** 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 Computational Mathematics, 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 of carbon formation during methane pyrolysis.
- 37th International Symposium on Combustion, Dublin, Ireland (2018): poster presentation on flame simulation.

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.