Junxing (J.C.) Chen

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Portfolio Wesbite | GitHub | Linkedin

Experience

Data Scientist | IBM Markham, Canada | September 2022 - June 2023

- Spearheaded the development of over 100 machine learning projects, optimizing cutting-edge models' efficiency utilizing advanced frameworks including TensorFlow, PyTorch, and platforms such as Hugging Face and IBM Watson.
- Orchestrated the creation of AI-embedded applications seamlessly integrated into the IBM Watson ecosystem. Led the fine-tuning and deployment of state-of-the-art Large-Language-Models (LLMs), including Llama 2 and GPT-4, for innovative AI assistant applications.
- Leveraged Watson Natural Language Processing (NLP) to perform comprehensive analysis of textual data from diverse sources, including product reviews, Twitter comments, and user audio recordings, to derive actionable insights.
- Utilized computer vision models (e.g., Mask R-CNN, YOLO) for tasks such as real-time object detection and image segmentation, designing applications for business use.
- Managed a multidisciplinary team of 10 professionals and produced top-rated (4.7 stars) data science instructional content, comprising meticulously crafted Jupyter notebooks and articles for the Skills Network. This educational material reached over 7 million individual users and garnered widespread acclaim from 150+ prominent companies worldwide.

Software Developer | University of Toronto Toronto, Canada | August 2018 - November 2023

- Conceptualized and developed DIFFUSUP (website, paper), an innovative thermodynamic modeling software, complete with an intuitive Graphic-User-Interface (GUI). Pioneered the utilization of Finite Difference Methods for the precise resolution of diffusion Partial Differential Equations. The software assists hundereds of students and scientists and cited in papers.

Research Fellow | University of New Mexico Albuquerque, USA | June 2017 - September 2017

- Processed Brillouin laser experiments data, published in Scientific Reports.

Data Analyst | CNPC Logging, Southwest Chongqing, China | June 2016 - September 2017

- Applied advanced data analysis techniques to interpret and visualize complex electrode resistivity and Gamma-ray logging data, contributing to the success of multi-million-dollar natural gas projects.

Education

Doctor of Philosophy | Earth and Planetary Science
University of Toronto Toronto, Canada | August 2018 - November 2023

- Recipient of prestigious scholarships including the Naldrett A.J Scholarship and Nowlan Explorers' Scholarship.
- Authored 5 papers (3 as first author) in esteemed scientific journals and delivered presentations at leading science conferences such as AGU, with 20,000+ attendees.
- Applied mathematical physics computational techniques and Earth and Planetary science expertise to model Venus and Earth tectonics and environments. Contributed to the reconstruction of the evolutionary history of slabs in subduction zones, resulting in publications in Nature Communications.
- Employed statistical approaches like the Markov chain Monte Carlo (MCMC) method for model calibration. Conducted thermodynamic numerical simulation, employing Finite Difference Methods (FDMs), such as the Crank-Nicolson method for solving Partial Differential Equations (PDEs), resulting in publications in the Journal of Petrology.
- Conducted mechanical experiments using piston cylinder apparatus for high-temperature and high-pressure experiments.
- Instructed over 500 graduate and undergraduate students across various environmental, Earth science, and numerical modeling courses.

Bachelor of Science | Earth and Planetary Science
University of Science and Technology of China Hefei, China | August 2014 - June 2018

- Awarded outstanding student scholarship (Top 5% student award).
- Analyzed geochemical isotopic data analysis by (MC-)ICP-MS measurement for the origin of rock and biological samples.

Skills

- **General:** Teamwork, Research, Problem Solving, Scientific Writing, Presentation etc.
- **Programming Languages:** Python, MATLAB, SQL, R, JavaScript, Docker, Git, HTML, CSS, etc.
- **Machine Learning:** Discriminative-Generative/(Un-)Supervised Models Algorithms, Predictive Modeling, Computer Vision, Large-Language-Models (LLMs), Transformers, Visualization, etc.
- **Mathematics:** Statistical Modeling, Bayes' Theorem, PDEs, Linear Algebra, Mathematical Analysis etc.