LINGFENG ZHANG

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SUMMARY

- Currently Thesis-based Master of CS/Applied AI student at University of Ottawa.
- Interested in Deep Learning, Computer Vision, Data Science, Machine Learning, Natural Language Processing, Medical Imaging, AI in health, bioinformatics
- GitHub: https://github.com/RichardChangCA
- LinkedIn: https://www.linkedin.com/in/lingfeng-zhang-a7b657184/
- Technical Skills: Python, C, C++, Java, PHP, COBOL, HTML5, CSS3, JavaScript, MATLAB, SQL, R, Tensorflow, Keras, Pytorch, Django, Android, Scikit-learn, Numpy, Pandas, OpenCV, OpenGL, Linux, Git, Cloud, etc.

WORK EXPERIENCE

Environment and Climate Change Canada, Junior Data Scientist **2020/09-2022/04**

- CO-OP full-time 12 months [2020/09-2021/08] & Contract part-time [2021/09-2022/04]
- Strategy Policy Branch, Chief Data Officer(CDO), Data Science Team
- Water Quality Prediction project(proof of concept): Machine Learning(models with comparison, results analysis), Python, Scikit-Learn, geo-spatial data, MLOps, literature review, data integration, data analysis, data engineering, writing documents and paper, Django web application, Interactive map data visualization, Project deployment on Microsoft Azure
- Canadian Environmental Sustainability Indicators(CESI) program: data integration, PostgreSQL, R Programming Language, R Shiny Dashboard, writing API
- Dashboard for Public Service Employee Survey(PSES) results: Power BI, Excel manipulating data, Text Analysis, *received iBoutique Instant Awards
- Text Analytics for CWA(Canada Water Agency): Microsoft Azure Deployment, Python Dash, Debugging

University of Ottawa, Teaching assistant **2020/09-2022/04**

- Corrector at Course CSI4106A - Introduction of Artificial Intelligence (2020 Fall term)
- TA at Course CSI4130 - Computer Graphics (2021 Winter term)
- TA at Course ELG7186EI - Learning-based Computer Vision (2021 Fall term)
- TA at Course CSI4130 - Computer Graphics (2022 Winter term)

RESEARCH EXPERIENCE AND PROJECTS

Research Assistant Intern at Shanghai Jiao Tong University, China(Remote) **Multidisciplinary: Bioinformatics with Artificial Intelligence**

- From Oct 2020 to Dec 2021
- Supervisor: Prof. Dongqing Wei, State Key Laboratory of Microbial Metabolism, School of Sciences and Biotechnology, Shanghai Jiao Tong University, China
- Research Topics: Drug-Drug Interaction(DDI), Drug-Target Interaction(DTI), Multi-modal Learning, Attention mechanism(self-attention models, Transformer), Model interpretability, Data augmentation, Imbalanced data, Machine Learning in Graphs, Generative Adversarial Networks(GANs) for mutated peptide synthesis, regression of binding affinity
- Funding: Power Corporation of Canada uOGlobal Scholarships

Master's Thesis Research **Medical Image Segmentation to detect brain lesions**

- Supervisor: Prof. Jochen Lang, Laboratory: VIVA(Video, Image, Vision, Autonomous systems)
- Research areas: Brain lesions area detection and segmentation, MRI medical images, Semantic segmentation, Coarse-to-Fine segmentation, U-Net families, Semi-supervised learning, Weakly-supervised Learning, Transfer learning to tackle the lack of data problem, the attention mechanism in computer vision, Transformers, Anomaly detection, One class learning, Binary classification, Medical images generation(Generative adversarial networks), etc.
- Cooperation with Children's Hospital of Eastern Ontario.

Bachelor's Thesis Project **Intelligent Attendance System Based on Face Recognition and Wi-Fi Fingerprinting**

- Research areas: Face recognition, anti-spoofing, Android mobile application, Django web application, Wi-Fi fingerprinting, DBSCAN clustering algorithm, the difference between 2.4GHz & 5GHz Wi-Fi RSS in real-world, development of present attendance systems.
- Excellent Bachelor Thesis(top 2)

PUBLICATIONS

- MDF-SA-DDI: predicting drug–drug interaction events based on multi-source drug fusion, multi-source feature fusion and transformer self-attention mechanismMDF-SA-DDI: predicting drug–drug interaction events based on multi-source drug fusion, multi-source feature fusion and transformer self-attention mechanism (Briefings in Bioinformatics, Oct 20, 2021), co-first author, doi: https://doi.org/10.1093/bib/bbab421
- A transformer-based model to predict peptide-HLA class I binding and optimize mutated peptides for vaccine design (Accepted by Nature Machine Intelligence), co-author, preprint: https://assets.researchsquare.com/files/rs-785618/v1$_covered.pdf?c = 1633027612$

EDUCATION AND HONORS

- Master of Computer Science concentration in Applied Artificial Intelligence (thesis-based), University of Ottawa, Canada, 2019(in process)
  - Master's program recognized by the Vector Institute(Toronto, Canada)
  - Average Academic Score: A+
  - Related courses: Machine Learning, Data Mining Concept Learning, Introduction of Deep Learning & Reinforcement Learning, Natural Language Processing, Ethics in AI, Algorithm Design Analysis
  - Research Project with Children's Hospital of Eastern Ontario (CHEO): Machine Learning and detection of polymicrogyria in children
- Bachelor of Computer Engineering, Tianjin University of Technology, China, 2015-2019
  - Joint Program with the University of Quebec, Canada.
  - Specialization: Computer Science & Technology (Specialized in Information Management).
  - Average GPA: 90/100, Ranking: 2/174.
  - Honor: Excellent Graduate(top 4), several Scholarships
- Bachelor of Applied Computer Science, Université du Québec à Chicoutimi, Canada, 2015-2019
  - Joint Program with Tianjin University of Technology, China
  - Same Specialization, GPA and Ranking as the first degree.
  - Honors: Valedictorian of the Undergraduate Joint Program