

FEI WANG

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PROFESSIONAL SKILLS

- C++
- Python
- Pytorch
- Machine Learning
- Deep Learning
- Distributed systems
- Parallel Computing
- Bioinformatics
- Cheminformatics
- Graph Neural Networks

EDUCATION

Doctoral of Science, Computing Science

University of Alberta, Edmonton, AB

January, 2020 – present

Master of Science, Computing Science

University of Alberta, Edmonton, AB

September, 2016 – December 2019

Thesis Project – CFM-ID:

- *In-silico* mass spectrum prediction and compound identification using machine learnings.
- Applied and implemented expectation-maximization and deep neural network using C++ and MPI.
- Developed and implement novel feature representation of chemical structure.
- Developed and implement novel sampling method to achieve efficient machine learning model training on parallel distributed systems.
- Project is free available through docker, webservice and source code.

Bachelor of Science, Computer Science with Co-op

University of Lethbridge, Lethbridge, AB

August, 2013

Publications

- Deep Learning-Enabled MS/MS Spectrum Prediction Facilitates Automated Identification Of Novel Psychoactive Substances, *Analytical Chemistry* 95 (50), 18326-18334
- DrugBank 6.0: the DrugBank Knowledgebase for 2024, *Nucleic Acids Research*, 52 (D1), D1265-D1275
- HMDB 5.0: the human metabolome database for 2022, *Nucleic acids research*, D127550 (D1), D622-D631
- NPS-MS: A highly accurate MS/MS prediction model for Novel Psychoactive Substances, *ELLIS Machine Learning for Molecule Discovery Workshop*, 2021
- A deep generative model enables automated structure elucidation of novel psychoactive substances, *Nucleic Acids Research* 50 (W1), W165-W174
- HMDB 5.0: the human metabolome database for 2022, *Nucleic Acids Research* 50 (D1), D622-D631
- CFM-ID 4.0—a web server for accurate MS-based metabolite identification, *Nature Machine Intelligence* 3 (11), 973-984
- CFM-ID 4.0: more accurate ESI-MS/MS spectral prediction and compound identification, *Analytical chemistry* 93 (34), 11692-11700

Conference Presentation

- Fei Wang, "CFM-ID 4 Plus: An Improved MS/MS Prediction Tool", Metaboloimcs Conference 2023
- Fei Wang, "Build Domain Specific ESI-MS/MS Prediction model from Pre-trained CFM-ID 4.0", 4th Annual MANA Annual Conference 2022.
- Accurate MSMS Spectral Prediction with CFM-ID 4.0, Metaboloimcs Conference 2020
- Jason Ranger, Fei Wang, Howard Cheng "Optical Character Recognition of Printed Mathematical Symbols using A Hierarchical Classifier;" International Conference on Image Processing, Computer Vision, and Pattern Recognition, 2012.

WORKING EXPERIENCE

Web Developer/Software Engineer

Bioware ULC, Edmonton, AB

November, 2013 – August 2015

- As Backend developer for online development team,
 - Contributed to Dragon Age Keep, a web application as the franchise ecosystem to supporting Dragon Age, one of the most wanted franchise of the company with millions of users.
 - Participated in developing Dragon Age Inquisition HQ, a web application to provide the companion experience for Dragon Age Inquisition;
 - Designed and implemented restful backend services and RESTful APIs by using PHP and Symfony 2 MVC framework.
 - Successfully achieved automatic data transferring from complicated game data to web service via Python Script.
- As Developer of the biometrics team,
 - Implemented multiple ETL processes by using C#, .Net, Angularjs, ElasticSearch, and Jenkins;
 - Successfully implemented custom chart types in Kibana 4;
 - Prototyped web service in microservice architecture by using Docker container, Nginx, Mono, MVC framework and Consul.

Associate Software Engineer (Co-op)

Electronic Art, Burnaby, British Columbia

January– October, 2013

- Frontend developer for the FIFA team;
- Contributed in FIFA 14 for Xbox One and Playstation 4 version, the first release of the biggest game franchise in the world on the new generation of console platforms;
- Successfully implemented game frontend for online game mode by using C++ and Actionscript.