LIANGQUN LU

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SKILLS

Data Science Python R Scikit-learn Keras Tensorflow Machine Learning Classification Deep Learning AutoML Natural Language Processing Pytorch MatLab Software Development Web Development Django Framework MySQL

EDUCATION

Doctor of Philosophy: Biological Sciences **May 2020**
University of Memphis Memphis, TN
Dissertation title: Machine Learning Approaches for Disease Classification Using Genome Scale Data Sets and Biomedical Images.

Master of Science: Computer Science **May 2019**
University of Memphis Memphis, TN
Project title: End-To-End Adversarial Learning for Conversational Generation Using Pre-Trained Word Embeddings.

Master of Science: Molecular Biosciences and Bioengineering **June 2016**
University of Hawaii at Manoa Honolulu, HI
Thesis title: Multi-Omic Data Integration to Stratify Population in Hepatocellular Carcinoma(HCC).

Master of Science: Bioinformatics **June 2013**
China Agricultural University Beijing, China
Thesis title: Functional Database Construction for Carbohydrate-Active Enzymes.

Bachelor of Science: Biological Sciences **June 2010**
China Agricultural University Beijing, China

WORK EXPERIENCES

Machine Learning Research Intern **January – December 2020**
JD Digits Mountain View, CA

- Applied automated machine learning systems including techniques Bayesian hyperparameter tuning optimization to improve performance for financial investment advertisement.
- Implemented tensorflow-based deep learning models for recommendation systems and conducted ranking for metric optimization.
- Applied a fast and scalable collaborative filtering system for online recall and ranking service.

Deep Learning Engineer Summer Intern **May – July 2019**
Gyrfalcon Technology Inc. Milpitas, CA

- Implemented deep learning model deployment on AI accelerator ASIC chips using Software Development Kit (SDK) and Model Development Kit (MDK), created a detailed TensorFlow MDK user guide.
- Conducted video analysis utilizing the company patent Learned Compact Descriptors for Video Analysis (CDVA) and pre-trained Convolutional Neural Network (CNN) models.
- Used JavaScript to collect images and videos for traffic cars, roads and human activities for deep learning model training and application on surveillance security.

- Explored biomedical images and diagnosis text for potential deep learning model training and application on healthcare.

Data Science Summer Intern – ORISE Fellow **June – August 2018**
US Food and Drug Administration Silver Spring, MD

- Used TensorFlow and Keras to build deep convolutional GAN model architectures.
- Converted the 1 dimensional ECG signal segment into Spectrogram (Magnitude) and Phase images using Inverse Fourier Transform; Used DCGAN and Matlab ECGPUWAVE toolkit to generate ECG signals and perform evaluations.
- Presented a review of GAN variants and explored other GAN methods for ECG generation including Wasserstein GAN, Energy based GAN, Boundary Equilibrium GAN.

Software Engineer Summer Intern **June – August 2017**
Institute for Intelligent Systems, University of Memphis Memphis, TN

- Created a new interface for CohMetrix webtool using C#.Net MVC structure, processed the user text and returned the analysis to the web page.
- Used Socket IP connection to connect the server and method.
- Added the Recaptchas to verify the input texts and improve the server service.

Bioinformatics Engineer **July 2013 – July 2014**
Department of Computational Biology, Beijing Computing Center Beijing, China

- Performed Next-Generation Sequencing (NGS) RNA-seq analysis, maintained RNA-seq analysis pipeline, and provided customer service. Ran RNA-seq analysis on the High-Performance Clusters and finished projects of rice, cows and pigs for customers.
- Instructed RNA-seq analysis at Department Bioinformatics workshop.

PUBLICATIONS

Peer reviewed journal articles

1. **Liangqun Lu ***, Multi-Omic PTSD Subgroup Identification and Clinical Characterization (Under Review)
2. **Liangqun Lu ***, and Bernie J. Daigle Jr. 2020. Prognostic Analysis of Histopathological Images Using Pre-Trained Convolutional Neural Networks: Application to Hepatocellular Carcinoma. PeerJ 8 (March): e8668.
3. **Liangqun Lu ***, Kevin A. Townsend, and Bernie J. Daigle. 2019. GEOlimma: Differential Expression Analysis and Feature Selection Using Pre-Existing Microarray Data. bioRxiv (Under Review)
4. Chaudhary Kumardeep *, Olivier B. Poirion *, **Liangqun Lu**, Sijia Huang, Travers Ching, and Lana X. Garmire. 2018. Multi-Modal Meta-Analysis of 1494 Hepatocellular Carcinoma Samples Reveals Significant Impact of Consensus Driver Genes on Phenotypes. Clinical Cancer Research: An Official Journal of the American Association for Cancer Research, September.
5. Chaudhary Kumardeep *, Olivier B. Poirion *, **Liangqun Lu**, and Lana X. Garmire. 2017. Deep LearningBased Multi-Omics Integration Robustly Predicts Survival in Liver Cancer. Clinical Cancer Research: An Official Journal of the American Association for Cancer Research 24 (6): 124859.
6. **Liangqun Lu ***, Sara McCurdy *, Sijia Huang, Xun Zhu, Karolina Peplowska, Maarit Tiirikainen, William A. Boisvert, and Lana X. Garmire. 2016. Time Series miRNA-mRNA Integrated Analysis

Reveals Critical miRNAs and Targets in Macrophage Polarization. Scientific Reports 6 (December): 37446.