

# LIANGQUN LU

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## SKILLS

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Data Science	Python	R	Scikit-learn	Keras	Tensorflow	Machine Learning	Classification
Deep Learning	Deep Learning	Natural Language Processing	Ruby	MatLab	Software Development	Web Development	Django Framework
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## EDUCATION

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<b>Doctor of Philosophy: Biological Sciences</b>	<b>December 2019(Expected)</b>
University of Memphis	Memphis, TN
Dissertation title: Machine Learning Approaches for Disease Classification Using Genome Scale Datasets and Biomedical Images.	

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

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

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

<b>Bachelor of Science: Biological Sciences</b>	<b>June 2010</b>
China Agricultural University	Beijing, China

## WORK EXPERIENCES

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<b>Deep Learning Engineer Summer Intern</b>	<b>May – July 2019</b>
NLP group, 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.
- Collected Dash Cam videos for potential self-driving applications.

<b>Data Science Summer Intern – ORISE Fellow</b>	<b>June – August 2018</b>
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 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**

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### **Peer reviewed journal articles**

1. **Liangqun Lu \***, Bernie Daigle, Jr. Clinical Subgroup-Specific PTSD Classification and Biomarker Discovery (In Preparation)
2. **Liangqun Lu \***, Bernie Daigle, Jr. Multi-Omic Data Integration to Discover Subgroups of PTSD Using Variational Autoencoder (In Preparation)
3. **Liangqun Lu \***, Bernie Daigle, Jr. Prognostic Analysis of Histopathological Images Using Pre-Trained Convolutional Networks, BMC Bioinformatics (Under Review)
4. **Liangqun Lu \***, Kevin Townsend, Bernie Daigle, Jr. GEOLIMMA: Feature Selection For Gene Expression Data Using Large-Scale Microarray Data, BMC Bioinformatics (Under Review)
5. 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.
6. Chaudhary Kumardeep \*, Olivier B. Poirion \*, **Liangqun Lu**, and Lana X. Garmire. 2017. Deep Learning Based Multi-Omics Integration Robustly Predicts Survival in Liver Cancer. Clinical Cancer Research: An Official Journal of the American Association for Cancer Research, January. American Association for Cancer Research, clincanres.0853.2017.
7. **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.