# EDUCATION

**Gan Xu**

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Github

Washington University in St. Louis

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| outlook.com | |

* MS, Computer Science,
* BS, Computer Science & Mathematics,

(Expected) Jan

Dec

# TECHNICAL SKILLS

University of North Carolina at Chapel Hill

* **Programming languages:** (Python, Java, Swift, Shell, JavaScript, HTML, CSS, C/C++)
* **Framework and Tools:** (Git, Django, Spring Boot/MVC, Node.js, NoSQL, MySQL, MongoDB, Angular.js, AJAX, SLF
* **Related Coursework**: Algorithms, Arti Intelligence, Data Structures, Files and Databases, Operating System, Internet Services & Protocols, Machine Learning, Bayesian Methods in Machine Learning, Multi-Agent Systems, Wireless Sensor Network, etc.

# WORK EXPERIENCE

**University**

*Graduate Research Assistant Feb to present*

* Proposed innovative method to improvement the communication performance over unreliable network for distributed multi- agent algorithms, including message split and reconstruction, customized RUDP protocol and forward error correction.

**Washington**

**Saint Louis, MO**

* Collaborated with Rayetheon BBN Technologies on DAPRA funded projects, details available upon approval.

**University of North Carolina**

**Chapel Hill, NC**

*Assistant Bioinformatic Analyst - Full-time Feb - Aug*

* Introduced scripts to pull big data(GB per entry) from public biological databases, store and maintained with **MySQL**.
* Set up work environment on cluster with SLURM workload scheduler. Migrated old work from **LSF** platform to **SLURM**.
* Designed and optimized work pipeline for I/O and CPU heavy job, reduced **%** idle time for some experiments.

# PROJECTS

## Distributed Agent Work

*Java, Maven, Kafka, Jenkins, SLF to present*

* Mapped work scheduling problems to be solved by distributed constraint optimization(**DCOP**) framework.
* Built real-time messaging system for distributed agents based on **Apache Kafka**.
* Deployed maximum gain messaging(**MGM**) algorithm which allows agents to coordinate and make optimal work schedule .
* Created APIs based on the need of other modules in the project to access optimization functions and results.

## Multi-Room Chat Server(Web Application) Github

*JavaScript, PHP, HTML, CSS, NoSQL, MySQL, Node.js, Angular.js, AJAX Jun*

* Designed a real-time multi-room chat server using **Node.JS** and **Socket.IO**.
* Implemented both client-server and chat-server to realize the functions in JavaScript.
* Deployed and operated the online application on an **AWS EC** Instance to improve the performance and make good management of the application.

## Smart Pet Feeder

**Github**

*Assembly, Shell, Python, C, AWS IoT/EC - Dec*

* Designed and prototyped an automated pet food dispenser based on low power programmable wireless devices.
* Deployed **AWS IoT** to receive data, send instructions and allow easy scheduling and dispensing of pet food from cloud.
* Implemented facial recognition with **SVM** algorithm for pets identi On RPi , the system is able to train model with limited sized samples within minutes and distinguish pets identity within **s** with on-board CPU with trained model.
* Designed machine learning algorithms combined with IoT sensor to monitor pet feeding habits and detect abnormal situation.

## Pysbatch

**Github**

*Python, SLURM, UNIX, Linux, Twine Aug*

* Implemented a python library wrapping UNIX/Linux system calls and **SLURM** command. The library enable users to set up com- plicated pipeline work script.
* Provide simpli options for user to set job dependency relations and limit concurrent jobs by pre-set user quota.
* Packaged and released on PyPI and conda-forge platforms, downloaded over times.